JITRI
JIANGSU INDUSTRIAL TECHNOLOGY RESEARCH INSTITUTE

Annual Report

2020

江苏省产业技术研究院

JIANGSU INDUSTRIAL TECHNOLOGY RESEARCH INSTITUTE

JITRI

JIANGSU INDUSTRIAL TECHNOLOGY
RESEARCH INSTITUTE

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Executive Summary

Executive Summary

The Jiangsu Industrial Technology Research Institute (JITRI) was founded in December 2013. JITRI positions itself at the nexus of scientific research and technological transformation, striving to overcome structural and institutional barriers that restrict scientific and technological advances and exploring new mechanisms to facilitate technology transfer and new channels to transform scientific and technological achievements into tangible products. In accordance with the concept of "R&D as an industry and technology as a product," JITRI focuses on two main roles. First, it acts as a bridge between universities or scientific research institutions and industry. Secondly, it acts as a bridge between global innovation resources and Jiangsu Province.

JITRI matches innovation resources with the technological needs of enterprises. We are creating an industrial technology innovation system that integrates R&D vehicles, industrial needs, and innovation resources; it integrates industry with education and research. JITRI is an ecosystem that includes talent, financial, and space resources. We are exploring new systems for institutional management and the efficient use of government funds, constructing new research institutes, and introducing and developing research talent.

Cultivating a "test bed" for scientific and technological system reform: JITRI has implemented eight reform measures, which are described in detail later. In 2020, the Ministry of Science and Technology recognized JITRI as a pilot-program for granting scientific researchers ownership of, or rights to, their scientific and technological achievements. It was also recognized as a top-10 industry-university-research institution by the China Association for Science and Technology.

Build an industrial technology innovation system: JITRI continues to build a market-oriented industrial technology innovation system that integrates industry, university, and research. In 2020, R&D vehicles, including six specialized research institutes, were built in Wuxi, Changzhou, Nanjing and other cities, two comprehensive innovation platforms, the Yangtze Delta Advanced Materials Research Institute and the Integrated Circuit Application Technology Innovation Center, were established, and a batch of major projects were implemented. JITRI also steadily promoted the growth of R&D companies, and 20 companies were newly identified as Jiangsu Provincial R&D enterprises. In terms of innovation resources, JITRI established strategic partnerships with nine well-known overseas universities, including Harvard Medical School, the Department of Physics of

President Xi Jinping visited JITRI in December, 2014

the University of Munich, and the University of Saskatchewan in Canada, and with 25 "Double First-Class" Chinese universities. By the end of 2020, JITRI had established strategic partnerships with 55 well-known overseas universities and research institutions and 52 domestic universities.

In 2020, we established a partnership with OurCrowd, Israel's top venture capital company, and completed an investment in its incubator. JITRI also organized the UK Innovation Week events, and carried out strategic dialogues with the University of Liverpool and other institutions. In terms of industrial needs, a total of 116 joint innovation centers (JICs) have been built with leading enterprises in sub-sectors of Jiangsu Province (54 were newly built in 2020). In the past two years, JICs have introduced 589 technical needs, with an intention to invest 1.713 billion CNY. JITRI has helped its JICs to solve over 560 needs and established 157 technical projects, with a total value of 737 million CNY.

To improve the talent ecosystem, JITRI works at all levels, from senior strategic hires to graduate students. In 2020, JITRI appointed 40 industrial leaders as project managers and 36 technical experts were hired as JITRI researchers to work full-time in JITRI research institutes. JITRI also jointly cultivated 1,045 "JITRI graduates" with Chinese universities.

To build a financial ecosystem that benefits the development of industrial R&D, JITRI establishes early-stage venture capital funds through Jiangsu Industrial Technology Research Institute Co., Ltd. (JITRI Corporation) to leverage and deploy venture capital, to develop innovation and build a financial ecosystem. In 2020, JITRI Corporation established four early-stage venture capital funds with private equity investors,

including two in the field of materials, one in the field of intelligent manufacturing, and one in the field of biomedicine and medical devices. The total fund size was 653 million CNY of which JITRI directly invested 99 million CNY. We have established strategic partnerships with financial and investment institutions such as Bank of China, Jiangsu Bank, Nanjing Bank, Beijing Bank, Guosen Group, Langtai Capital, and Haichuang Investment. JITRI has invested in American and Israeli incubators through its overseas subsidiaries.

To develop a space ecosystem, JITRI started construction of the Jiangbei R&D Industrial Park centered on its new headquarters in Nanjing Jiangbei New Area, with a planned construction area of 400,000 square meters. The Yangtze Delta International R&D Community was built in Xiangcheng, Suzhou, with a construction area of 350,000 ㎡. Based on these two parks, JITRI will create a comprehensive innovation space that integrates resources such as universities at home and abroad, research institutes, and joint enterprise innovation centers, to realize its three core functions of information sharing and exchange, comprehensive technical solutions, and cross-disciplinary innovation and entrepreneurship.

Our motto is "JITRI gathers talent building dreams for the future!" During the 14th Five-Year Plan, JITRI will promote advanced industrial development in Jiangsu, deepen its reform systems and procedures, and aim for the next level by focusing on four strategic directions:

◎ building a technological innovation system that prioritizes collaboration and openness,

◎ creating a collaborative and efficient ecosystem for industrial needs,

◎ contributing to the advanced development of Jiangsu industry,

◎ building a modern governance system for research institutions.

By the end of the 14th Five Year Plan, JITRI aims to have completed its innovation system, deployed R&D platforms in key strategic areas, and achieved breakthroughs in core enabling technologies.

President´s Statement

The overarching goal of JITRI is to prime the pump of industrial innovation in Jiangsu Province. First, we focus on the collection of industry needs that can be filled by new technology, and on matching these needs to innovation resources both within China and globally. Second, we build research capacity through Research Institutes in areas of interest to Jiangsu industry. Third, we explore new mechanisms of industrial technology innovation and personnel training.

In 2020, JITRI achieved many milestones, including six new Research Institutes, forty project manager teams introduced into Jiangsu Province, thirty six outstanding JITRI Fellows or Junior Fellows hired, and 160 new enterprises spun off from our research institutes. The JITRI Research Institutes achieved total revenue of 4 billion CNY, transferred more than 1000 technological achievements to industry, and launched major projects in industrial innovation.

Strengthening research and development capacity. In 2020, we founded six new Research Institutes in the fields of materials, advanced manufacturing, information technology， and biomedicine. For example, the China-Israel Industrial Technology Research Institute was jointly established with the Changzhou municipal government to promote the docking and integration of innovative resources from Israeli achievements with Jiangsu's enterprise technology needs and industrial development requirements. The Yangtze Delta Advanced Materials Research Institute was officially opened for business, the construction of the Integrated Circuit Application Technology Innovation Center was started, and a number of major projects were funded, including blades for aero-engines made from single crystals, an advanced electron microscope, and novel sensor chips for ventilators.

Gathering innovation needs. In 2020 we built 54 new Joint Innovation Centers (JICs) with leading enterprises in the province; overall, the JICs documented 285 new technology needs, made plans to invest 413 million CNY, and reached 123 technical cooperation projects with contract value of 630 million CNY.

Gathering innovation resources. In 2020 we established strategic partnerships with a further nine overseas university departments, including Harvard Medical School, the University of Munich Department of Physics, and the University of Saskatchewan. We recruited forty new project managers from around the world, including Sune Svanberg, academician of the Royal Swedish Academy of Sciences and the Academy of Engineering and former chairman of the Nobel Prize Physics Committee, Birger Lindberg Müller, academician of the Royal Danish Academy of Sciences and the Australian Academy of Sciences, and Meifang ZHU, academician of the Chinese Academy of Sciences, who all had innovation or entrepreneurship projects in JITRI.

Accelerate major projects. In 2020 we implemented seven new major projects including one to

develop a new flexible forming process for metals, and another to build epitaxial deposition equipment for silicon carbide electronics. The total investment in these projects was 300 million CNY. These projects both filled domestic gaps and promoted the commercialization of innovation.

Develop "JITRI University". Under this concept, industrial technology problems will be defined and packaged as educational products. Leveraging JITRI's innovation ecosystem, a system of dual supervisors is being implemented by developing project-based, interdisciplinary learning. JITRI jointly trained 1045 new JITRI graduates by working in partnership with their universities. JITRI will promote the integration of industry and R&D with education, cultivate future-oriented, needs-oriented and practice-oriented industrial innovation talent, start the construction of Jiangsu Industrial Technology Innovation College, and take steps to build an industrial innovation university—JITRI University.

JITRI is an ongoing experiment in new mechanisms of industrial research and global cooperation. Our staff and partners around the world are committed to gathering resources to solve local and global problems using technology.

Entering 2021, to support the 14th Five-Year Plan, JITRI will focus on the following eight tasks:

1. Strengthen our strategic leadership. Addressing both national strategic needs and the industrial development of Jiangsu Province, we will strengthen our connections with Jiangsu's leading industries to understand how the key core technologies of industry fit together to form an industrial ecosystem, and thereby guide research to strengthen and complete the technology chain.

2. Grow the industrial technology innovation system. First, we will continue to build research institutes with high quality facilities, personnel teams, and technology expertise. We will strengthen our support system to nurture the best-performing Institutes and thereby enhance the overall research

capacity of Jiangsu. Second, we will grow our roster of joint innovation centers and leverage them to improve our collection of industry needs and their matching with technology solutions. Third, we will gather high quality innovation resources from around the globe and introduce them into Jiangsu to build innovation resource clusters.

3. Integrated innovation platforms. We will develop JITRI's two core platforms, the Yangtze Delta Advanced Materials Research Institute and the Jiangsu Integrated Circuit Application Technology Innovation Center, to identify major projects to solve key technical problems by bringing together facilities, talent and investment.

4. Establish a JITRI-wide information platform. We will develop a complete construction plan for a digital industry technology innovation system, set up a business operation management system, and accelerate the creation of "online JITRI."

5. Establish JITRI University. We will further expand the scale of student development, improve the education system, and continue the construction of JITRI University with JITRI college at its core. This will be jointly built by JITRI headquarters, major comprehensive innovation platforms, and universities.

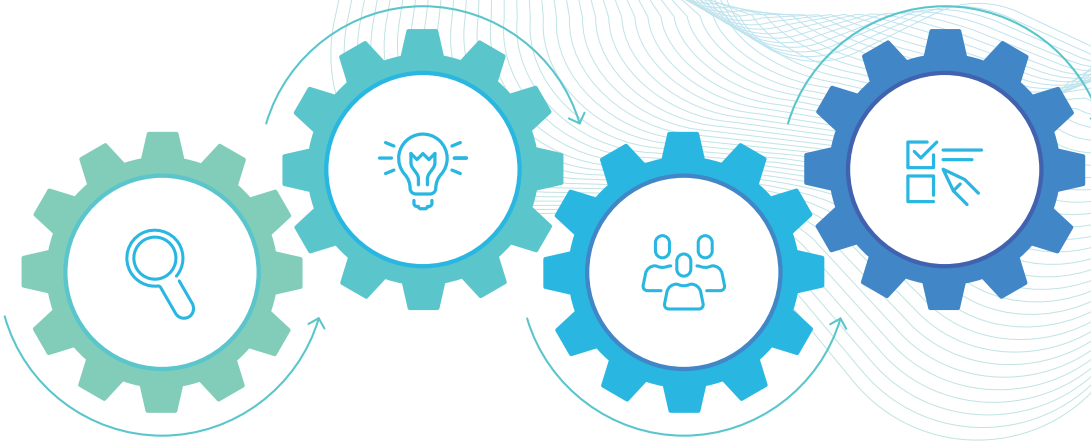
6. Continue the construction of innovation spaces. Construct innovative spaces such as the new site in Nanjing Jiangbei New Area and Suzhou Yangtze Delta International R&D Community, and strengthen planning to exchange talent and cultures to integrate resource clusters across the Yangtze Delta region.

7. Support the Yangtze Delta integration. Organize inter-regional and inter-disciplinary technology research, and build national technology innovation centers. Based on our innovation ecosystem, we will gather global innovation resources and match them with the needs of industry in the Yangtze Delta to build the Yangtze Delta National Technological Innovation Center.

8. Strengthen JITRI's own capacity. Further optimizing internal organization, we will strengthen the structure of JITRI itself to function at a higher level. This includes optimizing the evaluation and incentive mechanisms of Headquarters, improving hiring, incentives and promotion policies, and providing ongoing training opportunities for headquarters staff.

This Annual Report is also a roadmap to building JITRI into a pioneer of Jiangsu's modernization. By connecting innovation resources around the world with Yangtze Delta industry, we will build a strong, prosperous and high-tech Jiangsu that can benefit the entire world by solving global problems. We hope you will join us on this new journey!

JITRI Culture



1 Core Concept

R&D as an industry, technology as a product.

2 JITRI's Role

JITRI positions itself at the vital nexus between scientific research and technological transformation. JITRI does not compete with universities for academic reputation, nor with commercial enterprises for profits. Instead, it focuses on two main roles: to be a bridge between universities, research institutes, and industry; and to be a bridge between global innovation resources and Jiangsu Province. JITRI is a "test bed" for new ideas to reform the scientific and technological development of Jiangsu Province.

3 Main Functions

To reform our scientific and technological systems and mechanisms, JITRI builds R&D vehicles (Institutes), gathers innovation resources (partnerships), assists enterprises to innovate (Joint Innovation Centers), leads industrial development (platforms), and cultivates innovation talent.

4 Future Vision

Become an engine of innovation-driven strategy to promote the high-quality development of the Yangtze Delta region.

Media Focus

In 2020, JITRI was featured twice on the national news networks, and appeared many times in the People's Daily, Guangming Daily, Xinhua News Agency and other national authoritative media. More than 100 articles were published in the national, provincial and municipal mainstream media.

On the themes of science and technology for fighting the pandemic and the integration of the Yangtze Delta Region, JITRI received attention from authoritative central media reaching millions of consumers, effectively promoting the JITRI brand and image, and highlighting the system reform and scientific and technological innovation that JITRI promotes.

TV Media

Integration of the Yangtze Delta: building a new regional powerhouse for science, technology, innovation and industry through partnerships to add value.

◎ **CCTV News June 4**

Since the announcement of the Yangtze Delta Regional Integrated Development Plan one year ago, Jiangsu, Zhejiang, Anhui, and Shanghai have coordinated to accelerate the integration of their talents, scientific research, and innovation to build a new regional powerhouse for industrial science and technology innovation, and to promote value-added development.

Qing LIU: The integration of industrial technology innovation systems and the creation of an innovation-promoting ecosystem will help this region become a leader in industrial development. There is no doubt that the beneficiary will be the entire Yangtze Delta industry.

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Plan for the future and work in the present, to promote the high-quality development of the Yangtze Delta region- General Secretary Jinping XI's important speech at the symposium on promoting the integrated development of the Yangtze Delta inspired a warm response.

◎ **CCTV News Broadcast August 23**

Qing LIU, Executive President of the Yangtze Delta Advanced Materials Research Institute: General Secretary Xi emphasized that the Yangtze Delta region must lead science and technology to support the high-quality development of the country. This platform needs to gather R&D resources from the Yangtze Delta, the whole country, and even the world, to tackle key problems and provide technology for the high-quality development of the national materials industry.

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Paper Media

The Yangtze Delta Advanced Materials Research Institute opening ceremony– integrate resources to support key projects development

◎ **Xinhua Daily, March 11**

The Yangtze Delta Advanced Materials Research Institute was recently established in Suzhou. The institute is positioned as a new type of world-class research and development institution in the field of materials, and a national-level base of materials innovation. It plans to gather a group of top scientific and technological talents globally, to form a R&D team of over 2000 people in about three years. It will build a world-class public platform for material characterization, develop cutting-edge key technologies in the materials industry, and support the development of railway, spaceflight, large aircraft, aero engines, gas turbines, nuclear power, marine equipment, new energy cars, 5G communications and other technologies.

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Investigate Jiangsu: Integration of the Yangtze Delta Jiangsu Industrial Technology Research Institute: Industrial collaboration, Technological Innovation

◎ **People's Daily May 31st**

In the context of the national strategy to integrate the Yangtze Delta, how to maximize the flow of capital, talent, technology and other resources to accelerate the transfer of applied research to serve economic and social development and improve daily life for the people?

In Jiangsu, there is a "test bed" for the reform of the nation's science and technology system, founded in 2013 – Jiangsu Industrial Technology Research Institute (JITRI).

The Jiangsu Provincial Government has positioned JITRI at the vital nexus between scientific research and technological transformation. It has been striving to overcome structural and institutional barriers that restrict scientific and technological advances, to explore institutional mechanisms that can facilitate technology transfer, and to discover new channels for transforming scientific and technological achievements into tangible products.

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What will be Jiangsu's Focus Regarding Collaborative Innovation in the Yangtze Delta?

◎ **Guangming Daily, June 2**

The enhanced flow of scientific and technological innovation in the Yangtze Delta region has deepened the integration of industrial innovation in the cities of the region.

How can a new city provide strong impetus for the high-quality industrial development? The Yangtze Delta Advanced Materials Research Institute, jointly established by JITRI and Suzhou Xiangcheng District Government, has set an example of how to integrate government, industry, university and research, and has become a benchmark for technological innovation and industrial development in Suzhou High-speed Rail New Town.

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Improving the Stability and Competitiveness of the Industrial Supply Chain

◎ **"People" Magazine,July 8th**

An advanced manufacturing system requires core technologies to be in the hands of enterprises, that they create value, and that the value chain is effectively managed. To build an autonomous and well-managed regional advanced manufacturing system, it is essential to first build a technological innovation system with enterprises as the main stakeholders, which is market-oriented with integration of industry, university and research. It is important to strengthen the supply of core technologies to enterprises, to provide continuous technical support for industrial innovation, and to promote enterprises up the value chain. This is the way forward for Jiangsu and is also the core mission of JITRI.

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To Support the High-Quality Development of The Nation, The Yangtze Delta Needs More Technology Development

◎ **Science and Technology Daily，August 26**

"The burden on geographical space, human cost and the environment in the Yangtze Delta is already huge. What will we develop in the future?" Qing Liu believes that the answer is to use existing advantages to develop R&D industries and export technology products.

JITRI originally focused on Jiangsu enterprises, but the integration of the Yangtze Delta is leading to new ideas. "We are working with Science and Technology Departments of three provinces and Shanghai city to promote the construction of the Yangtze Delta National Technology Innovation Center, and to establish an industrial technology innovation system that deeply integrates innovation resources, research channels and industrial needs." Qing Liu said that the Yangtze Delta has the resources and the responsibility to become a source of scientific and technological innovation, a cradle of original technologies, and a supplier of those technologies, so as to accelerate development of all of China.

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General Secretary Jinping Xi 's Concerns | Perseverance and Breakthrough "From 0 to 1": The "Lifetime Stories" of those who climb the peak of science

◎ **Xinhua News Agency, September 15**

Qing Liu: Cross The "Valley Of Death" in the Battlefield of Commercialization

In Jiangsu, there is a "Test Bed" for the reform of the nation's science and technology system founded in 2013 – Jiangsu Industrial Technology Research Institute (JITRI). As the president of JITRI, Qing Liu has moved away from his professional research in the field of metal materials on the broader and more challenging road of technology transfer.

"Science and technology innovation requires looking up to the stars while staying down-to-earth. Technological achievements must move from laboratory research to the broader world." Qing Liu said, JITRI is the bridge between scientific research and the market, helping technologies transfer to industrial application and thereby go across the "valley of death".

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02

Strategic Development

Since its establishment, JITRI has researched the development needs of industry in Jiangsu Province. This includes strategic research on the future development of industrial research and technology to guide JITRI's development strategy. The result is a strategic research system comprising one platform, three types of institutions, and five fields, and a strategic research team to manage them.

The platform is the Jiangsu Institute of China Engineering Technology Development Strategy, which is a think tank in the field of engineering science and technology established on October 30, 2018 by the Chinese Academy of Engineering and Jiangsu Provincial People's Government and operated by JITRI. It focuses on the major needs of Jiangsu's high-quality development, gathering domestic academician expert teams and other resources to develop strategic, forward-looking and comprehensive research. A total of 43 strategic consulting projects were approved over the last 3 years, and nearly 50 research reports and academician suggestions have been published. In 2020, 14 strategic consulting projects were approved, including 4 key projects and 10 special projects, in which 32 academicians participated.

The three types of institutions comprise JITRI's research institutes, enterprise joint innovation centers (JICs), and partner universities both within China and overseas. There are 59 research institutes, each of which participates in strategic planning. JITRI has established 133 JICs together with leading Jiangsu enterprises; they focus on validating industry needs and forming industrial strategy research reports and technology development roadmaps. JITRI's 50+ partner universities also represent an important resource to track evolving technology directions, and international innovation hotspots.

The five major fields are based on Jiangsu's key industries: advanced materials, information technology, equipment manufacturing, biomedicine, and energy and environmental protection. JITRI set up five specialist departments corresponding to these fields to develop strategy and evaluate technical projects. Including partners, a team of over 1500 people has been formed, including academicians, strategic advisors, project manager teams, JITRI researchers, and experts from JICs. Through the Jiangsu Institute of China Engineering Technology Development Strategy, JITRI can connect with 90 academicians and over 130 universities and enterprises for strategic research. More than 100 industrial development research reports and technology roadmaps have been developed.

In the process of developing as a "test bed" for science and technology system reform, JITRI has led a total of eight new initiatives, including best practices for the construction of research and development institutions, methods to introduce, incentivize and develop talent, and the efficient use of scientific research financial funds. JITRI has become a demonstration site for improving China's science and technology system.

Jiangsu Institute of China Engineering Technology Development Strategy

Jiangsu Institute of China Engineering Technology Development Strategy ("Jiangsu Research Institute") was established on October 30, 2018. It is a regional high-end think tank in the field of engineering science and technology jointly established by the Chinese Academy of Engineering and Jiangsu Provincial People's Government, with its secretary office located in JITRI. Since its establishment, the Jiangsu Research Institute has focused on the strategic goal of building a high-end think tank, guided by the major needs of the China and Jiangsu, oriented to produce high-quality research results, and aimed to effectively promote local development. It gathers academicians and expert resources, organizes and undertakes strategic consulting research, and effectively serves the high-quality development of Jiangsu's economy. A total of 43 strategic consulting projects were approved in 3 years; nearly 50 research reports and Academician reviews were published. In 2020, 14 strategic consulting projects were approved, including 4 key projects and 10 special projects, in which 32 academicians participated.

Introduction to Strategic Projects 2018–2019

1. Strategy research on the comprehensive transportation development in Jiangsu Province (October 2018 – October 2019)

2. Strategic research on high quality development of Jiangsu rice industry (October 2019 – October 2020)

3. The strategic research on the integrated development of Shanghai Soviet High Speed Railway (October 2019–October 2020)

4. Series projects in the field of intelligent manufacturing (October 2019 – October 2020)

2020 Strategic Research Projects

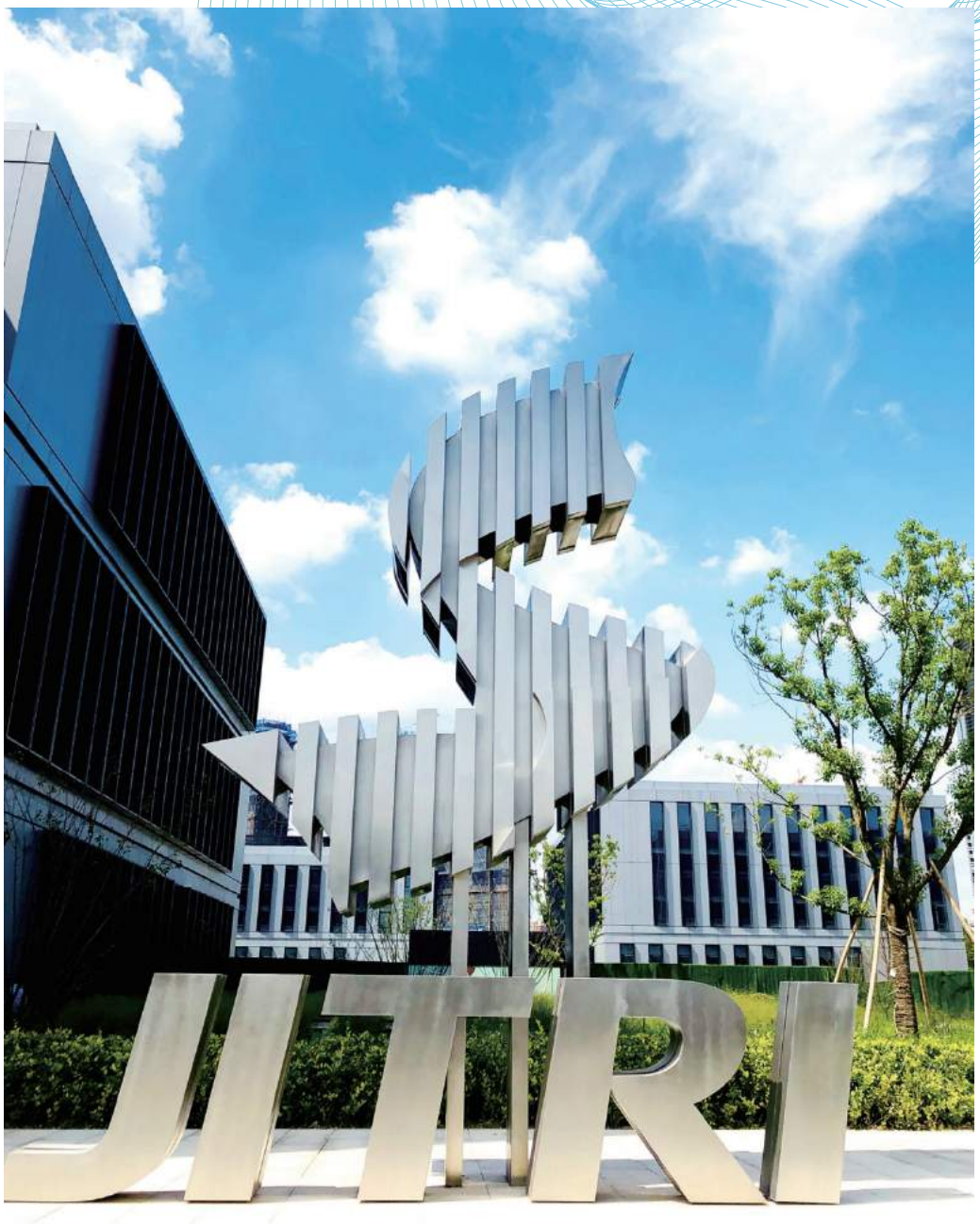
1. Research on the construction of independent, controllable and green high-end chemical industry system in Jiangsu Province
2. Strategic thinking and countermeasures research of transformation and upgrading of Jiangsu machinery industry
3. Research on the path and countermeasures of constructing new agricultural science and technology socialized service system in Jiangsu Province
4. Jiangsu smart rehabilitation system construction and cross-regional application demonstration research
5. Research on strategic countermeasures of vehicle-road cooperative automatic driving
6. Research on the development of key varieties of high-performance special steel and superalloy in Jiangsu Province
7. Research on the intelligent transformation and upgrading of Jiangsu iron and steel industry during the "14th five year plan"
8. Equity system design and governance system research of new R&D institutions
9. Research on the path of agricultural science cooperation between Jiangsu and "one belt, one road" countries
10. Research on the growth mode and development trend of science and technology innovation cooperation between China and Israel

As an example of a strategic research project, since 2019, JITRI has supported the International Consortium of Intelligent Manufacturing (ICIM) to carry out 3-4 strategic research projects in the field of global intelligent manufacturing every year. “The Intelligent Manufacturing Report” analyzes the policies and actions of major manufacturing economies around the world designed to support the development of intelligent manufacturing, and studies the impact of intelligent manufacturing on industry, society and the economy. “World Intelligent Manufacturing Technology Progress” focuses on important industrial applications in the field of intelligent manufacturing and research, selecting and publishing global scientific and technological progress in the field and promoting leading achievements in the development of global intelligent manufacturing in various forms and channels. “Frontiers of Intelligent Manufacturing and Technology” analyzes future development trends and the biggest challenges faced by intelligent manufacturing development in various countries, and explores the future development path of intelligent manufacturing technology. Finally, the “Research on Intelligent Manufacturing Technology Roadmap” comprehensively analyzes the development history and current status of intelligent manufacturing and studies in detail the technology status of intelligent manufacturing at home and abroad. This will be the basis of an intelligent manufacturing technology roadmap for the next 15 years.

Intelligent Product Technology Roadmap for 2035

Time	2020-2025	2025-2030	2030-2035
Needs	With the increasing competition in the international information field, the demand for high-performance computing technology, network security technology and sensing technology is increasing; The demand of high efficiency and intelligent processing technology and equipment for the production of complex, high performance and high precision parts in the key areas of national economy; The transformation of the future society to intelligent manufacturing and intelligent life needs a new generation of intelligent robots The construction of active control type transportation system needs intelligent vehicles, intelligent transportation facilities and collaborative management services; The medical service mode is gradually changing to personalized and intelligent. It is necessary to build a digital, networked and intelligent medical service information system.		
Overall Objectives	The new generation of artificial intelligence system technology will be successfully applied in typical products, and obvious progress will be made in the digitization, networking and intellectualization of products. It will be widely used in typical intelligent products such as intelligent connected vehicle, intelligent rail transit, UAV, intelligent ship, intelligent electromechanics, intelligent medical equipment, and so on. Key breakthroughs will be made in the application and manufacturing of intelligent machine tools, intelligent robots, intelligent medical equipment, forming equipment and other products, which play an exemplary role in the development of intelligent products.	It is aimed to achieve the deep integration of new generation AI technology and products, conquer a number of basic common technologies and key cutting-edge technologies related to intelligent products, and master a number of international leading key core technologies. In the fields of intelligent robot, intelligent machine tool, intelligent forming equipment, intelligent engineering machinery, UAV, intelligent Internet connected vehicle, intelligent ship, intelligent rail, intelligent rail transit and intelligent household appliances, we will develop typical advantageous products, and form global competitive advantages in the relevant intelligent product industry chain, with the overall competitiveness reaching the world power level.	

Reform Measures



One Institute, Two Systems

One institute, two systems is a JITRI management system that brings together innovative academic researchers and effective technology transfer personnel. One carries out innovative research under the operating mechanism of a university, the other is employed by an independent legal entity to engage in technology transfer. While retaining the position and salary at the university, the researcher can also profit from their innovations in the research institute. As an independent legal entity, the institute can ensure that the ownership of scientific research results is clear, and can guarantee the right to profit from scientific research results. At the same time, equity incentive mechanisms encourage the use of equity, capital, or options to allow scientific researchers to share more of the benefits brought about by the industrialization of their technology.

The JITRI Institute of Membrane Science and Technology leverages the National Special Separation Membrane Engineering Technology Research Center of Nanjing Technical University. "One Institute" is the Institute of Membrane Science and Technology, "Two Systems" is the university operating mechanism and the market-oriented operation mechanism of the Research Institute Co., Ltd. Prof. Zhaoxiang ZHONG's team mainly researches ultra-efficient PM2.5 capture technology based on membrane separation. With this technology, PM2.5 can be eliminated with an efficiency up to 99.99%. According to the "one institute, two systems" model, the technical team is only responsible for core technology development. The rest of the daily management and market promotion are handled by Nanjing Membrane Material Industry Technology Research Institute Co., Ltd. Prof. Zhaoxiang Zhong's industrialization company was established in 2015. In 2016, its value exceeded 20 million CNY, and in 2018 exceeded 60 million CNY. Its achievements have been applied in more than 100 projects by domestic large and medium-sized enterprises such as Sinopec, Hengyi Petrochemical, and Jingbo Petrochemical. In the past two years, the cumulative value of new companies has exceeded 2 billion CNY. During the COVID-19 pandemic, anti-viral masks using membrane materials supported hundreds of companies both domestic and overseas. The achievement won the first prize of Jiangsu Science and Technology Award and the first prize of Technology Invention of the China Petroleum and Chemical Industry Federation. More than 30 companies developed and incubated by the Institute have created an economic value of nearly 10 billion CNY and become an industrial cluster in the domestic and international membrane material industry. One of the first batch of companies, Jiuwu Hi-Tech has been listed on the Growth Enterprise Market and become one of the world's largest suppliers of ceramic membrane products, with products exported to more than 50 countries and regions; Nine Heaven Hi-Tech is listed on the New OTC Market and become a leading enterprise in molecular sieve membranes.

Financial Support Policy

To most efficiently fund the transformation of scientific and technological achievements, JITRI makes full use of the market to efficiently allocate resources and funding to its institutes. JITRI no longer supports institute projects in the form of traditional fund allocation, but uses each institute's income from technology transfer, investment and services to evaluate its performance, and consequently its level of financial support. This motivates them to develop technology to address market demands and to continuously improve their technology supply capabilities. This policy improves the team's sustainability while solving market needs.

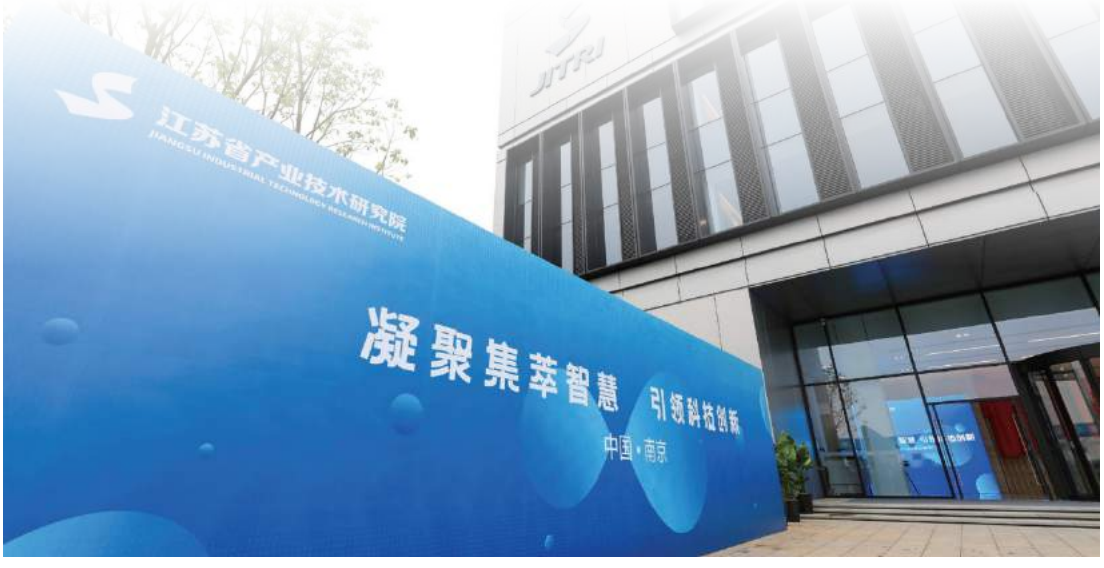
The JITRI Institute of Comparative Medicine is a typical example of success. It was established in December 2017 and mainly uses gene editing and stem cell technology to develop animal disease models, building a one-stop service including model customization, drug screening, agent breeding, and sale of high-quality mice. They have nearly one thousand customers, including colleges and universities, well-known pharmaceutical companies, and top ranked hospitals. The commercial income of the institute exceeded 49 million CNY in its first year, increasing rapidly to 175 million CNY by 2019 and reaching 204 million CNY in 2020, despite the pandemic. Net profit increased by nearly 80% annually, reflecting significant improvement in technology research and development capabilities, especially model development capabilities. The customer base has also evolved from universities, hospitals, and scientific research users to pharmaceutical enterprises focused on new drug research and development. The institute has completed the construction of three technical platforms for gene editing, humanized models, and sterile animals, with a model creation capacity of 6,000 per year and a total of 15,000 mouse strains, becoming the world's largest such resource. JITRI's research institutes are encouraged to explore and innovate in the market. The total value amount of JITRI's funding support for its institutes has increased rapidly from 366 million CNY in 2014 to about 1.5 billion CNY in 2020.

Project Managers

The JITRI Project Manager Program is designed to select world-leading talent with innovative capabilities and extensive project experience. Project managers are given full autonomy to form a research team, define a technical roadmap, and control the use of funds. JITRI will set up a service team to provide professional market research, business model validation and project landing services to help project managers improve their team structure and refine the first batch of R&D projects.

In recent years, JITRI has attracted a large number of leading talents, both domestic and foreign, who understand scientific research and have the ability to organize teams to prepare research institutes or implement major technological innovation projects. For example, Jianxin SHI is a JITRI project manager in the field of epitaxial silicon carbide chemical vapor deposition equipment. Based on broad experience in the equipment field and a need to fill a gap in the domestic mass production of epitaxial equipment, Jianxin Shi and his project team began discussions with JITRI in 2019. After interviews and peer review, a business plan was developed. The project was approved in March 2020.

The project manager is an important mechanism for JITRI to build its talent ecosystem. Since 2015, JITRI has hired 156 industry leaders as project managers, including 20 domestic and foreign academicians. JITRI has landed 32 institutes using the project manager system in Jiangsu, as well as 17 key projects. It has also recruited more than 1,000 other high-level talents.



Equity Incentives

This empowers the team to benefit from their technology. By granting research institutes the rights to their scientific and technological achievements, the team can enjoy more income from their achievements. Methods such as equity distributions, capital contribution, or options empower the team to share more of the gains from the appreciation of their technological innovation, effectively motivating their best efforts.

A project jointly developed by the JITRI Digital Manufacturing Equipment and the China Railway Rolling Stock Corporation (CRRC) Zhuzhou Research Institute has used robots to realize a smart grinding and polishing system for wind turbine blades. This replaces manual grinding and polishing and was the first domestic production line for high-efficiency and intelligent polishing of large-scale wind turbine blades up to 60 meters in length. The grinding efficiency was 5 times that of manual grinding. Twelve technical assets were transferred to Wuxi CRRC Times Intelligent Equipment Co., Ltd. with a contract value of 21 million CNY, of which the team owned a share. The team members unanimously decided to merge their rewards into Wuxi Maoyin Investment Enterprise (Limited Partnership) and thereby jointly invest in Wuxi CRRC Times Intelligent Equipment Co., Ltd. (the team collectively holds 42% of the shares). The company's sales revenue in the past three years has reached 100 million CNY, and is expected to exceed 300 million CNY within three years.

Team Ownership

In accordance with General Secretary Xi's plan to align the income of innovators with their achievements, JITRI developed a team ownership mechanism for its research institutes. A local industrial park provides space and equipment. The team, the park and JITRI then jointly invest to form an asset-light operating company controlled by the team. Any R&D income belongs to the operating company, and the net income is distributed according to the equity. This commercialization model creates incentives for innovative talent, since the team has shares of ownership in any achievements, and the right to benefit from selling those shares.

The team ownership approach can help the team avoid the pressure of making a huge investment at the initial stage. It encourages the core team members to formulate a reasonable equity plan based on the actual needs of long-term development. The personal interests of individual researchers are bound to those of the team, and the distribution of income matches their individual contributions, which truly motivates the entire team.

Take the JITRI Micro-Nano Automation Technology Institute as an example. The institute was jointly established by JITRI, Suzhou Xiangcheng High-speed Rail New City, and the core technical team, in accordance with the team ownership model. The team holds 65% of the equity. Since its establishment in April 2018, a total of 28 research and development projects have been initiated, 187 intellectual property rights have been filed, and 19 products, such as stapler cartridge components for minimally invasive surgery, precision positioning nanomotors, and an electronic module for the "Tianwen 1" Mars rover surface magnetic field detector, have been successfully developed. The Institute has also extended the ownership model, incubating companies in which the core teams hold large shares. The team holding model separates asset ownership and usage rights, and organically combines the enthusiasm of individuals to optimize the development of the organization, achieving fruitful results. A number of research institutes initially founded by universities have taken the initiative to restructure according to the new model, which has further promoted the restructuring of state-owned enterprises, private enterprises, and central enterprise research institutes.

Three-in-one System

In order to accelerate technological commercialization, JITRI builds its research institutes using a three-in-one collaborative innovation system of research, incubation, and investment. While encouraging institutes to carry out industrial research, and functioning as platform incubators, it also introduces venture capital funds in a timely manner to build an innovative three-in-one model. This continuously spins out and incubates scientific and technological enterprises with independent intellectual property rights, filling industrial parks with core technologies.

For example, the JITRI Institute of Novel Metals and Applied Technologies (INMAT) leverages its technology research and development capabilities in four directions: key components of aero-engines, light alloy materials and processing technology, superalloy materials and key processes, and functional metal powder materials. Since 2018, the Institute established Suzhou Tiemaying Incubator Management Ltd. jointly with the Changshu Municipal Government, JITRI, and Suzhou Yun'an. It has gradually formed a sustainable, technology project mining, evaluation, incubation and acceleration mechanism. At of the end of 2020, the incubator has cumulatively introduced and incubated branches of 32 companies, including Taiwan-listed companies Bestec Power, Quantum New Materials and other advanced technology companies, with a total registered capital of more than 500 million CNY. The accumulated revenue of all platforms and incubated enterprises exceeded 85 million CNY, and more than 40 experts at the national, provincial and municipal levels were introduced. The incubator was also rated as a provincial-level maker space in 2020.

At the same time, based on a collection of high-quality scientific and technological innovation projects, the institute has introduced Beijing Hongshi Fund and established Xiangbai Hongshi Venture Capital. It is expected that the establishment of these funds will be completed in the near future. By the end of 2020, JITRI has established 11 specialized funds (and is building six further funds), with a total fund size of 1.6 billion CNY. Individual funds are focused on automobiles, lasers, semiconductors and integrated circuits, carbon fiber and composite materials, high-end equipment, smart manufacturing and other areas.

Hybrid Grant and Investment Model

The project support mechanism of hybrid grant and investment refers to the conversion from funds used for project research and development to a corresponding equity investment. JITRI performs due diligence using both internal and external peer review before approval of projects (the team is asked to propose a list of peers who can understand the team's influence and strength). If approved, JITRI funds the project and assumes the early-stage financial risk so that the team can focus on their innovation with full control. When the project progresses to a market financing milestone, the project grant is converted into an equity investment at market prices.

In September 2018, the "Micro-satellite Solid State Radio Frequency Ion Electric Propulsion System" project landed as a company in Yushan High-tech Zone, Changshu, Suzhou. This company, Suzhou Nano Space Dynamics, has completed its second round of equity financing, with a post-investment valuation of 110 million CNY. The R&D funds invested by JITRI converted into a 10% equity stake. The first set of propulsion systems has completed the engineering assessment and has been delivered to the Shanghai Microsatellite Engineering Center. It will make its first flight in June 2021.

The hybrid grant and investment model addresses the limitations of purely market-driven mechanisms to take innovation across the famous "valley of funding death", while maintaining the autonomy of the technical team and motivating them towards a market-oriented focus. It gives incentives to control the costs of project research and development, while giving the technical team ownership of the value added by their ideas. JITRI has implemented nearly twenty industrial innovation projects using this model, including the manufacture of gallium nitride epitaxial wafers and aero-engine single crystal blades.

JITRI University

JITRI University has begun as a virtual concept for training high level innovative talent using demand-oriented, industry-focused courses, supporting the integrated development strategy of the Yangtze Delta and Jiangsu Province. JITRI will leverage its ecosystem to improve the base of innovative talent for Jiangsu industry.

The university is mainly intended for graduate students seeking a professional degree in engineering, but also accommodates undergraduates. It will highlight new disciplines, mechanisms, and models for education. It will focus on industry needs and utilize a dual tutor system coupled with project-based, interdisciplinary, practical coursework. It will thereby break the discipline barrier that limits conventional colleges, encouraging cross-disciplinary cooperation between schools and departments. JITRI University will establish an assessment mechanism for students of technological innovation. It will build a pilot plant for educational reform, laying a solid foundation for the construction of an industrial innovation university in the future.

This will further enhance the existing joint training of graduate students led by JITRI, inviting support from the education authorities to expand its cooperative agreements with domestic and overseas universities. It will promote the joint training of graduate students with JITRI's research institutes, enterprise joint innovation centers, and partner companies and enterprises. In order to ensure both quality and relevance, the technological needs of enterprises will be the starting point for curriculum development.

Furthermore, the university will explore a new model of postgraduate training in cooperation with universities and top scientific research platforms. Cooperating with Nanjing University, China University of Mining and Technology, Nanjing Tech University, Nanjing University of Posts and Telecommunications, Xi'an Jiaotong-Liverpool University and other provincial universities, we will build two main training centers: The Yangtze Delta Advanced Materials Research Institute and the Jiangsu Integrated Circuit Application Technology Innovation Center, and gradually expand the scope and scale of the pilot, to explore new training modes.

03

Innovation Vehicles

As an important part of JITRI's industrial technology ecosystem, the R&D carrier builds a foundation of research and development and outputs core technology with independent intellectual property rights.They focus on contract scientific research and technology transfer so as to continuously generate technology products for the transformation and upgrading of Jiangsu industry.

Specialized Institutes

In 2014 to 2015, JITRI selected 22 R&D institutions in three batches to become research institutes in Jiangsu Province. Since 2016, JITRI has recruited leading global talent using its project manager system. The project manager team builds the R&D carrier, and is incentivized to make it open and market-oriented. Using its team ownership model, JITRI has cooperated with local governments (industry parks) to land the institutes.

So far, JITRI has constructed 59 institutes in five major fields, including advanced materials, energy and environmental protection, information technology, equipment manufacturing and biomedicine, including 55 professional research institutes, 2 major integrated innovation platforms and 2 comprehensive innovation platforms, with more than 10700 R&D personnel and 1014 spinout companies. More than 5700 technological achievements have been transferred and transformed, more than 18000 service enterprises have been served, and the output value of R&D industry has reached 20 billion CNY.

Institute of Carbon Fiber and Composite Materials

Director Lianghua XU, currently director of the National Carbon Fiber Engineering Technology Research Center, won a State Science and Technology Advancement Award. In January 2014, the Changzhou Institute of Advanced Materials became a member institute of JITRI, aiming to focus on industrial applications of its research in high-performance fiber, carbon fiber resin and pre-impregnated fiber technology, and carbon fiber resin-based composites. The resulting JITRI Institute of Carbon Fiber and Composite Materials develops key technologies, technical services, technology transfer, and personnel training using the new institute structure. The Institute has 26000

square meters of research and pilot production facilities with a total value of more than 30 million RMB, annual R&D funding of more than 30 million RMB, and has already provided scientific research services for more than 300 enterprises.

Institute of Nanotechnology and Applications

The executive director of Institute of Nanotechnology and Applications is Shuangyi ZHANG, a former director of commercialization at The Suzhou Institute of Nano-tech and Nano-bionics, Chinese Academy of Sciences (SINANO).

The institute, established in 2014 by SINANO, has completed a restructuring at the end of 2019 by creating Jiangsu JITRI Nano Applied Technology Research Institute Co., Ltd., an independent legal entity owned by a team from SINANO, as its controlling shareholder.

The institute is dedicated to the industrialization of fundamental research achievements in the fields of nanomaterials and devices, nanobiomedicine and related fields. The institute conducts application research in the areas of printable electronic materials, nanocarbon materials, gene chips, and cell chips.

By utilizing the advanced research from SINANO, the institute aims to build three core platforms consisting of a Printable Electronics Engineering Center, a Nanofabrication Facility, and a Nano-Bio-Chem Center. Meanwhile, the institute also actively integrates R&D with enterprise incubation and private equity fund investment, by raising a private fund to invest in nanotechnology innovations and by building an enterprise incubator named “Zhongke Nachuang”.

Institute for Smart Liquid Crystals (SLiC)

Jiuxhi Xue, the director of SLiC, is a graduate of the University of Colorado, a postdoctoral researcher at Princeton University, and a National Talent Plan Expert.

Since its establishment in May 2016, SLiC has focused on five key R&D directions for commercialization: smart windows, smart composite materials, optoelectronic devices, biochemical sensors, and smart fibers. Three public service platforms, consisting of a small testing laboratory, a pilot test line, and an analysis and testing center, have been built. A Series-A funding of 22.5 million RMB was completed in 2018.

SLiC created the world's first bi-stable smart window technology. Significant progress has been made in the research and industrialization of

projects such as smart windows, smart rearview mirrors, and irreversible temperature-sensitive labels and smart paints.

Some of these projects have established independent subsidiaries. SLiC is an open platform that attracts talents worldwide to conduct industrial technology research on emerging applications for LCDs beyond flat-panel screens.

Institute of Molecular Engineering

In order to further implement the innovation driven development strategy, accelerate the transformation and landing of Peking University's innovative achievements in Jiangsu, and promote the development of related industries in the field of molecular engineering, JITRI, Peking University and Changshu Municipal People's Government jointly established the Institute of molecular engineering in 2017.

Yuguo MA, director of the Institute, School of chemistry and molecular engineering, Peking University; Jitao CHEN, executive director, and vice president of School of chemistry and molecular engineering, Peking University. The institute focuses on molecular engineering, new materials, new energy, biomedicine and advanced manufacturing, and is committed to the research of cutting-edge technology, the development of key technologies, the transformation of first-class achievements and the cultivation of high-end talent, and focuses on the establishment of new R&D institutions leading the development of high-end science and technology and serving strategic emerging industries to form an emerging industry cluster. At present, it has 84 scientific research personnel, 14000 square meters of research and development site, and the original value of instruments and equipment is nearly 30 million CNY. In 2020, the Institute's public testing platform has completed more than 3000 sample tests. The team independently developed rare earth complex luminescent materials, completed the commissioning and process optimization of the pilot production line, and realized continuous production. The controllable and repetitive preparation of the core materials and fuel tubes of the hydrogen production project by hydrolysis has been solved, and won the "Silver Award for invention and entrepreneurship" in the 24th National Invention Exhibition. The project of electro-chemi-luminescence kit made a major breakthrough, realized the automatic detection of electro-chemi-luminescence, and originally developed the electro-chemi-luminescence electrode and magnetic bead labeling technology.

Institute of Advanced Polymer Materials Technology（APM）

Guangxian LI, Director, is a professor of Sichuan University and director of the State Key Laboratory of Polymer Materials Engineering. APM was founded by the core team of the State Key Laboratory of Polymer Materials Technology (Sichuan University) and Najing Jiangbei New Area. The research institute aims at major breakthroughs and market applications in the fields of high-performance special polymer materials, functional polymer materials, and processing equipment and technology. This research institute was ranked in Nanjing's top ten new R&D institutions in 2019. At present, the institute has more than 9000 square meters of R&D space, 4850 square meters of pilot testing. Meanwhile, it has set up a Nanjing Polymer Materials Public

Technology Service Platform to serve as a three-in-one JITRI facility offering analysis and characterization of Advanced Polymer Materials, engineering test and verification of novel technologies, and reliability evaluation and validation of new products in the emerging fields of new-energy vehicles, rail transit, aviation, etc.

Advanced Metallurgical Technology Institute

Liu LIU, the director of the Institute, is the former chief engineer of China Iron and Steel Research Institute Group.

The JITRI Advanced Metallurgical Technology Institute was established in September 2017. The institute focuses on 8 key research and development directions, including high-efficiency and low-cost clean steel smelting technology, large inclusion control technology, new electrical steel products, automobile steel, etc. The institute also offers technical services to industry in common key technologies.

The first phase construction of the experimental platform has been completed, and the installation and commissioning of key equipment is complete. The equipment is of international quality and the best in China.

The research institute is developing a third generation of molten iron "three removal" pretreatment and has filed intellectual property. A project to develop a new smelting process with high scrap ratio and high efficiency, saving energy in the converter, cooperated with industry and won a prize in Metallurgical Science and Technology in 2019. These achievements have been applied by Jiangsu Yonggang group, and are expected to accelerate the overall progress of the industry.

Institute of Novel Metals and Applied Technologies (INMAT)

Dr. Robert E. Sanders, a well-known expert in high performance aluminum alloys, is the director of INMAT. He got his PhD degree from Georgia Institute of Technology, and was also a professor at Chongqing University. Since the establishment of the Institute in December 2017, a three-in-one innovation system of R&D, incubation, and investment has been formed. INMAT focuses its research activities on five main fields: key parts for aero-engines, light alloy materials and processing technology, super-alloy materials and key processes, and functional metal powder materials and plasmas.

The Institute has implemented a number of key projects, including single crystal turbine blades and new materials for chip packaging. The first phase of a pilot production platform for super-alloy and aero-engine research has been completed. Self-designed pilot production

equipment for a series of high-quality super-alloy products has been commissioned. The installation and commissioning of the first domestic imported Liquid Metal Cooling (LMC) Single Crystal Furnace, and a complete set of single crystal blade pilot industrialization equipment, has been completed. A venture capital incubator has already founded and incubated 32 new enterprises. At the same time, Cedar Redstone Fund was established in cooperation with Beijing Redstone Fund, a first-class investment banking team in China.

The Research Institute of Carbon Fiber and Composites Application Technologies (CFCT)

The President of CFCT, Mr. Jinhua ZHANG, has nearly 30-years of work experience in equity investment, mergers & acquisitions, fund operations, corporate governance and incubation of technology companies. Since its establishment in August of 2020, the CFCT institute has been committed to research and commercialization of carbon fiber and composite technology. Guided by market demands and the needs of industrial applications and based on a five-in-one development strategy of technology R&D, collaborative innovation, test & certification, industry incubation and equity investment, CFCT intends to focus on weak links in industrial applications and lead a leapfrog development of carbon fiber and composites towards high-

quality, low-cost and large-scale. Since its establishment, CFCT has started R&D, industry incubation and equity investment projects in the fields of construction, aviation and automobiles, which include the installation of equipment for manufacturing carbon composites, CFRP cables, carbon fiber transmission shafts, etc.

Institute of Advanced Energy Materials and Application Technology

The director of an institute, Mr Zhou Shaoxiong, is the founder of Chinese morphous materials industry and the winner of second prize of National Science and Technology Award. Since its foundation in March 2018, the institute has been focused on the production and application of solid hydrogen storage materials, high-efficiency energy-saving soft magnetic materials, and high specific surface area materials for supercapacitor electrode materials. The institute has been certified as the "New R&D Institute" by Changzhou Municipal Government and the East China Research Institute of National Advisory Committee on New Materials Industry Development Strategy. Having completed the implementation of the R&D

Centers for solid hydrogen storage materials, high-efficiency energy-saving soft magnetic materials, and supercapacitor electrode materials, the institute has been certified as Jiangsu Science and Technology Service Platform for Advanced Energy Materials.

Institute of Organic Functional Materials and Applied Technology

Ren Tianbin, Director, is a Professor at Tongji University and founder of the Weipu group. Founded in December 2020, the Institute shares the vision of building an ecosystem of collaborative technological innovation and application, and entrepreneurial talents, for key organic functional materials. The core goal is to realize industrial applications of organic functional materials. Focusing on areas such as advanced organic functional films, bonding and coating materials, pharmaceutical excipients and preparations, environmentally friendly materials, and analytical instruments, the Institute builds public platforms for scale-up from laboratory to pilot production,

analysis and testing, and product verification or evaluation. The Institute builds expertise and resources to form a five-in-one innovation ecosystem to add value with technology, market applications, engage venture capital, and cultivate talent in the field of organic functional materials.

Membrane Science&Technology Research Institute

Xing Weihong, Director of the institute, is the winner of a National Outstanding Youth Fund Project, a Prize for Scientific and Technological Progress from the Ho Leung Ho Lee Foundation and a National Innovation Competition Award.

Addressing major needs of water resources, energy, environment and the restructuring of traditional industries, this institute is engaged in the development of high-performance materials such as ceramic membranes, pervaporation membranes, gas separation membranes, organic membranes, and organic-inorganic composite membranes, as well as the advancement of integration technologies and equipment for membrane reactors, wastewater reclamation and tail gas purification. It is focused

on the translation of original achievements into industrial applications. The institute has assembled a research team that continuously produces high-quality outcomes from its own basic research and an entrepreneurial team dedicated to the further development of these original achievements for technology improvement.

Institute of Water Environmental Engineering Technology (Yixing)

Ren Hongqiang, director of the Institute, is an academician of Chinese Academy of Engineering. He is currently the Dean of the School of the Environment, Nanjing University and the Dean of Yixing Environmental Protection Research Institute, Nanjing University.

Since its establishment in January 2014, the Institute has been developing new water treatment technology, materials, equipment and standards. The Institute has led the construction of high-end platforms such as the only International Standardization Technical Committee in the field of industrial water reuse (ISO/TC282/SC4), the only national technical standard innovation base in the field of environment in China (water environment technology and equipment) a water treatment

and water environmental restoration engineering research center for the Ministry of Education. The Institute has successfully built an innovation ecosystem of technology and standards connecting upstream and downstream industries in the field of water and the environment, and has piloted the win-win development of technology, standards, and industry for the water environment.

Institute of Water Environmental Engineering and Technology (Yancheng)

Director Li Aimin is a professor of Nanjing University, a distinguished professor of Changjiang scholars of the ministry of education, and a winner of the National Science Fund for Distinguished Young Scholars.

Since joining JITRI in February 2016, the institute has devoted to technology research and engineering practice of wastewater treatment from the chemical industry, rural domestic sewage treatment, and drinking water security. The Institute is qualified for environmental engineering design, environmental engineering general contracting, and the operation and maintenance of environmental protection facilities, and has provided contract research services for more than

500 enterprises. Through the commercialization and innovation of key technologies in the field of water and the environment, the institute will build a new environmental protection industry cluster with strengths in technology creation, industry support, and talent training.

Web: http://www.nuyaepte.com

Institute of Industrial Process Simulation and Optimization

Yu Aibing is the director of JITRI Institute for Process and Optimization. He is a foreign academician of the Chinese Academy of Engineering, and academician of both the Australian Academy of Sciences and the Australian Academy of Engineering.

Since its establishment in December 2016, the Institute has focused on four key research areas: advanced particle modeling technology, high-performance computing and control platforms, intelligent industrial processing, and process enhancement and innovation. At present, the institute has established a series of R&D platforms and professional laboratories, such as a micro-nano particle technology laboratory, energy and environmental protection, high-performance computing. It has also established a pilot industrialization platform, an atomized inhalation drug delivery system laboratory, and a thin film micro-scale processing platform, and has

realized technical cooperation and remote access to the Wuxi National Supercomputing Center and equipment sharing agreements with Southeast University, Soochow University, Fasten Group and other units. At the same time, the institute has jointly built laboratories with more than 10 cooperative partners. The research directions include energy saving and environmental protection, intelligent manufacturing, high-end manufacturing, new materials, biomedicine and other fields.

Jiangsu JITRI-Topsoe Institute of Advanced Catalytic Technology

Topsoe is the world's top catalyst R & D and manufacturing enterprise. In order to efficiently introduce overseas high-quality R&D resources and technologies in the catalytic field, in April 2018, Jiangsu Industry Research Institute, Suzhou high speed railway new town and Denmark Topsoe company jointly established Jiangsu JITRI Topsoe Institute of Advanced Catalytic Technology. Director Zhao Tiejun is the researcher of the Chinese Academy of Sciences. Relying on Topsoe's technical advantages in popular chemicals, oil refining, environment, and new energy, the Institute strives to build itself into a scientific research institution with international influence and capability to provide enterprises with technology research and development, technical services and solutions in catalysis and related fields.

At present, the Institute has 30 full-time R & D personnel, with 5500 square meters of pilot scale R & D facilities, and the original value of instruments and equipment is 40 million CNY; We will build a public R & D platform for battery materials, catalytic hydrogenation, oil analysis and a full range of air pollution control. In 2020, Soren Dahl, chief scientist of the Institute, will be elected as a member of the Danish Academy of engineering. In 2020, the four catalytic hydrogenation units have achieved high parallelism and repeatability, reaching the world's advanced level, completing more than 2000 analysis tasks for more than 500 different oil samples, and providing technical services and solutions for many of the world's top 500 enterprises; The battery materials team has made a breakthrough in the research and development of high nickel ternary single crystal precursors, and has completed the preparation of NCM, NCA, NCMA and other precursors in kilogram level, and the relevant technical indicators have reached or exceeded the product indicators of domestic leading enterprises.

Institute of Advanced Packaging

The Institute of Advanced Packaging was founded in September 2012 and became a member institute of JITRI in September 2015, converting to a JITRI Research Institute in February 2017.

The Institute's current research directions include: 2.5D/3D TSV and integration technologies (including TSV, bumping, via-reveal and chip-stacking), high density wafer level packaging, SiP product application and development, and verification and development of related advanced materials and equipment for microelectronics packaging.

The institute's team is composed of experts and leaders with rich experience in technical and management positions in international enterprises and institutions at home and abroad. In April 2020, it was approved to build a national innovation center of technology for integrated circuit and packaging testing and in December it was approved to set up a national post-doctoral research facility.

Web: www.ncap-cn.com

Institute of Application Specific Integrated Circuits

The Institute of Application Specific Integrated Circuits became a member institute of JITRI in January 2014. It established an independent legal entity, Wuxi Institute of Integrated Circuits (Southeast University), in January 2015, supported by Southeast University and Wuxi High-Tech Zone. The Institute of Application Specific Integrated Circuits is mainly engaged in research and development work in three directions: intelligent power integrated circuits, wide voltage range integrated circuits, and research on IoT chips and applications. Achievements include intelligent power driver chips and modules, key research into high performance of near-threshold integrated circuits, reconfigurable security algorithm and tool chain design, etc. Since its establishment, the institute has been awarded a total of 190 million RMB in government funding and 290 million RMB in corporate cooperation funds, provided a total of 197 enterprises with technical services, applied for 674 patents (511 granted) and won 9 provincial and ministerial-level invention awards. The Institute also actively carries out personnel training, technology transfer, industrial strategy research, etc., focusing on building integrated circuit technology research and service platforms to support the technological upgrading of Jiangsu's integrated circuit industry.

Web: www.asictri.com

Institute of Future Networks Technology (FNII).

Liu Yunjie, director of the Institute, is an expert in communication and information systems and an academician of the Chinese Academy of Engineering. The Jiangsu Future Networks Innovation Institute (FNII) was established as a provincial scientific research institute in 2011. Together with Nanjing Future Network Industry Innovation Co., Ltd. (FNIC), FNII became a member institute of JITRI in September 2015 as the Institute of Future Networks. The research and development directions include new network architecture and innovative technology (SCN, SOFIA, SFA, SDN, NFV, ODL, ONOS, etc.), content delivery network (CDN) technology, network big data, network awareness, operation and maintenance, cyberspace security, and industrial internet. In order to adapt to the new trend of future global network evolution, FNII proposed a new, service-customized network

architecture (SCN). Based on that, FNII took the lead to construct a piece of major national scientific infrastructure: the China Environment for Network Innovation (CENI). In recent years, the institute has made major breakthroughs in key technology fields such as large-network-level network operating systems and deterministic networks, with an annual income over 100 million RMB, and a total of more than 60 spinoffs in incubation.

Web: www.fnii.cn, www.fnic.cn

Institute of Mobile Communication Technology

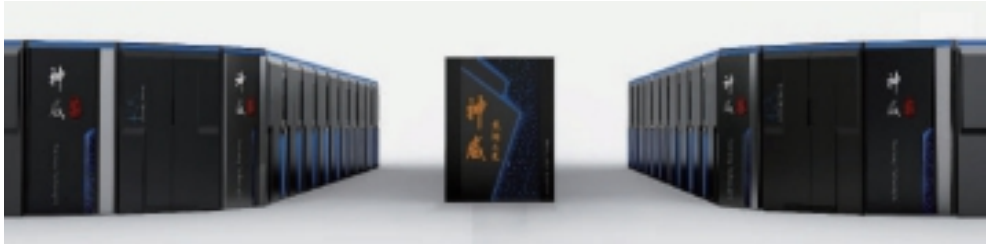
Bu Zhiyong, director of the institute, is a national outstanding youth and director of the broadband wireless communication research office of the Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences.

Established in December 2009, the research and development directions include a general 5G base station hardware and software platform and product development, 5G/B5G algorithm simulation and verification platform development, 5G industry technology standardization research, and 5G vertical industry application solutions (smart city/rural, smart power grid, smart medical, industrial Internet). Six technology platforms for research and development of key tasks have been built. The Institute has been recognized as a Top 100 Institution, "Jiangsu Communication and

Network Industrialization Center of STS of Chinese Academy of Sciences", "The First Batch Members of Jiangsu Technology Transfer Alliance", "Nanjing Strategic Emerging Industry Innovation Center" . The Institute has also won two provincial and ministerial science and technology awards, applied for 17 patents (including 15 invention patents), obtained 20 software copyrights, and licensed 12 invention patents from the Chinese Academy of Sciences Microsystem.

Web: www.jmct.org.cn

National Supercomputing Center in Wuxi



The National Supercomputing Center in Wuxi became a member institute of JITRI in March 2016. The Institute had the world's first supercomputer with peak computing performance of more than one hundred quadrillion floating-point operations per second (100 PFlop/s), named the "Shenwei light of Taihu Lake", which is also the first supercomputer in the world built entirely with domestic processors from China. The Institute is based in Jiangsu Province, covering the entire Yangtze River Delta, but expanding throughout China and the world, providing computing and technical support services for biomedicine, marine science, oil and gas exploration, climate and meteorology, financial analysis, information security, industrial design and other fields, and undertaking major national and provincial science,technology and engineering projects. The Institute took the lead in applying for three National 13th five year plan scientific and technological R&D projects, participated in 20 national key R&D projects or topics, undertook more than 120 commercial projects, and achieved remarkable results in combination with local industries.

Web: http://www.nsccwx.cn

Institute of Organic Optoelectronics

The Institute of Organic Optoelectronics was established in August 2016 by JITRI, Suzhou Wujiang District People's Government, Soochow University, and Shuit-Tong Lee's academic team. The Institute is dedicated to the technology development and industrialization of an OLED deposition line, OLED lighting, and silicon-based micro-OLED displays.

The Institute independently developed the first Gen-2.5 OLED production line in China. Its OLED lighting panels have been marketed. A 100 mm×100 mm white OLED panel with a luminous efficiency over 150 lm/W and an operating lifetime over 10,000 hours was developed, reaching an internationally competitive performance level. The Institute also developed a 0.6-inch SVGA silicon-based green and white OLED microdisplay

with contrast ratio of 10000: 1, resolution of 1750 PPI and thickness less than 1 mm, which can be widely used in AR or VR glasses, security, and firefighting. A new product, the high precision iTC series thin film deposition controller, has 10 measurement channels, the largest in the industry, for complex manufacturing control.

Web: http://www.jitriioo.com/

Institute of Intelligent Integrated Circuit Design Technology

On June 21, 2019, the JITRI Intelligent Integrated Circuit Design Technology Research Institute was formally established. After more than a year of construction, the Institute has gathered high-level talent from Tsinghua University, the Chinese Academy of Sciences, and other well-known universities and institutes, to form a talent team of more than 120 people, of which more than 70% are R&D personnel. Achievements include applying for more than thirty patents, including nearly twenty invention patents. Products such as a 4K high-speed display chip and a smart digital hearing aid chip have been tested by users. The institute has established a national innovation base to provide core machine services such as

docking, MPW tape-out, IP/SoC, testing and analysis, talent training, EDA, etc., The "Core Fire" dual innovation platform project for the integrated circuit industry was supported by the Ministry of Industry and Information Technology. The Institute is incubating nearly twenty innovative and entrepreneurial teams and enterprises.

Web: https://www.jsic-tech.com/

Brain-Machine Fusion Research Institute

The Institute was established in July 2019 and has incubated and started nine technology enterprises related to brain-computer fusion intelligence and artificial intelligence. The institute has applied for twenty invention patents, eleven utility models, fifteen integrated circuit layout designs and nineteen software copyrights.

By the end of 2020, the institute became a new R&D organization in Suzhou. In the brain-machine interface algorithm chip developed by the JITRI Brain-Machine Fusion Research Institute, a series of operations related to the induction paradigm, control parameters and calculation methods based on the Steady State Visual Evoked Potential (SSVEP) have been made into standards, procedures and software. By implementing algorithms, data analysis and parameter selection could be optimized through machine learning, and the resulting software

could be transformed into a chip solution with high efficiency, low energy consumption, low cost and good compatibility.

The Institute will become a world-class supplier of key components and equipment for smart brain-computer fusion technology, a world-class, one-stop system solution provider for smart brain-computer fusion applications, and a world-class service provider of brain-computer fusion-related biomedical engineering.

Web: www.jitri-bmf.com

Institute of Deep Perception Technology

The Institute of Deep Perception Technology was founded in July 2019. It was jointly built by JITRI, Wuxi High-tech Zone and the deep perception technical team, and is dedicated to enabling machine vision using artificial intelligence radar. The team is 35% PhD-level scientists, including one academician, and six high-level talents at the national and municipal levels. The core members of the team have 470 domestic and foreign authorized invention patents, 690 published papers, and thirteen achievements that rank first in the world. It is a leading domestic research and development institution for new artificial intelligence radar sensing technology.

The Institute of Deep Perception Technology is the first in the world to propose and improve the concept and technical framework of Artificial Intelligence Radar (AI Radar), and has constructed a technical system including patents, papers, and trade secrets. It has won four awards from Wu Wenjun Artificial Intelligence Science and Technology, the Chinese Academy of Sciences, CCF and other authoritative institutions. In 2020, the institute launched a number of intelligent traffic radar products in the field of intelligent traffic control based on AI radar technology, and completed sales of 17.46 million RMB. At the same time, the Institute has established an intelligent perception platform ecosystem in partnership with many well-known enterprises and universities such as Baidu, Haikang, Nanjing University of Science and Technology, Xi'an Jiaotong-Liverpool University, etc.

Web: http://www.idpt.org

Institute of High Throughput Computing

In December 2019, the Institute of High Throughput Computing was established.

The Institute has built a high-throughput data warehouse with a total of 1,000 nodes, which can provide high-throughput computing services to meet the needs of local industry, including data storage, analysis, and processing. The service amounts to an intelligent "city-scale brain" for processing video big data, network security information, artificial intelligence data, massively parallel IoT, or big picture computing.

After achieving first place in the Green Graph 500 large dataset and small dataset world rankings in December 2019, the team from the Institute of High-Throughput Computing designed an ultra-large-scale graph computing framework known as the "King Kong" high-throughput server, which was also ranked number one in the world for both large and small data sets in the June 2020 rankings.

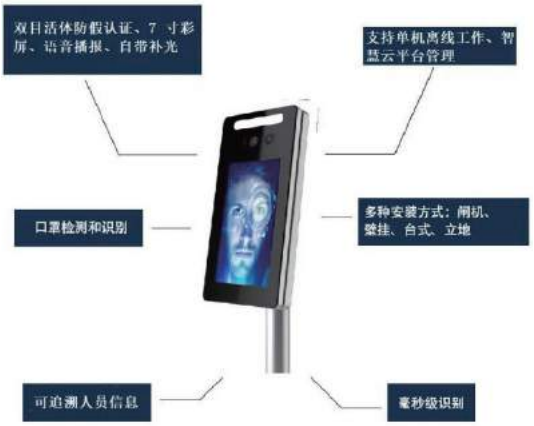
Driverless vehicles, independently developed by the Institute, have already been used in a number of scenarios such as Daqing Oilfield, Beijing Metro, Yancheng Intelligent Terminal Venture Park, Zhengzhou Industrial Park and Jinan Radio and Television Park. It has been jointly landed and applied with scenarios such as smart security, smart property and smart scenic spots.

Web: http://hitc.org.cn/

Institute of Future Urban Application Technology

Wang Qing, Director of the Institute, is the Executive Vice President of the Smart City Research Institute of Southeast University. Established in March 2020, the Institute has built research centers for positioning and spatiotemporal information application technology, intelligent sensing and internet of things application technology, intelligent monitoring application technology, intelligent transportation application technology, and big data application technology. A high-density monitoring system of large passenger flow, developed by the Institute, has been applied to large public places such as subways and railway stations, and has been put into use in important transfer stations of the Suzhou subway. An artificial intelligence face recognition and infrared thermal imaging temperature measurement technology can monitor passenger flow, and enable control and epidemic prevention, and has been applied in subway stations, factories and other places where people gather. Currently, it has been deployed in the Xuzhou subway and Suzhou Xiangcheng People's Hospital.

Web: www.jcifc.cn



Jiangsu 3rd-Generation Semiconductor Research Institute

Xu Ke, director of the Institute, is a researcher of the Suzhou Institute of Nanotechnology, Chinese Academy of Sciences. He is also a doctoral supervisor and a member of the Expert Group of Strategic New Electronic Materials of the Ministry of Science and Technology during the 13th Five-Year Plan Period.

The Institute, founded in July 2019, aims to cultivate and develop applications of third-generation semiconductor technology, to build a public technology platform, and to integrate basic research, applied research, and industry. Leveraging existing resources with newly acquired key test and analysis equipment such as FIB and Candela, a system service capacity for the industrial chain is being constructed. The material growth innovation platform, test analysis and service evaluation platforms are already in operation, serving more than 60 enterprises and scientific research institutes.

Web: www.iasemi.cn

Institute of Precision and Microfabrication Technology

Fu Yucan, director of the Institute, is a Professor at Nanjing University of Aeronautics and Astronautics, a member of the International Abrasive Technology Committee (ICAT), and vice chairman of Ultrasonic Machining Technology Committee of the Special Machining Branch of the Chinese Society of Mechanical Engineering. The Institute focuses on manufacturing and equipment in aerospace, shipbuilding and marine engineering, rail transit, and on intelligent manufacturing. Its main focus is: closed integral component combined electrical machining technology, aerospace-oriented laser manufacturing and additive manufacturing technology, robot precision compensation and high precision robot intelligent manufacturing technology, vibration aided manufacturing technology, high efficiency precision machining and super hard abrasive brazing tool technology, high precision special semiconductor laser chips, photoelectric module technology, and precision parts processing online measurement technology. The institute attaches great importance to international cooperation and is cooperating with Emag to build the Emag Sino-German Advanced Manufacturing United Technology Center.

Web: http://www.amt-nuaa.com

Institute of Robotics and Intelligent Equipment Technology

The Institute focuses on breakthroughs in advanced robot bionic innovative design, intelligent perception and control decision-making, precision manufacturing, human-machine collaborative operation, and other key technologies in extreme and complex environments. It has thirteen innovation platforms, such as the Jiangsu Provincial Strategic Alliance of Technology Innovation for the Robot and Intelligent Equipment Industry, Jiangsu Provincial Demonstration Platform for Public Technical Service for Small and Medium sized Enterprises, and National Demonstrative Training Base for Graduates and Postgraduates in Engineering. In 2020, the Institute provided technical services to more than 150 enterprises, accounting for more than 60% of the Institute's funds. It applied for 59 patents, and built 23 joint enterprise research and development centers with enterprises. The institute has more than 210 personnel, including thirty PhDs, eleven researchers (including one national talent), two Chinese Academy of Sciences level talents, and two Jiangsu Province six top talents . It aims to become an internationally famous robot technology development and talent training base.

Web: http://www.iamt.cas.cn

Institute of Fluid Engineering Equipment Technology

Prof. Shouqi Yuan, Director of Fluid Engineering Equipment Technology Institute, is the leader of the national key discipline ‘Fluid Machinery and Engineering’. He is also the director of China's National Research Center of Pumps (NRCP) and International Joint Research Center for National Energy Saving Technology of Fluid Engineering Equipment. Additionally, he is the director of the Advanced Fluid Machinery Equipment and Technology Innovation Base with the aim of introducing talents by subject innovation in Colleges and Universities (plan code ‘111’). As a member of Agriculture and Forestry Department of Science and Technology Committee of the Ministry of Education, he is also the leading member of a key laboratory named ‘modern agricultural equipment and technology’ of Ministry of Education. He was also recognized as a national outstanding scientific and technological worker.

The Research Institute focuses on the research and development of propulsion technology for space impellers, fluid engineering equipment, new energy and environmental protection equipment, fluid transport technology, efficient agricultural water-saving and irrigation equipment, integrated intelligent continuous flow reaction technology, and the development and integration of intelligent pumping stations. Additionally, it provides technology research and development services, technology transfer, and incubation of small and medium-sized enterprises in related industries. Since its establishment, the Research Institute has signed over 500 technology contracts including technology development, transfer, service and consulting from 2016 to 2020. The total amount of contracted scientific research funds total more than 110 million RMB, while more than 72 million yuan was received . The institute has applied for more than 100 invention patents, established close cooperation with over 300 enterprises, and provided technology services for over 600 enterprises. Recently, more than 10 spinout enterprises have been successfully incubated and over 20 international renowned experts have been employed as part-time professors of the Institute.

Web: http://www.jsfeei.com

Institute of Advanced Laser Technology

Dr. Chen Weibiao is the director of the Nanjing Institute of Advanced Laser Technology, Vice Director of the Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, and also the deputy director of Technical Committee of SIOM.

The Institute introduced original scientific and technological achievements in the defense and aerospace areas, transferred them into civilian technology, and successfully applied them in advanced manufacturing, medical care, displays, biometrics, advanced materials, and environmental safety, creating a new era in the laser field and a new situation in the deep development of civil-military inosculation. The Institute has built six R&D centers, the research topics including laser displays, laser detection instruments, advanced solid-state laser devices, laser manufacturing equipment, laser biological detection and UAV

applications. Over 120 full-time professional researchers are employed in the institute is, serving more than 470 enterprises in total. The institute has incubated a stable of technology innovation companies, including Movelaser, Raychem, DN Laser, Feibo LASER, Magic sky and LASER Crylink , the total annual revenue of those companies is over 600 million CNY, which has a significant impact on development of the regional laser and optoelectronics industry.

Web: http://www.nialt.com/

Institute of Advanced Vehicle Technology

Cheng Bo, director of the Advanced Vehicle Technology Institute is a doctoral supervisor of Tsinghua University, deputy director of the State Key Laboratory of Automotive Safety and Energy and a core member of Jiangsu "Mass Entrepreneurship Plan" team.

Focused on ICVs, vehicle power system testing, NVH, Lightweight etc., we cooperated with DongFeng Motor, SAICMOTOR, Beijing Auto, GAC Group, Geely, and other vehicle enterprises, to make contributions to the development of the automobile industry. Our automotive powertrain test center is an independent entity with a professional engineering team, providing analytical testing, calibration, certification and other technical services on the engine, gearbox, power system and performance of a vehicle, and its fuel

consumption, emissions, etc. In 2020, the number of personnel of the Institute reached 270, with 17 R&D centers and 16 analytical testing centers. The Institute led the establishment of "Jiangsu Intelligent and Connected Vehicles Innovation Center," the only manufacturing innovation center in the automotive field in Jiangsu Province.

Web: http://www.tsari.tsinghua.edu.cn

Institute of Digital Manufacturing Equipment and Technology

Director Ding Han, academician of Chinese Academy of Sciences, Dean of the School of Mechanical Science and Engineering, Huazhong University of Science and Technology, and Director of the State Key Laboratory of Digital Manufacturing Equipment and Technology.

Focusing on intelligent manufacturing of blades, advanced manufacturing of key parts for aeroengines and gas turbines, intelligent control of equipment, robotic technology and digital workshop/intelligent factory, the institute has set up a new corporate research and development institution with a young team at its core, resulting in high-quality scientific research achievements and technical services for the development of the Wuxi manufacturing industry and the transformation and upgrading of small and medium-sized enterprises. It spawned nearly 20 innovative and entrepreneurial enterprises. In 2017, Jiangsu JITRI Huake Intelligent Equipment Technology Co., Ltd., a mixed-ownership restructuring company led by Academician Ding Han, was established. In 2020, it won the top support of 100 million RMB from Wuxi Taihu Talent Top Entrepreneurial Team. It has been approved to build the National Digital Design and Manufacturing Innovation Center and the Digital Design and Manufacturing Innovation Center, both in Jiangsu Province. The project "Development and Industrialization of High-power Distributed Photovoltaic Inverter Complete Set System", joint with Jiangnan University and Shanghai Neng Electric Co., Ltd., won the first prize of Science and Technology of Jiangsu Province.

Web: http://www.hust-wuxi.com/

Institute of Intelligent of Manufacturing Technology

Director Luo Minzhou is a Professor and doctoral advisor.

The institute focuses on the design of a virtual factory, the development of high-end equipment and manufacturing system, and the development and industrialization of digital factory technology (DFT), intelligent equipment technology (IET) and manufacturing execution systems (MES). The institute has attracted more than 20 leading talents in the fields of intelligent manufacturing technology from well-known universities at home and abroad, and cultivated more than 120 core teams with at least master's degrees and many years of development and management experience It has invested hundreds of millions of RMB to build a first-class public technology service platform for robot and intelligent manufacturing, and successfully built itself into a new R & D institution in Nanjing, and a leading enterprise in Jiangsu Province. The provincial intelligent robot innovation center and Jiangsu intelligent robot engineering research center have provided R & D technical services for more than 40 enterprises and technical consulting services for more than 100 enterprises. It has won honors in the field of robotics, including the "Cutting Edge Enterprise Award of 2019" of Capek, and "Most Professional Influence" forum of the 2020 World Intelligent Manufacturing Conference.

Web: http://www.iimt.org.cn

Institute of Road Engineering Technology and Equipment

Director Huajie Ren, director of "Highway Construction and Maintenance Technology, Materials and Equipment Transportation Industry R&D Center" of the Ministry of Transport, vice chairman of the road construction machinery branch of China Highway Society, and Managing Director of the road construction and maintenance machinery branch of the China Construction Machinery Industry Association.

The Institute focuses on the research and development of materials and equipment for highway construction and maintenance, particularly new road structures material technology, and equipment, emergency materials and equipment for extreme weather, and rapid daily maintenance and intelligent equipment for roads. The Institute has developed five incubation enterprises, obtained three authorized invention patents, and compiled three group standards that have been approved by the China Construction Machinery Industry Association.

Six products passed the certification of CMIF, recognizing core technologies that have reached a leading international level. One product involving hot air microwave compound heating has been successfully applied in 60 km of Jiangsu highway. The JCM100W asphalt road microwave maintenance vehicle has been selected into the new technology and product catalogue of Jiangsu Province, and realized sales. The Institute was a top 10 enterprise with the most investment value of "Discover Xuzhou" in 2020.

Web: http://www.jitriroad.com

Institute of Energy Vehicle Technology

Director Fanghui Shi received a Ph.D. from Georgia Institute of Technology, an MBA from Kelly School of Business of Indiana University, and was a technical fellow at General Motors Research Institute.

AEVRI started in 2019 with technology research on powertrain systems and component development for alternative energy vehicles, vehicle intelligent systems, and the development and commercialization of core automotive components. AEVRI also built an automotive test center as a public service platform. AEVRI consists of four departments: vehicle control & integration, powertrain, advanced engineering technology, and the test center. Four projects of the multi-mode, dedicated, hybrid transmission (DHT) were ongoing in 2020. Currently, the research and development work has achieved initial results. The first phase of construction of the public technical service platform has been carried out on schedule, and some of the test capabilities have been put into operation and used by customers.

Web: http://www.jaevri.com/

Institute of Micro/Nano Automation Systems and Equipment Technology

Director Ru Changhai, professor, doctoral supervisor. He is the recipient of the Jiangsu Outstanding Youth Fund and a distinguished professor of Soochow University, having trained 333 students in Jiangsu Province.

The Institute has set up its Mebot-X Business Unit, and additional business units in Vision and Intelligent Systems, Precision Instruments, Micro/Nano Additive Manufacturing, ASIC Chips, and Analytical Instruments. It is mainly focused on advanced equipment, biological medicine, new energy, new materials, and new generation information technology. With key technology developed in micro-nano manipulation, micro-nano processing and micro-nano measuring, the Institute is developing a series of micro-nano automation instruments, and products for micro/

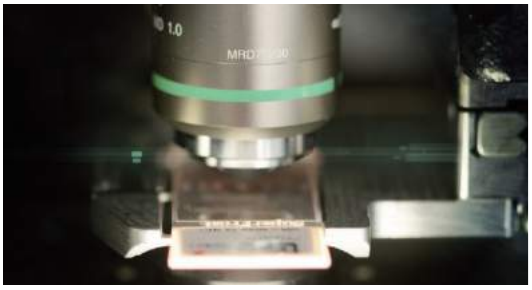
nano-scale positioning, processing, high precision measurement and precision manufacturing. The Institute has successfully connected with customers such as Suning, ECOVACS, JD, Yutong companies and so on, encompassing automobile manufacturing, logistics, rehabilitation, high-end scientific research and other applications. It has established Suzhou WeiAi Fund Management Co., Ltd. to carry out project derivative incubation and investment.

Web: http://www.jitrimnai.com

Jitri-Sioux R&D Center

Hans Duisters is the Founder and CEO of Sioux Group, CEO of the HTSM Investment Fund, Science and Technology Advisor to the Government of the Netherlands, and Founder of the Dutch Smart Port Industry Association.

The center is oriented to the development of MEMS, advanced software and mathematical application tools. It has high level technology in the fields of software, machinery, optics, physics, mechatronics, electronics, mathematical software and assembly and testing in the fields of medical care, automobile, semiconductors and analytical science. It has provided technical assessment and solution development for more than 30 local Chinese enterprises. Collaborative projects such as "Research and Development of a Submicron Multi-DOF Planar Motor Motion

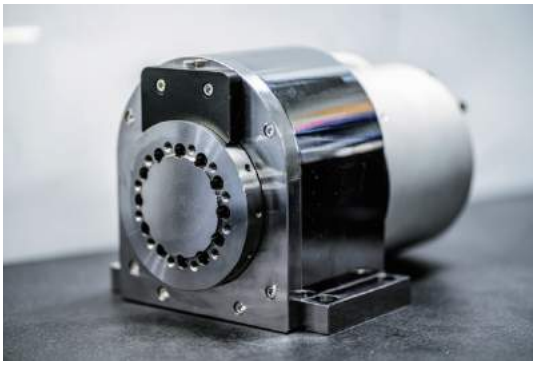


Platform", "Development and Application of Industrial Precision Hyperspectral Measurement Equipment", "Basic Research of Maglev Motion Platform", "Research and Development of Digital Automatic Focusing Sensor" and "Development of Labworld Automatic Fiber Detection and Identification System" are progressing smoothly. These R&D technologies are widely involved in semiconductor, artificial intelligence, intelligent medical, mechatronics and other cutting-edge fields.

Web: http://www.siouxtechnologies.com/

Institute of Ultra-precision Machining Technology Research

Kai Cheng, the director of the Institute, is a recipient of the National Science Fund for Distinguished Young Scholars and was hired as a professor of the Chang Jiang Scholars Program. Moreover, he is a professor of manufacturing systems at Brunel University in the UK, a distinguished professor of Harbin Institute of Technology and an internationally renowned expert in ultra-precision machining technology.



The Institute mainly focuses on the research and development of ultra-precision machining, machine tool, and measurement technologies, and ultra-precision manufacturing system integration. It has developed technologies such as a precision air bearing spindle, optimized the design of ultra-precision polishing machine tools for complex curved surfaces and plane polishing equipment, and an ultra-precision fast tool servo system.

The goal is to make the Institute a powerful, world-class and leading domestic pillar of ultra-precision processing and manufacturing.

Web: http://www.jitri-uptech.com

Institute of Intelligent Optoelectronic Systems

Director XinGuo Wei is a Professor of Instrumentation Science and Technology at the Beijing University of Aeronautics and Astronautics. In 2017, he was selected as the "Changjiang Scholar" Distinguished Professor of the Ministry of Education. In 2018, he was awarded the National Defense Science and Technology Outstanding Youth Science Fund and was the Special Award winner of the 15th China Youth Science and Technology Award.

The Institute focuses on optoelectronic sensing and detection, image processing and recognition, opto-electromechanical integration, and big data analysis and decision making. At present, it has made breakthroughs in core technologies and achieved early market applications. It focuses on aerospace, aviation, rail transit, high-end manufacturing, internet of things, unmanned systems, military equipment and other fields. The Institute is market-oriented, and continuously spins off and incubates and high-tech enterprises and innovation platforms.

Institute of Advanced Composite Forming Technology and Equipment

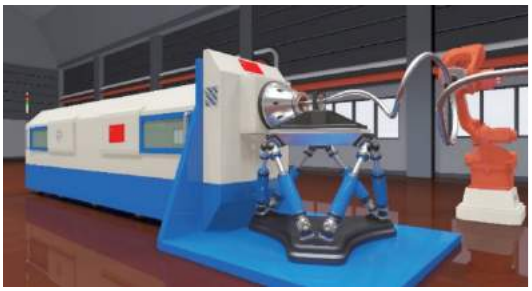
The Institute focuses on automated forming technologies and manufacturing equipment for composites. It aims at facilitating the large-scale application of advanced composite materials in various fields by solving bottleneck problems. The key research and development areas include 3D printing of continuous fiber-reinforced thermoplastic and thermoset composites, lightweight equipment, forming of composite structures, intelligent processing technologies, intelligent quality inspection, and diagnosis. The main objective of the Institute is to establish an internationally competitive base for high-tech enterprises in advanced composite forming

technology and equipment, as well as a focal point for global talent. Within five years, a world-class R&D platform will be created, providing technical support for the development of advanced composite industries in Jiangsu.

Institute of Motion Control Systems and Equipment Technology

Fang Suping, Executive Deputy Director, graduated from Xi 'an Jiaotong University with a bachelor's and master's degree, and received a PhD in precision engineering from Kyoto University, Japan. He is Head of the Institute of Industry and Equipment Technology of Hefei University of Technology.

The Institute of Motion Control System and Equipment Technology specializes in motion control technology, servo drive technology, machine vision & sensing technology and mechanical design optimization of Googoltech, and their industrial applicationsProducts and technologies include a warp knitting machine



control system solution for the textile industry, a laser pipe cutting system and a pipe bending system for the numerical control industry, an elevator door welding system and a 3C conductive particle production line.

Comparative Medicine Institute (CMI)

The director Xiang Gao is supported by National Natural Science Funds for Distinguished Young Scholars and is a Changjiang Scholar. The CMI is the co-constructed with the National Resource Center for Mutant Mice (NRCMM). It mainly uses gene editing and stem cell technology to create animal disease models and focuses on the development of new drug evaluation target disease models to support the research and development of new drugs, as well as clinical drug screening and the guidance of precise treatment of tumor models. The CMI has completed the construction of three major technology platforms: gene editing, humanized model, and aseptic animal. The model creation capacity has reached 6000 per year, the total the number of mouse strains exceeds 15000, and the resource reserve ranks first in the world. It has formed a one-stop

service for model generation, drug screening, surrogate breeding and high-quality model sales. The CMI has completed two series of financing, in total of 560 million CNY in 2019 and 2020. In 2021, the CMI expects to complete the IPO. The CMI has formed subsidiaries in Chengdu, Foshan, Changzhou, Beijing and the United States to provide animal models for life science, drug research and development on a global scale.

Web: http://www.gempharmatech.com/

Institute of Pharmaceutical Biotechnology

The institute is directed by Zichun Hua who is the National Natural Science Funds for Distinguished Young Scholar and Changjiang Scholar.

Using biotechnology and focusing on biomedicine and disease prevention, the Institute aims to build a research and development system with six paths, including new drug target research, innovative drug development, new drug preparation and delivery technologies, novel cross biotechnology, new companion diagnostics technologies, and a drug development support service. The Institute has domestic and foreign influence and leads the fields of targeted original drugs, gene engineering expression technology, and protein nano formulations. It has established a complete protein drug full-process R&D platform, DRAMP database, and a peptide drug design platform. The institute owns 41 patents, including

3 PCT patents. The project “Anti-tumor effect, protein engineering modification and application of extracellular matrix degradation products” won the first prize of Science and Technology Award of Jiangsu Province, and the project “Key Technologies for Peptide Drug Research and Development”, in cooperation with Changzhou Siyao Pharmaceutical Co., Ltd., won the first prize of China's Invention and Entrepreneurship Achievements.

Web: http://www.njucz.cn/

Institute of Advanced Drug Delivery Technology

The institute is led by Dr. Danyi Quan, a well-known expert on transdermal drug delivery systems.

This institute specializes in the industrialization of advanced drug delivery systems, such as transdermal, implant, inhalation, 3D printing, solid dosage, nano tech, novel TCM, and novel injectable delivery, and also in high-end generic drugs. The institute owns a 11000 ㎡ pilot batch facility, which can be divided into a dozen GMP workshops in order to meet various requirements from different R & D companies. The institute also provides small test, pilot test, and batch production services for novel drug delivery. At present, the institute has 17 independent R & D projects, 42 patents applied for, and 8 enterprises

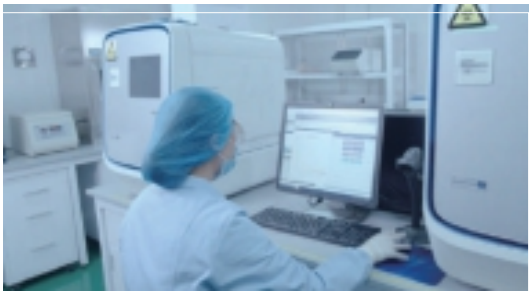
in incubation. Besides independent research, the institute actively innovates its operating mode by establishing joint laboratories with respected foreign R & D companies such as Logan, Henkel, DuPont and Waters.

Web: http://www.iaddt.com/

Institute of Translational Medicine and Innovative Drug Technology

Director Wang Peng is an academician of the American Academy of Medicine and Biological Engineering, and an expert of the National Overseas High-level Talent Introduction Program.

The institute is mainly engaged in the research, development and application of technologies and products such as precision medicine, translational medicine and innovative drugs, focusing on combining the new technologies and methods of precision medicine and translational medicine with the traditional research and development path of innovative drugs. Four R&D/service platforms have been successfully built and opened, including a translational medicine/clinical testing platform, a chemical innovation drug research and development platform, a biological innovation drug research and development platform, and



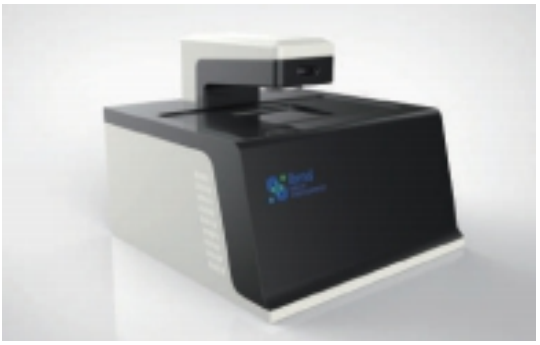
a preclinical biological evaluation platform. More than 1,000 service companies have formed a clear industrial cluster effect. The institute's incubator, Tianjing Bio, was officially listed on Nasdaq in New York in January 2020, with a market value of more than 4 billion U.S. dollars, and won many honors such as "2020 China's New Health Power Enterprise" and "2020 Science and Technology Future Star".

Web: http://www.simceredx.com/

Institute of Biomaterials and Medical Devices

Director Gu Zhongze is Distinguished Professor of Changjiang Scholar, Distinguished Young Scholar, and Fellow of the American Academy of Medicine and Biological Engineering.

The institute focuses on high-end medical equipment, and focuses on the development of cutting-edge technology, the introduction of advanced technologies at home and abroad for secondary development, technology transformation, and industrial incubation. At present, there are 4 R&D centers and 1 engineering transformation center for biomimetic organs and organ chips, biomedical materials, image big data, IVD and detection technology. A full-chain medical device innovation and entrepreneurship incubation service system has been established for integrating technology research and development, achievement transformation, clinical transformation, product



registration and listing, and enterprise cultivation. The Institute has served nearly 100 enterprises and institutions of various types, incubated six companies, and developed a public service platform for medical device compliance research called Dongmei Medical Technology (Suzhou) Co., Ltd., which in 2020 completed an angel round financing of nearly 10 million RMB.

Web: http://ibmd.seu.edu.cn/

Institute of Biomedical Engineering Technology

Director Yang Hongbo is a PhD supervisor, Secretary of the Party Committee of Suzhou Institute of Medical Engineering, Chinese Academy of Sciences.

The institute focuses on the research fields of medical optics, medical inspection, medical imaging, and rehabilitation engineering. It works to promote the docking of scientific and technological achievements with market elements, and to accelerate the transformation of scientific and technological achievements into technology transfer. The institute has leveraged the Suzhou Institute of Medical Engineering and related research institutions of the Chinese Academy of Sciences to build a complete engineering platform. The engineering projects that have been carried out include a laser scanning confocal microscope,

structured light illumination super-resolution microscope, and thrombus elasticity map. Among them, the laser confocal microscope significantly improves the clarity and resolution of the image, breaking the limitation that the traditional microscope can only observe two-dimensional images.

Web: http://www.sibet.ac.cn/

Institute of Brain Space Information Technology

Director Li Pengcheng is a Professor and New Century Outstanding Talent of the Ministry of Education, and a Leading Talent of Suzhou Industrial Park.

The institute recruited Prof. Luo Qingming, Academician of the Chinese Academy of Sciences, as its Chief Scientist. It is mainly oriented to the frontiers of brain and brain-like intelligence and is committed to developing the world's leading brain space information technology, focusing on the three major research and development directions: whole-brain visualization network, brain-like intelligence, and integrated neurotechnology for brain diseases. It is the largest and most advanced research platform in the world for meso-brain connectivity maps. The Platform of Brain Imaging Research built and operated by the Institute was approved as the Jiangsu Province Major Science and Technology

Innovation Platform entry project, capable of preparing, imaging and analyzing 2000 mouse whole brain connection data sets each year. The Institute also undertook the NIH Brain Project in the United States and the Human Brain Project in the European Union and has established cooperative relationships with nearly 60 top global organizations such as the Allen Brain Research Institute and Cold Spring Harbor Laboratory in the United States.

Web: http://www.brainsmatics.org/

Institute of Industrial Biotechnology

The Institute is led by Pingkai Ouyang, an academician of the Chinese Academy of Engineering, as its chief scientist.

Research fields include enzyme engineering and bioinformatics, microbial high-throughput breeding, microbial fermentation, eco-environmental protection, process enhancement, and integration. The core technologies of the institute include synthetic biology, such as gene editing cell technology and bio-catalysis technology based on cell clustering effects. The research and development center of microchemical technology and equipment of the institute focuses on chemical process safety and efficient conversion of biomass as its core research and development direction. It is mainly engaged in the research and engineering application of microfluidic field reaction technology, the development of supporting equipment, and

the research and development of bio-based materials. The Institute has cooperated with Guangxi COFCO, Luzhou Laojiao, Ningxia Yipin, Subote co., Ltd. and other well-known enterprises, to realize technological improvement, innovation, and industrialized production. The institute has successfully completed large-scale project pilot production through technological integration development and achievement sharing. Seven spin-off companies have been established in areas such as environmental protection, health, bio-based materials and other fields.

Web: http://www.njiwb.com/

Institute of Food Biotechnology

Leveraging the State Key Laboratory of Food Science & Technology and the National Engineering Laboratory for Cereal Fermentation Technology of Jiangnan University, the Institute of Food Biotechnology has been established in the “gourmet capital” of Yangzhou, and the “home of longevity” of Rugao, respectively. It is building a new five-in-one research and development institution with talent, technology, industry, capital, and market, with Jiangnan University and food biotechnology at the core, focusing on the development and industrial utilization of probiotics, functional food bio-manufacturing, advanced manufacturing of fermented food, and green processing of cereal and starch. So far, the institute has built a pilot plant for probiotics, and constructed an R&D system for probiotic food-grade culture media, food-grade freeze-drying protectants, and probiotics mixed fermentation

technology. It has also successfully incubated five spinoff enterprises by means of technology equity. A series of probiotic products, such as such as “JUP probiotics powder,” bifidobacterium brevis probiotic powder, 5-hydroxytryptamine and ready-to-eat cereals, have been independently developed and successfully launched.

Web: http://www.jurfbri.com/

Innovation Center for Social Technology and Aging

Director Pan Tianshu, is a professor and doctoral supervisor who is also the director of Fudan-Harvard Medical Anthropology Research Center.

The innovation center was jointly constructed by the Harvard University project team, Nanjing Lishui Development Zone and Jiangsu Institute of Industry and Research in December 2020 and settled in Jiangsu's only health practice demonstration area in Nanjing Lishui District. It is also the country's first international technology innovation center for the elderly. Leveraging the core resources of Harvard University, the center gathers international and domestic innovation resources focusing on the needs of an aging

society, covering services involving elderly services, healthcare, supplies for the elderly, consulting and training, certification, intellectual property, intelligent manufacturing, artificial intelligence and data. A series of high-end services such as products suitable for the elderly will form seed industrial development.

Key Integrated Innovation Platform

Yangtze Delta Region Institute of Advanced Materials

Yangtze Delta Region Institute of Advanced Materials (YDRIAM) was officially launched on December 28th, 2019. The institute was supported and established by Jiangsu Provincial Government, Chinese Academy of Sciences, China Iron & Steel Research Institute Group, China Baowu Steel Group, and leading materials research institutes and enterprises within Yangtze Delta region.

The headquarters of YDRIAM is located on nearly twenty acres in the Yangtze Delta International R&D community in Xiangcheng, Suzhou. The leadership ranks of YDRIAM include:

◎ President Gan Yong, Chinese Academy of Engineering academician/former vice president, Director of National New Material Industry Development Expert Advisory Committee;

◎ Director of Expert advisory committee Qi Rang, Vice director of the 12th CPPCC National Committee on population, resources and environment, former vice president of China Association for Science and Technology;

◎ Executive President Liu Qing, President of JITRI.

YDRIAM has been adhering to the JITRI principles of neither competing with universities for academic recognition nor with enterprises for profit. YDRIAM is focused on the development of three main functions including general technology and platform support, resource agglomeration and integration innovation, strategic planning, and integrated research. It is building three core platforms consisting of material analysis and characterization, material big data and application, and instrument and characterization technology development. The goal of YDRIAM is to become a first class research institute and innovation nucleus with world-class innovation resources, open organization and diverse structure in materials industry.

Jiangsu Integrated Circuit Application Technology Innovation Center

Jiangsu Integrated Circuit Application Technology Innovation Center (JITRIC), established in August 2020, is a new R&D institution supported by JITRI, Wuxi Municipal People's Government, and Xishan Economic and Technological Development Zone. With JITRI's fully integrated innovation resources in the area of integrated circuits, and with the advantages of Wuxi and Jiangsu in the integrated circuit industry, JITRIC has built a deep vertical integrated supply chain based on VIDM. JITRIC's goal is to establish a recognized industrial base for the transfer of R&D achievements in integrated circuits, which will boost innovation in Jiangsu.

Goals include the analysis of chip demand and product definition, R & D of industry customized chips, R&D of chips based on advanced process, argumentation and implementation of major projects. JITRIC will establish a public test and analysis service capacity using domestic manufactured equipment, including: High frequency and high speed chip test service, Chip failure analysis service, chip reliability test service, ATE test program development service, IC small batch quick packaging service industrial chip / module test service. Project incubation is supported by the integrated circuit industry policy, the regional talent policy and JITRI. The major technology innovation projects are supported by the combination of government fund allocation and investment, and integrated circuit industry fund.

Suzhou Industrial Technology Research Institute

Suzhou Industrial Technology Research Institute (SITRI) is a public institution directly under the people's Government of Suzhou city. It is a non-profit technology public research institution aimed at technology research and development, promotion and application. Suzhou Industrial Technology Research Institute follows the "R&D as an industry and technology as product" approach, focusing on Suzhou's future industrial layout, emerging industrial clusters and upgrading of industries. The research and development of common key technologies and forward-looking technologies, as well as interdisciplinary integrated innovation, will fill the gap in the innovation chain between upstream basic research and downstream product production. SITRI aims to build about 50 technology research institutes within five years, leverage the provincial investment of 1 billion CNY and R & D investment of 5 billion CNY, incubate 700 derivative innovation enterprises (including 200 high-tech enterprises), gather 2000 leading R&D talents, and increase the output value of new technology by 50 billion CNY.

Feng Xiang, President of SITRI, is a doctor of computer science at the University of Texas at Austin. As of April 2021, Suzhou Industry Research Institute has built the Nano Application Technology Research Institute, Future Urban Application Technology Research Institute, Applied Intelligence Research Institute, Integrated Infrastructure Technology Research Institute, Electronic Functional Materials Technology Research Institute, Green Manufacturing Fusion Technology Research Institute, and eight research institutes including the Institute of Isotope Technology And Institute of Organic Functional Materials Technology. It has built a research and development site of more than 40000 square meters, with a total investment of 800 million CNY.

Jiangsu China-Israel Industrial Technology Research Institute

Jiangsu China-Israel Industrial Technology Research Institute is located in Wujin District, Changzhou, one of the first national innovation and entrepreneurship regional demonstration zones. As the core carrier of the innovation system of Changzhou Innovation Park, it is established by Wujin national high tech Zone. It is a new R & D institution jointly built by JITRI, the Changzhou municipal government and the Wujin District government. Professor Li Zexiang of Hong Kong University of science and technology serves as the president.

Since its establishment, the Institute has focused on the three major industries of intelligent equipment, life and health, and new generation information technology, and implemented technology research and development, technology transfer, incubation acceleration, and talent cultivation. Efforts have been made to promote the cultivation of new industrial transformation and upgrading, and to achieve win-win industrial and economic cooperation between China and Israel. At present, the Institute has gathered Changzhou Guli high-end equipment innovation center, orthopedics and sports rehabilitation industry support platform, "fluorescent RNA" molecular diagnostic nucleic acid detection platform, joint biological cross laboratory and other high-end platforms. It has also signed contracts to land a number of technology projects, and successfully promoted a number of Israeli technical cooperation projects. Nearly 30000 square meters of space will be opened in the second half of 2021.

R&D Enterprises

The goal of JITRI is to effectively improve the technological innovation ability and technical service ability of R&D enterprises in Jiangsu Province. JITRI has integrated Jiangsu R&D enterprises in Province into its innovation system to actively promote their docking with innovation resources and needs, and to provide them with supporting policies such as joint training of postgraduates and international cooperation fund pool projects.

No.	Company Name	Major Business	Contact Info
		Advanced Materials	
1	Sinopec Nanjing Research Institute of Chemical Industry Co., Ltd	Sulfuric acid environmental protection, carbon dioxide capture, storage and utilization (CCUs), desulfurization and decarbonization, methanol catalyst, petroleum and petrochemical catalyst, ultra high molecular weight polyethylene fiber dry spinning, analytical instruments, rubber additives, oilfield chemicals, engineering design, standards, analysis and detection, etc	Donghong ZHU 13951938311 zhudh.nhgs@sinopec.com 699 Geguan Road, Jiangbei New District, Nanjing, Jiangsu Province
		Energy and Environmental Protection	
2	Nanjing Innovation Center for Environmental Protection Industry Co., Ltd	The company takes environmental health and ecological safety as the core, and carries out the whole chain service of "technology development-process package design-engineering equipment-construction general contract-operation and maintenance". The main products include ECO electrochemistry, fully mixed ZVI-cascade Fenton , HIC anaerobic, multi-stage A/O, NDMP resin, SFBR Fenton, GCO cascade ozone and other technical equipment.	Weihua YU 18061239990 whyu139@163.com http://www.icepi.com.cn/ No.37, Jiangjun Avenue, Jiangning District, Nanjing, Jiangsu Province
3	Jiangsu Academy of Environmental Industry and Technology Corp	Research and Application of Ecological and Environmental Protection Technology. Achievement Transformation and Industrialization Operation of Environmental Protection High-Tech. Management and Consulting on Ecology and Environment. Governance of Environmental Pollution.	Pengli CHEN 18761680852 chenpengli2009@163.com http://www.jsaeit.com/ Buildding A, Phoenix Culture Plaza, No.211, Jiangdong Middle Road, Nanjing, Jiangsu Province
4	Nanjing Estable Power Technology Co., Ltd	Design, development, integration, operation and maintenance of power monitoring, acquisition, analysis and governance systems (including software and hardware) involved in the information security management	YaoQiang LUO 13611513788 luoyaoqiang@est-power.com http://www.est-power.com/ Estpower Building, No.19 Ningshuang Road, Yuhuatai District, Nanjing, Jiangsu Province, 210012
		Information and communication Technology	
5	Wuxi CMC Electronics Co., Ltd.	Component test development, finished product/wafer test, qualification inspection, device screening, reliability research, failure analysis	Desheng XU13915290881 13915290881@139.com http://www.cmctest.com/ No.5 Huihe Road, Wuxi, Jiangsu Province

No.	Company Name	Major Business	Contact Info
6	Certusnet, Inc.	Software defined data center Software defined communication network element Business arrangement and support system	Jing LV 15950561683 lvj@certusnet.com.cn http://www.certusnet.com.cn/ No.18, 699-22 Xuanwu Avenue, Xuanwu District, Nanjing, Jiangsu Province
7	Image Sky International Co., Ltd.	Remote sensing image data products Digital Elevation Model Special Information Products Local tax Solution Industrial enterprise Solution Land Solution Agriculture Solutions Ecological environment protection Solution	Hui CHEN 15152888032 yunying@imagesky.com.cn http://www.imagesky.com.cn/ No.18 Daoyuan Road, Suzhou, Jiangsu Province, 215163
8	MINIVISION	Remote sensing image data processing software, big data analysis and mining software, big data management and analysis software, remote sensing image data products, geographic information products, surveying and mapping services, etc.	Qing LI 17602505599 liqing@minivision.cn http://www.minivision.cn/ Building 5, Life science and Technology Town, 568 Longmian Avenue, Gaoxinyuan, Jiangning District, Nanjing, Jiangsu Province
9	AI Speech Co., Ltd.	Smart home solutions Intelligent vehicle solutions Intelligent robot solutions Intelligent service solutions Human-computer interaction platform (DUI) Intelligent voice chip	Song GAO 13451719959 song.gao@aispeech.com http://www.aispeech.com/ Building 14, Tengfei science and Technology Park, 388 Xinping street, Suzhou Industrial Park, Jiangsu Province
10	NanJing Milliway Microelectronics Technology Co., Ltd.	microwave and millimeterwave ICs and modules	Tao TONG 17301583421 tt@milliway-ic.com https://www.milliway.com/ No.9 Mozhou East Road, CNV, Fourth Floor Central Building , Nanjing, Jiangsu Province
11	Whale Cloud Technology Co., Ltd.	Telecommunication software Urban brain software Cloud computing and big data services	Minnie 15651896257 yu.minmin@iwhalecloud.com https://www.iwhalecloud.com/ 6th floor, block B, No.50 Andemen street, Yuhuatai District, Nanjing, Jiangsu Province, 210012
12	AsiaInfo Technologies (Nanjing), Inc.	BSS/OSS product Artificial intelligence product Big Data product Database product	Junxing FU 13770856275 30756643@qq.com https://www.asiainfo.com/zh_cn/index.html/ No.4 Gupinggang road, Gulou District, Nanjing, Jiangsu Province, 210013
13	Suzhou Tongyuan Software&Control Technology Co., Ltd.	Industrial intelligent software product R & D, engineering services and system engineering solutions.	Wenqiong WEI 13317191939 weiwq@tongyuan.cc http://www.tongyuan.cc/ Room E1701, E1702, E1703, Nano University Science Park, 388 Ruoshui Road, Suzhou Industrial Park, Jiangsu Province
14	ThunderSoft	Embedded software development, artificial intelligence software, vehicle system development.	Wen XUE 15805199339 190521818@qq.com http://www.thundersoftcom.cn/ Building A, Yihua, No.50, Andemen street, Yuhuatai District, Nanjing, Jiangsu Province
15	Nanjing Dongqi Intelligent Manufacturing Institute Co., Ltd.	Smart site management platform Smart water management and control platform Smart factory Smart Park Expressway guardrail installation robot High voltage cable spraying robot	Jianyang ZHONG 15371011818 zjy@dongqiimi.com http://www.dongqiimi.com/ 9/F, building E, yunmiCity.19 ningshuang Road,Yuhuatai District, Nanjing, Jiangsu Province
16	Nanjing Xinda Institute of Meteorological Science and Technology Co., Ltd.	Urban Strong Convective Weather short-term Monitoring and Early Warning System, Urban Meteorological Disaster Forecast and Early Warning System ,Urban Waterlogging Warning System, Aviation Weather Service System,Meteorological Support System for Offshore Wind Power Engineering, Precision Rapid Update Forecasting System (PRUFS)	Ke ZHOU 13814038497 market@nimst.com http://www.nimst.com/ 6th Floor, Building 2, Intelligent Manufacturing Industrial Park, No.6 Zhida Road, Jiangbei New Area, Nanjing, Jiangsu Province

No.	Company Name	Major Business	Contact Info
17	Nanjing Nanyou Information Industry Technology Research Institute Co., Ltd.	smart campus management platform 5G multifunction lamppost smart gateway smart waste disposal platform	Shuping LIU 13952066346 lsp@nyiit.com.cn No.6 Middle Xingzhi Road,Nanjing, Jiangsu Province
18	Wuxi Orient Software Technology Co., Ltd.	Engineering simulation and industrial app solution Digital test solution Integrated management solution for military enterprises	Wei ZHOU 13861475289 zhouwei@cssrc.com.cn http://www.orient702.com/ No.222, Shanshui East Road, Binhu District, Wuxi, Jiangsu Province
19	Suzhou Innosilicon Technology Co., Ltd.	Customized service of domestic one-stop hybrid circuit IP series and domestic one-stop smart chip.	Tony CHEN 18516275817 Sales@innosilicon.com.cn http://www.innosilicon.com.cn/ D1-608, Xijiao science and Technology Innovation Park, 99 Renai Road, Suzhou Industrial Park, Jiangsu Province
	Equipment & Manufacturing		
20	Wuxi Wolffu AutomotiveTechnology Co., Ltd.	Development of automotive engine，Calibration and testing services of automotive powertrain and related vehicle engineering Calibration and testing service of automotive engine	Liguo ZHOU 18015349923 zhouliguo@wolffu.com http://www.wolffu.com/ Floor 6, No.5 Chuanghui Rd, Wind-park, Huishan Economic Development District, Wuxi, Jiangsu Province
21	Dalian University of Technology Jiangsu Research Institute Co., Ltd.	Technology Service, Technology Development, Technology Consultation, technology exchange, technology transfer, technology popularization; Engineering and technical research and test development; Software Development; IT Consultation; Technology Consultation of Artificial Intelligence Public Service Platform; Innovative and Entrepreneurial Service Platform of Artificial Intelligence; Industrial Park Management Service; Entrepreneurial Space Service; Non-residential Real Estate Leasing; Property Management; Property Service Evaluation; Intermediary Service of Science and technology; Intellectual Property Service; Standardized Service; Enterprise Management; Financial Consultation; Design of Enterprise Image; Brand Management; Educational Consultation(excluding licensed or approved education and training activities); Intermediary Service of seif-funded overseas-study; Legal Consultation	Yongtao JIA 18505197281 jiayongtao@dutcz.com http://dutjs.com/ No. 18, middle Changwu Road, Changzhou Science and Education City, Changzhou, Jiangsu Province
22	Jiangsu Institute of China Academy of Machinery Science & Technology Co., Ltd.	Mold and 3D printing Development and application of industrial robot Intelligent manufacturing equipment Industrial Internet of intelligent manufacturing equipment machinery industry	Bailiang ZHUANG 13585317691 13585317691@163.com http://www.camjs.com.cn/ Block C,Tianhong Bld.,Changzhou Science and Education Town, Jiangsu Province
23	Jiangsu Advanced Construction Machinery Innovation Center Ltd.	Core components and key technology research and development in advanced construction machinery, agricultural machinery and other non-road machinery areas，Including transmission gearboxes, drive axles, reducers, hydraulic valves, hydraulic pump motors, vehicle controllers, new energy motors, etc.	Yanshou JIANG 15852154435 jiangyanshou@xcmg.com http://www.icacm.cn/ No.26 Tuolanshan Road, Xuzhou, Jiangsu Province, 221004
	Biology and Medicine		
24	Nanjing Healthnice Pharmaceutical Technology Limited Company	Febuxostat Omeprazole Powder for Oral Suspension Levofolinic acid for Injection Tenofovir Disoproxil Fumarate powder	Qiong ZUO 13584020888 yuanhongli@healthnice.net http://www.pharmgarden.com/ Floor 15, No. 5, New Model Road, Gulou District, Nanjing, Jiangsu Province
25	Jiangsu Vcare Pharmatech Co., Ltd.	Innovative drug/generic drug R&D and technology transfer R&D, production and sales of pharmaceutical intermediates Possess "chemistry + pharmacy + clinical" drug industry chain research and development service capabilities	Yanchun GONG 13645178401 gong_yanchun@vcarepharmatech.com http://www.vcarepharmatech.cn/ 163 Huakang Road, Jiangbei new district, Nanjing, Jiangsu Province
26	Suzhou Xishan Zhongke Drugs Research and Development Co., Ltd.	Safety evaluation of drugs, pesticides and chemicals	Renlong YU 15370001965 yurenlong@szxszk.com http://www.suzhouresearch.com/ 1336 Wuzhong Avenue, Wuzhong District, Suzhou, Jiangsu Province, 215104

No.	Company Name	Major Business	Contact Info
27	Jiangsu Provincial Institute of Materia Medica	Preclinical pharmaceutical research of new drugs Preclinical safety evaluation of new drugs Consistency evaluation of drug quality and efficacy Study on drug packaging compatibility Development of health food	Yimei DING13851670425 jsyws@njtech.edu.cn http://jsyws.njtech.edu.cn/ No.26 Majia Street,Nanjing, Jiangsu Province, 210009
28	Wuxi Biortus Bioscience Co., Ltd.	provide early R&D services of new drugs with "complex protein preparation as the basis and structural biology as the core competitiveness", including expression and purification of drug target proteins, protein structure analysis, biological analysis, new drug design and compound screening, etc.	Yan WANG 0510-86130005 info@wuxibiortus.com https://www.wuxibiortus.com/ A5, Dongsheng West Road, ,Jiangyin, Jiangsu Province
29	Nanjing Gritpharma Co., Ltd	Innovative drug development Complex generic drug development Drug consistency assessment technical service	Qing ZHAO 13814000907 zhaoqing@gritpharma.com http://www.gritpharma.com.cn/ Floor 5,Building 9，No.568，LongMianDaDao,JiangNingDistrict，NanJing, Jiangsu Province
30	Nanjing H&D Pharmaceutical Technology Co., Ltd.	The main business is to provide technical services and transfer for new drug research and development, consultation for registration and approval, technical services for consistency evaluation, CRO, sharing platform for generic and innovative drug transformation of MAH holders and third-party drug testing (CNAS system)	Yingchun HUANG 13913862538 hd@hdpharm.cn http://www.hdpharm.cn/ Room 317, Building F6, Jiangsu Life Science and Technology Innovation Park, No. 9 Weidi Road, Qixia District, Nanjing, Jiangsu Province
31	Nanjing KangChuanJi Pharmatech Co., Ltd.	Generic drug consistency evaluation High difficulty formulation development High difficultyt generic drug development Improved new drug development	JingJie FENG 15850793960 fengjj@kcjpharma.com http://kcjpharma.com/ 2nd Floor, Building 5, No.199 Wenfang Road, Jiangning District, Nanjing, Jiangsu Province, 211100
32	Jiangsu Jinglixin Pharmaceutical Technology Co., Ltd.	Drug development Technology transfer Commissioned development	Xiong ZHU 18061252699 cpuzx@foxmail.com http//www.jsjlxyy.com/ No.18 Zhilan Road, Jiangning District, Nanjing, Jiangsu Province
33	Advenchen Laboratories Nanjing, Ltd.	Targeted research and development of class 1 anti-tumor drugs, transfer of apatinib (on the market) and arotinib (on the market); other clinical trials of deritinib, cimotinib, al8326, al2846 and al58805 projects are in progress; al58922 project is ready to apply for IND	Lisha QI 18001599027 lishaq@advenchen.com http://www.advenchen.com.cn/ No. 568 Longmian Road, Jiangning District, Nanjing, Jiangsu Province
34	Alphamab Co., Ltd.	Efficient early antibody screening system CRIM one molecular for nulti-functions Bispecificity platform CRAM one cell for more antibodies platform Structure function oriented protein engineering platform Pharmacodynamic evaluation model in vitro and in vivo	Junhong ZHANG 13916026650 junhongzhang@alphamab.com http://www.alphamab.com/ Bldg. C23, bioBAY218 XingHu Street, SIP, SuZhou, Jiangsu Province
35	KCI Biotech (Suzhou) Inc.	company that provides preclinical pharmacological efficacy and drug generation research for pharmaceutical research and development, is committed to establishing a comprehensive platform for evaluating preclinical efficacy and drug generation in animals.The company has a series of core technologies, including animal disease model building, experiments and pharmacodynamics analysis, which are necessary for biomedical research and development of cancer and non-cancer diseases	Jiqiao CHEN 186 5190 5070 chenjiqiao@kcibiotech.com http://www.kcibiotech.com/ Room 501,NW-12, Nanopolis, Suzhou, 99 Jinji Lake Avenue, Suzhou Industrial Park, Jiangsu Province, 215000
36	HQ Bioscience Co., Ltd.	Analysis of non clinical and clinical samples of chemical and biological drugs Non clinical pharmacokinetics of innovative drugs Clinical pharmacokinetics of innovative drugs Bioequivalence of generic drugs	Kan ZHONG 18721733705 kzhong2013@163.com http://www.hq-bioscience.com.cn/ 4/F, Building A, 108Yuxin Road, Suzhou Industrial Park, Jiangsu Province, 215123
37	Vigonvita Life Sciences Co., Ltd.	Our company is committed to the research and development of innovative drugs and generic drugs, mainly involving cardiovascular system, nervous system, antiviral treatment and other fields	Yubao ZHENG 13328006785 yubao.zheng@vigonvita.cn No.108 Yuxin Road, industrial park, Wuzhong District, Suzhou, Jiangsu Province
38	WuXi Biologics (Suzhou) Co., Ltd.	Biosafety testing service of biological products.In particular, the potential virus, mycoplasma and other microbial contamination in the process of biomedical R&D and production are detected, and the virus clearance verification service is provided	Jiamin JIN 15151500023 jin_jiamin@wuxibiologics.com https://www.wuxibiologics.com/ North of Wuzhong Avenue, Wuzhong District, Suzhou , Jiangsu Province

04

Resource Gathering

Domestic Resources

In order to help universities and research institutes bridge between Jiangsu industry and the global innovation resource, JITRI actively cooperates with well-known universities and research institutes in joint training, technology match making, innovation platform co-establishment, technology transfer, and joint R&D projects.

JITRI uses the joint training of graduate students to deepen cooperation with domestic colleges and universities. On the one hand, the scientific research talent and innovative resources of JITRI can help the development, diversification and improvement of universities, and can promote the transfer and development of scientific and technological achievements. On the other hand, the establishment of long-term cooperation with universities can strengthen the JITRI research institutes, and to provide talent and technical support for their sustainable development, in a win-win cooperation.

JITRI has signed cooperation agreements with 55 domestic universities and institutes, including Peking University, Dalian University of technology, Chongqing University, Lanzhou University, Nanjing University, Southeast University and Shanghai Institute of Optics and precision machinery of Chinese Academy of Sciences, and has jointly trained more than 1500 graduate students.

In the future, JITRI will use its resources to establish JITRI university on the basis of the existing joint training of postgraduates, creating an experiment in education reform, and promoting a two-way interaction of science and technology and education system reforms to cultivate more and better innovative industrial talent in Jiangsu Province.

Domestic Innovation Partners

No.	Name	Areas of Strengths	Existing Cooperations	Contact Info
		Chinese Academy of Sciences		
1	Institute of Advanced Manufacturing Technology, Chinese Academy of Sciences	Robot technology (bionic robot, service robot, industrial robot, etc.), intelligent equipment technology (innovative design, precision manufacturing, intelligent materials, system integration, etc.)	In January 2010, Changzhou Municipal Government and Hefei Research Institute jointly built the Institute of Advanced Manufacturing Technology, Chinese Academy of Sciences. In May 2015, the organization joined JITRI and became the Research Institute of Robotics and Intelligent Equipment Technology.	Jiali HUA 18961296008 http://www.iamt.cas.cn/ Huihong Building, Science and Education City, 801 Middle Changwu Road, Changzhou, Jiangsu Province
2	Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences	High power laser technology, high field physics and high power optics, space laser and time-frequency technology, information optics, quantum optics, laser and optoelectronic devices, optical materials, etc.	In June 2012, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences signed a cooperation agreement with the Management Committee of Nanjing Economic and Technological Development Zone to jointly build Nanjing Advanced Laser Technology Research Institute. In 2015, the organization joined JITRI and became Advanced Laser Technology Research Institute.	Sheng LIN 18551674895 http://www.siom.cas.cn/ http://www.nialt.com/ Building A, Longgang Science Park, No.1 Hengyuan Road, Nanjing Economic and Technological Development Zone, Jiangsu Province
3	Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences	Nanomaterial growth technology and nano device manufacturing technology	In 2014, the organization joined JITRI and became the Research Institute of Nanomaterials and Devices.	Jinjun ZHANG 0512-62872957 18912279499 office@sinano.ac.cn http://www.sinano.cas.cn/ 398 Ruoshui Road, Suzhou Industrial Park, Jiangsu Province
4	Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences	Electronic Science and technology, information and communication engineering; microsatellite, wireless sensor network, future mobile communication, microsystem technology, information functional materials and devices	In 2015, Shanghai Institute of Microsystems and Information Technology, Chinese Academy of Sciences, Southeast University, Jiangning Development Zone Management Committee and JITRI jointly established the Mobile Communication Technology Research Institute.	Xinyi CHEN 025-87739883 xinyi.chen@jushri.com http://www.sim.ac.cn/ Wireless Valley Park, No.9, Mozhou East Road, Jiangning Development Zone, Nanjing, Jiangsu Province
5	Institute of Microelectronics of the Chinese Academy of Sciences, Chinese Academy of Sciences	IC pilot technology and equipment technology; IC and system design technology; high performance device and circuit integration technology; RF and microwave device and circuit integration technology; 3D Integration and system packaging technology; new nano device and integration technology; Internet of things and sensor technology, etc.	In 2015, relying on Huajin Semiconductor Packaging Technology R&D Center Co., Ltd., the Institute was jointly established by the Institute of Microelectronics, Chinese Academy of Sciences and Wuxi New Area Management Committee, and became a full member in February 2017. In 2019, it was awarded the R&D enterprise of Jiangsu Province, and in 2020, it was successfully upgraded to the National Manufacturing Innovation Center.	Bin ZHOU 0510-66679352 binzhou@ncap-cn.com http://www.ime.ac.cn/ http://www.ncap-cn.com/ Building D1, China Sensor Network International Innovation Park, 200 Linghu Avenue, Wuxi New District, Jiangsu Province
6	Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences	Biomedical instruments, reagents and biomaterials (medical optical technology, medical laboratory technology, medical imaging technology, medical acoustic technology, medical electronic technology and rehabilitation engineering technology, etc.)	In 2015, the Institute of Biomedical Engineering and Technology was built on the basis of Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences. In February 2017, the Institute ranked first among all JITRI's preparatory institutes and became a full member.	Siyan CHEN 18866828059 http://www.sibet.ac.cn/ 88 Keling Road, Science and Technology City, Suzhou High Tech Zone, Jiangsu Province
7	Institute of Genetics and Developmental Biology	Model animal, biotechnology	In October 2020, the Institute signed a comprehensive cooperation agreement with JITRI.	Yun LU 15861858023 genetics@genetics.ac.cn http://www.genetics.ac.cn/ Institute of Genetics and Developmental Biology, No.2, No.1 Hospital, Beichen West Road, Chaoyang District, Beijing
		Partners ouside of Jiangsu Province		
8	Tsinghua University	Mathematics, physics, biology, mechanics, mechanics, optics, materials, power engineering and Engineering Thermophysics, electricity, electronics, information and communication engineering, control, computer, architecture, civil engineering, water conservancy, chemical industry, nuclear science, biomedicine, pharmacy, etc.	In July 2011, the Suzhou Automotive Research Institute was established by Tsinghua University. In December 2015, it joined JITRI and became Advanced Automobile Technology Research Institute.	Feng ZHAO 18018108803 https://www.tsinghua.edu.cn/ http://www.tsari.tsinghua.edu.cn/company.aspx/ Tsinghua Automobile Industrial Park, No.139 Lianyang Road, Wujiang District, Suzhou City, Jiangsu Province
9	Peking University	Mathematics, physics, chemistry, geography, geophysics, geology, biology, mechanics, materials, electronics, control science and engineering, computer, environment, software engineering, basic medicine, clinical medicine, Stomatology, pharmacy, machinery, aerospace and manufacturing engineering, etc.	In 2017, Sunan Research Institute of Molecular Engineering of Peking University was jointly built by Peking University, JITRI and Changshu Municipal Government. In 2020, 11 JITRI graduate students were jointly trained.	Tianshu JIAO 0512-88801006 http://www.pku.edu.cn/ http://www.pkusim.com/ 88 Xianshi Road, Changshu High-tech Zone, Jiangsu Province

No.	Name	Areas of Strengths	Existing Cooperations	Contact Info
10	Beijing University of Chemical Technology	Chemistry, materials science, engineering, biology and biochemistry, etc.	The Institute of Carbon Fiber and Composite Materials is one of the first specialized research institutes joined JITRI. Founded by JITRI, Changzhou Municipal Government and Beijing University of Chemical Technology, the Institute operates as an independent legal entity of "Changzhou Institute of Advanced Materials, Beijing University of Chemical Technology".	Yun LI 0519-69697501 bciam@vip.sohu.com http://www.buct.edu.cn/ http://www.bciam.cn/ No.18, Middle Changwu Road, Changzhou Science and Education City, Jiangsu Province
11	Dalian University of Technology	Mechanical design and automation, ship and ocean engineering, telecommunication and software engineering, etc.	In July 2019, Dalian University of Technology and JITRI signed a comprehensive cooperation agreement. By 2020, Dalian University of Technology signed over 20 million yuan of R&D contracts with leading enterprises and professional researchers in the JITRI system. In 2020, 77 JITRI graduate students have be jointly trained.	Qiang LI 18604092389 https://www.dlut.edu.cn/ No.2 Linggong Road, Ganjingzi District, Dalian, Liaoning Province
12	Lanzhou University	Chemistry, physics, biology, ecology, materials, environmental resources, etc.	In May 2019, JITRI of Lanzhou University signed a comprehensive cooperation agreement. The Jiangsu Academy of industry and Research Institute has set up a special guidance fund for the transformation of achievements. The first phase is 10 million yuan, which is used to support the innovative achievements of Lanzhou University with advanced technology and market application prospects, and give priority to industrialization in Jiangsu. In 2020, 7 JITRI graduate students were jointly trained.	School of Physics Yingtao LI 13919984269 li_yt06@lzu.edu.cn http://www.lzu.edu.cn/ 222 Tianshui South Road, Lanzhou, Gansu Province
13	Chongqing University	Mechanical engineering, electrical engineering, civil engineering, materials science	In May 2015, Chongqing University signed a strategic cooperation agreement with JITRI. In August 2019, the two sides signed an agreement on scientific research cooperation and high-level personnel training . In December 2020, a Graduate School of Chongqing University will be established in Jiangbei New District of Nanjing. In the future, it will cooperate with JITRI in joint training of talents and transformation of scientific and technological achievements. In 2020, 10 JITRI graduate students were jointly trained.	Graduate School Donghong WANG 13308360765 wangdh27@126.com https://www.cqu.edu.cn/ 174 Shazheng Street, Shapingba District, Chongqing
14	Sichuan University	Chemistry, materials science, clinical medicine, etc.	In May 2015, Sichuan University and JITRI signed a strategic cooperation agreement. In December 2017, JITRI, Nanjing Jiangbei New Area management committee, project manager Li Guangxian and the core team of State Key Laboratory of polymer materials engineering of Sichuan University formally signed a contract to establish the advanced polymer materials Technology Research Institute. In July 2019, the two sides signed an agreement on scientific research cooperation and high-level personnel training. In 2020,3 JITRI graduate students were jointly trained.	Academy of Science and Technology Jingping LI 18883048575 http://www.scu.edu.cn/ Wangjiang Campus: No.24, South Section 1, 1st Ring Road, Chengdu, Sichuan Province
15	Huazhong University of Science And Technology	Optical information, machinery, automation, material forming and control engineering, electrical engineering, biomedical engineering, preventive medicine, etc.	In May 2015, Huazhong University of science and technology signed a strategic cooperation agreement with JITRI. In November 2019, Huazhong University of Science and Technology and JITRI signed a cooperation agreement on joint postgraduate training. In 2020, 47 JITRI graduate students were jointly trained.	Graduate School Longjiang YU 13971023465 https://www.hust.edu.cn/ 1037 Luoyu Road, Hongshan District, Wuhan, Hubei Province
16	Harbin Institute of Technology	Mechanics, mechanical engineering, instrument science and technology, material science and engineering, power engineering and thermophysics, control, computer, civil engineering, etc.	In May 2015, JITRI and Harbin Institute of Technology signed a strategic cooperation agreement. In 2020, five JITRI graduate students were jointly trained.	Technology Transfer Center 0451-87008971 http://www.hit.edu.cn/ 92 Xidazhi Street, Nangang District, Harbin
17	Tianjin University	Chemical engineering, optical engineering, instrument science, architecture, water conservancy engineering, etc.	In May 2015, Tianjin University signed a strategic cooperation agreement with JITRI. In November 2019, the two sides signed a comprehensive cooperation agreement.	Academy of Science and Technology Teacher ZHAO 022-27405745 tianailin@tju.edu.cn http://www.tju.edu.cn/ No. 92, Weijin Road, Nankai District, Tianjin
18	University of Electronic Science and Technology of China	Electronics, information and communication engineering, optics, computer, biomedical engineering, instrument science and technology, software engineering, etc.	In May 2015, JITRI and University of Electronic Science and Technology of China signed a strategic cooperation agreement.	Academy of Science and Technology Junyu YUAN 13882291901 http://www.uestc.edu.cn/ No. 2006, Xiyuan Avenue, High-tech Zone (West District), Chengdu, Sichuan Province
19	Jilin University	Chemistry, automobile, machinery, materials, electronics, environment, etc.	In November 2019, Jilin University and JITRI officially signed the cooperation agreement on joint talent training and R&D innovation. In January 2020, JITRI carried out project activities with Jilin University. In 2020, 21 JITRI graduate students were jointly trained.	Domestic Cooperation Office Guosheng TIAN 13943095303 tiangs@jlu.edu.cn https://www.jlu.edu.cn/ No. 2699, Qianjin Street, Changchun, Jilin Province
20	North China Electric Power University	Power system and its automation, thermal engineering, etc.	In November 2019, North China Electric Power University and JITRI formally signed an agreement on joint talent training and R&D innovation cooperation. In May 2020, North China Electric Power University incorporated the joint training of outstanding postgraduates into a separate enrollment plan, and jointly trained 10 outstanding postgraduates with JITRI.	Graduate School Jian HE 18911731219 543197978@qq.com https://www.ncepu.edu.cn/ Beijing School Department: No.2 Beinong Road, Changping District, Beijing Baoding Campus: no.619, Yonghua North Street, Baoding, Hebei Province

No.	Name	Areas of Strengths	Existing Cooperations	Contact Info
21	Chang'an University	Transportation Engineering, road and railway engineering, vehicle application engineering, traffic information, geological engineering, etc.	In November 2019, Chang'an University and JITRI officially signed the cooperation agreement on joint talent training and R&D innovation. In May 2020, Chang'an University and Road Engineering Institute signed a cooperation agreement to carry out joint talent training and project cooperation. In 2020, 13 JITRI graduate students were jointly trained.	Social Cooperation Office Rui CHANG 18092800452 1178389646@qq.com https://www.chd.edu.cn/ North Campus: Shangyuan Road, Weiyang District, Xi'an, Shaanxi Province South Campus: middle section of south 2nd Ring Road, Xi'an, Shaanxi Province
22	Tongji University	Architecture, civil engineering, surveying and mapping, transportation, marine geology, environmental engineering, engineering mechanics, mechanical design, etc.	In August 2020, JITRI and Tongji University signed a cooperation agreement on joint postgraduate training.	Graduate School Wei WANG 13917789696 pheobew@tongji.edu.cn https://www.tongji.edu.cn/ 1239 Siping Road, Yangpu District, Shanghai
23	Shanghai University	Mechanical engineering, materials, iron and steel metallurgy, mechanical and electronic engineering	In August 2020, JITRI and Shanghai University signed a cooperation agreement on joint postgraduate training. In 2020, 27 JITRI graduate students were jointly trained.	Technology Transfer Center Teacher CHI 021-56331090 https://www.shu.edu.cn/ 99 SHANGDA Road, Baoshan District, Shanghai
24	Northwestern Polytechnical University	Materials science, mechatronics, mechanics, engineering, chemistry, computer, communication, control, aviation, aerospace, navigation, etc.	In August 2020, JITRI and Northwestern Polytechnical University signed a cooperation agreement on joint postgraduate training.	Taicang Yangtze River Delta Research Institute Bingle JIN 18862387898 13572203695 jinbingle@nwpu.edu.cn https://www.nwpu.edu.cn/ Friendship Campus: 127 Youyi West Road, Xi'an, Shaanxi Province Chang'an Campus: No.1 Dongxiang Road, Chang'an District, Xi'an, Shaanxi Province
25	Donghua University	Textile Science and engineering, chemistry, materials science, computer science and control engineering, etc.	August 2020, JITRI and Donghua University signed a cooperation agreement on joint postgraduate training.	Xuehui GAN 13761857997 https://www.dhu.edu.cn/ Songjiang Campus: No. 2999, Renmin North Road, Songjiang District, Shanghai Yan'an Road Campus: 1882 Yan'an West Road, Shanghai
26	East China University of Science and Technology	Chemistry, materials science and engineering, chemical engineering and technology, etc.	In August 2020, JITRI and East China University of Science and Technology signed a cooperation agreement on joint postgraduate training. In 2020, 3 JITRI graduate students were jointly trained.	Academy of Science and Technology Guixin ZHANG 18017196575 gxzhang@ecust.edu.cn https://www.ecust.edu.cn/ 130 Meilong Road, Shanghai
27	Southwest Jiaotong University	Transportation Engineering, materials science, chemistry, computer science, etc.	In September 2020, JITRI and Southwest Jiaotong University signed a cooperation agreement on joint postgraduate training.	Graduate School Yang ZOU 13881869058 https://www.swjtu.edu.cn/ Xipu Campus: Southwest Jiaotong University
28	South China University of Technology	Light industry technology and engineering, architecture, food science and engineering, chemical engineering and technology, environmental science and engineering, material science and engineering, mechanical engineering, management science and engineering, etc.	In September 2020, JITRI and South China University of technology signed a cooperation agreement on joint postgraduate training.	Technology Achievement Office Ruiming GE 020-87114200 rmge@scut.edu.cn https://www.scut.edu.cn/new/ Wushan Campus: no.381, Wushan Road, Tianhe District, Guangzhou, Guangdong Province Campus of University Town: Guangzhou University Town, Panyu District, Guangzhou, Guangdong Province
29	Shandong University	Mathematics, chemistry, materials science and engineering, etc.	In October 2020, JITRI and Shandong University signed a cooperation agreement on joint postgraduate training. In 2020, 2 JITRI graduate students have been jointly trained	Suzhou Research Institute Liqun HAO 15862476567 sduszhlq@163.com http://www.sdu.edu.cn/ 27 Shanda South Road, Jinan, Shandong Province
30	University of Science and Technology Beijing	Metallurgical Engineering, material science and engineering, mining engineering, etc.	In October 2020, JITRI and Beijing University of science and technology signed a cooperation agreement on joint postgraduate training. In 2020, 9 JITRI graduate students were jointly trained.	Hongwei WANG 13701276855 https://www.ustb.edu.cn/ 30 Xueyuan Road, Haidian District, Beijing
31	Beijing University of Posts and Telecommunications	Information and communication engineering, computer science and technology	JITRI and Beijing University of Posts and Telecommunications have signed a cooperation agreement on joint training of postgraduates.	Graduate School Chang LIU 18911815819 http://www.bupt.edu.cn/ Xitucheng Road Campus: No.10 Xitucheng Road, Haidian District, Beijing
32	Zhejiang University	Chemical, mechanical engineering, optical engineering, materials, power engineering and thermophysics, control, electrical, civil engineering, biomedical, plant protection, etc.	In October 2015, JITRI and Zhejiang University signed a strategic cooperation agreement.	Industrial Technology Transformation Research Institute Jia TONG 18958191860 tongjia@zju.edu.cn http://www.zju.edu.cn/ 866 Yuhangtang Road, Xihu District, Hangzhou, Zhejiang Province

No.	Name	Areas of Strengths	Existing Cooperations	Contact Info
33	Zhejiang Sci-tech University	Engineering, materials science, chemistry, textile science and engineering, etc.	In October 2015, JITRI and Zhejiang Sci-tech University signed a strategic cooperation agreement.	Technology Service Center Teacher HAN 0571-86843696 http://www.zstu.edu.cn/ No.928, No.2 street, Xiasha Higher Education Park, Hangzhou, Zhejiang Province
34	Yunnan University	Ethnology, ecology, chemistry, mathematics, etc.	In October 2015, JITRI and Yunnan University signed a strategic cooperation agreement.	Technology Transfer Center 0871-65033769 http://www.ynu.edu.cn/ 2 Cuihu North Road, Kunming, Yunnan
35	Central South University	Materials science and engineering, metallurgical engineering, mining, mathematics, machinery, control science	In December 2020, JITRI and Central South University signed a comprehensive cooperation agreement.	Technology Transfer Office Ningyi PAN 0731-88836851 1937727682@qq.com http://www.csu.edu.cn/ 932 Lushan South Road, Changsha, Hunan Province
	Partners in Jiangsu Province			
36	Nanjing University	Physics, chemistry and chemical engineering, atmospheric science, environmental science, computer, geology, biology, materials, etc.	Nanjing University, as the governing unit of JITRI, participated in the initial top-level design and consulting management of JITRI. In 2014, the Institute of water environment engineering and technology of Nanjing University (Yixing and Yancheng) and the Institute of pharmaceutical biotechnology joined the professional research institute system of JITRI as the first batch of affiliated institutes; in September 2018, Professor Gao Xiang's team of Nanjing University established the Institute of comparative medicine technology through the training of project manager. In November 2019, JITRI and Nanjing University signed a cooperation agreement on joint postgraduate training. In 2020, 171 JITRI graduate students were jointly trained.	Jianfeng ZHOU 13851638452 zhoujf@nju.edu.cn https://www.nju.edu.cn/ 163 Xianlin Avenue, Qixia District, Nanjing, Jiangsu Province
37	Southeast University	Materials, electronics, information and communication, computer science and technology, biomedicine, etc.	As the governing unit of JITRI, Southeast University participated in the initial top-level design and consulting management of JITRI. In 2014, the Institute of Application-specific Integrated Circuit Technology and the Institute of Biomaterials and Medical Devices of Southeast University joined the system of JITRI as the first batch of specialized research institutes. In May 2019, JITRI and Southeast University formally signed a comprehensive cooperation agreement. In 2020, 116 JITRI graduate students were jointly trained.	Academy of Science and Technology Liangliang HUA 13851904480 178231624@qq.com https://www.seu.edu.cn/ No.2 Sipailou, Xuanwu District, Nanjing, Jiangsu Province
38	Nanjing Tech University	Chemistry, materials science, engineering, biology and biochemistry, etc.	In 2014, Institute of Membrane Science and Technology and Institute of Industrial Biotechnology of Nanjing University of Technology joined JITRI system. In April 2020, JITRI and Nanjing University of Technology signed a cooperation agreement on joint postgraduate training. In 2020, 78 JITRI graduate students were jointly trained.	Graduate School Guangming ZHANG 13705155728 zgmchina@163.com http://www.njtech.edu.cn/ Jiangpu Campus: No.30, Puzhu South Road, Jiangbei New District, Nanjing, Jiangsu Province Dingjiaqiao Campus: No.5, xinmufan Road, Gulou District, Nanjing, Jiangsu Province
39	Nanjing University of Aeronautics And Astronautics	Mechanics, aerospace, aircraft design, mechanical manufacturing and automation, navigation, guidance and control, electronics and transmission, etc.	In January 2014, Nanjing University of Aeronautics and Astronautics and the Management Committee of Nanjing Pukou Economic Development Zone jointly established the Institute of Precision and Micro Manufacturing Technology and joined JITRI. In November 2020, JITRI and Nanjing University of Aeronautics and Astronautics signed a cooperation agreement on joint postgraduate training. In 2020, 53 JITRI graduate students were jointly trained.	Academy of Science and Technology Huaxiang LIU 15850661893 hxliu@nuaa.edu.cn http://www.nuaa.edu.cn/ Ming Palace Campus: 29 Yudao street, Qinhuai District, Nanjing, Jiangsu Province Jiangjun Road Campus: 29 Jiangjun Avenue, Jiangning District, Nanjing, Jiangsu Province
40	Jiangnan University	Food science and engineering, light industry technology and engineering, textile science and engineering, control science and engineering, chemical engineering and technology, etc.	In April 2015, relying on the national food department of Jiangnan University, the Food Biotechnology Research Institute was established and joined JITRI. In June 2020, JITRI and Jiangnan University signed a cooperation agreement on joint postgraduate training. In 2020, 39 JITRI graduate students were jointly trained.	Wei ZHAO 13952466350 zhaow@jiangnan.edu.cn https://www.jiangnan.edu.cn/ 1800 Lihu Avenue, Wuxi, Jiangsu Province
41	Jiangsu University	Fluid, machinery, agricultural electrification and automation, engineering, materials science, clinical medicine, chemistry and agriculture, etc.	In February 2014, fluid engineering equipment Technology Research Institute, relying on the national water pump and system engineering technology research center of Jiangsu University, joined JITRI and settled in Zhenjiang New Area in November 2015. In July 2020, JITRI, Jiangsu University and Suzhou Xiangcheng signed a tripartite agreement to jointly build JITRI Graduate School of Jiangsu University. In November 2020, JITRI and Jiangsu University held a meeting discuss the plan of joint postgraduate training projects in 2020. In 2020, 81 JITRI graduate students were jointly trained.	Graduate School Yamin HU 18252585634 1159186105@qq.com https://www.ujs.edu.cn/ No. 301, Xuefu Road, Zhenjiang City, Jiangsu Province
42	Soochow University	Chemistry, materials, physics, engineering, clinical medicine, pharmacy, biochemistry, neuroethology, molecular biology, immunology, computer, agriculture, etc.	In July 2016, the team of Academician Li Shutang of Suzhou University, as the project manager, established the Institute of Organic Optoelectronic Technology of JITRI. In 2020, 58 JITRI graduate students were jointly trained.	Graduate School Jinping ZHANG 15962453996 j_pzhang@suda.edu.cn http://www.suda.edu.cn/ No.1 Shizi Street, Suzhou City, Jiangsu Province
43	Xi'an Jiaotong-Liverpool University	Materials, chemistry, biology, electronic information, artificial intelligence, environmental engineering, computer science, etc.	In August 2019, JITRI signed a comprehensive cooperation agreement with Xi'an Jiaotong-Liverpool University. In 2020, six JITRI graduate students were jointly trained.	Graduate School Fei MA 13771922010 Fei.Ma@xjtlu.edu.cn https://www.xjtlu.edu.cn/en/ 111 Ren'ai Road, Dushuhu Science and Education Innovation Zone, Suzhou Industrial Park, Jiangsu Province

No.	Name	Areas of Strengths	Existing Cooperations	Contact Info
44	Nanjing University of Information Science and Technology	Atmospheric science, ocean, information, environment, management, etc.	In November 2019, JITRI and Nanjing University of information engineering signed a cooperation agreement on joint postgraduate training. In 2020, 7 JITRI graduate students were jointly trained.	Graduate School Xiaodong ZHU 025-58235552 zxdnuist@126.com https://www.nuist.edu.cn/ 219 Ningliu Road, Nanjing, Jiangsu Province
45	Nanjing University of Posts and Telecommunications	Electronic information, Internet of things, integrated circuit, mobile Internet, big data cloud computing, etc.	In November 2019, JITRI and Nanjing University of Posts and Telecommunications signed a cooperation agreement on joint postgraduate training. In June 2020, Jiangsu Institute of industrial technology and Nanjing University of Posts and Telecommunications jointly held a meeting to promote the integration of industry and education. In 2020, 15 JITRI graduate students were jointly trained.	Graduate School Fei LI 18951896090 lifei@njupt.edu.cn http://www.njupt.edu.cn/ 9 Wenyuan Road, Yadong New District, Nanjing, Jiangsu Province
46	Changzhou University	Chemistry, materials science, engineering, etc.	In November 2019, JITRI and Changzhou University signed a cooperation agreement on joint postgraduate training. In May 2020, JITRI and Changzhou University signed a contract to jointly build Jiangsu Technology Transfer (Changzhou University) Institute. In 2020, 29 JITRI graduate students were jointly trained.	Graduate School Jiangkun LIU 13861260206 https://www.cczu.edu.cn/ 21 Gehu Middle Road, Wujin District, Changzhou, Jiangsu Province
47	Nanjing University of Science And Technology	Weapon science and technology, electronic information, chemical materials, computer, etc.	In November 2019, JITRI and Nanjing University of Science and Technology signed a cooperation agreement on joint postgraduate training. In 2020, 27 JITRI graduate students were jointly trained.	Scientific & Research Institute Feng FENG 13809029682 ffeng62301@163.com http://www.njust.edu.cn/ 200 Xiaolingwei street, Nanjing City, Jiangsu Province
48	Yangzhou University	Chemistry, plant and animal science, engineering, agricultural science, clinical medicine, materials science	In July 2020, JITRI and Yangzhou University signed a cooperation agreement. In July 2020, JITRI and Yangzhou University held a special cooperation meeting in the field of biomedicine. In December 2020, Yancheng High Throughput Computing Institute of JITRI and Yangzhou University held a special cooperation meeting. In 2020, 22 JITRI graduate students were jointly trained.	Graduate School Li WANG 13815810328 wangli@yzu.edu.cn http://www.yzu.edu.cn/ 88 South University Road, Yangzhou, Jiangsu Province
49	Hohai University	Water conservancy and hydrology, environment, port and shipping	In August 2020, JITRI and Hehai University signed a cooperation agreement on joint postgraduate training. In 2020, 39 JITRI graduate students were jointly trained.	Industrial Technology Research Institute Jianfeng LIU 13338808691 http://www.hhu.edu.cn/ No.1 Xikang Road, Nanjing, Jiangsu Province
50	China Pharmaceutical University	Pharmacy, pharmaceutical preparations, pharmaceutical chemistry, traditional Chinese medicine, biopharmaceutical	In November 2020, JITRI and China Pharmaceutical University signed an agreement on joint talent training and R&D cooperation. In 2020, 21 JITRI graduate students were jointly trained.	Graduate School Juan YANG 025-86185535 s04127@163.com http://www.cpu.edu.cn/ Xuanwumen Campus: No.24 Tongjia Lane, Gulou District, Nanjing, Jiangsu Province Jiangning Campus: No. 639, Longmian Avenue, Jiangning District, Nanjing, Jiangsu Province
51	Nanjing Medical University	Internal medicine, labor hygiene and environmental hygiene, pharmacology	In 2020, 38 JITRI graduate students were jointly trained.	Graduate School Qiao KE 025-86869233 keqiao@njmu.edu.cn http://www.njmu.edu.cn/ 140 Hanzhong Road, Nanjing, Jiangsu Province
52	Nanjing Normal University	Pedagogy, mathematics and applied mathematics, geography, etc.	In 2018, the School of Environment of Nanjing Normal University and the Institute of Membrane Technology reached a cooperation agreement on jointly solving the environmental protection technical problems of Farson company. In 2020, Changzhou Institute of Innovation and Development of South Normal University and Advanced Energy Materials Institute reached a cooperation agreement. In December 2020, JITRI and Nanjing Normal University signed an agreement on joint talent training and R&D cooperation.	Graduate School Ying ZHANG 025-85891790 55015@njnu.edu.cn http://www.njnu.edu.cn/ No.1, Wenyuan Road, Xianlin University Town, Nanjing, Jiangsu Province

Overseas Resources

In order to utilize global innovation resources for Jiangsu industry, JITRI actively explores new mechanisms and new modes of international science and technology cooperation. JITRI has established cooperative relationships with 56 overseas institutions, covering North America, Europe, Asia Pacific, Africa and other countries and regions. Five overseas platforms (incubators) such as Copenhagen, Houston and Silicon Valley have been established, nearly 700 international advanced innovation projects and teams have been matched, including 129 successful cooperation projects.

Although the COVID-19 and the international situation have brought serious challenges to international cooperation, the momentum of our international cooperation has not been reduced, and the number of overseas partners has continually increased.

(1) To link overseas resources with our innovative ecosystem

(2) To ensure mutual benefit and win-win results through an open and transparent mechanism;

(3) To promote the flexible and efficient implementation of projects;

(4) Incentivize all parties using a market-oriented mechanism;

(5) To participate in the international intelligent manufacturing alliance, WAITRO and other international organizations.

Overseas Innovation Partners

No.	Name	Areas of Strengths	Existing Cooperations	Contact Info
1	Northwestern University	Nortwestern University is a world-class private reseach university. It ranks 9th in 2020 US News. The Medill School of journalism of Northwestern University ranks first in the United States, Kellogg Business School ranks 4th, Pritzker Law School ranks 10th, Department of materials science ranks second in the United States, and School of chemistry ranks 5th in the world.	JITRI established the partnership with Northwestern University in January 2017. By 2020, the two sides have carried out project cooperation in the industrialization of graphene materials.	Shui LIU 025-83455180 lius@jitri.org
2	Univerdity of Michigan	University of Michigan (UM) is a world-famous public research university in the United States. As a major research university in the U.S, UM currently has 100 subjects in the top 10 in the United States. In 2020, UM ranked 17th in the U.S. universities by US News .The Engineering School, Medical School and Public Health School of UM are among the top five similar colleges in American universities.	JITRI established the partnership with University of Michigan in January 2017. By 2020, By 2020, both sides have carried out project cooperation in the fields of intelligent manufacturing, nanomedicine and medical devices in the direction of application and industrialization.	Shui LIU 025-83455180 lius@jitri.org
3	University of Illinois at Urbana-Champaign	University of Illinois at Urbana Champaign (UIUC) is a world-renowned top research university. UIUC engineering school are in the top ten in the including the majors of EE, Civil Engineering, Materials, Agriculture, Environment, Machinery and etc. are in the top five in the U.S. The Computer Science ranks 2nd in the United States; the academic research of the school of media is at the top in the world, and the business school also has a strong strength. Its accounting, finance and other majors are at the first-class level in the U.S.	JITRI established the partnership with University of Michigan in January 2017. By 2020, The two sides have carried out project cooperation in the application and industrialization in the fields including intelligent sensors / devices, electronic printing, environmental protection testing equipment, etc.	Shui LIU 025-83455180 lius@jitri.org
4	CUBIO Innovation Center	China US biomedical incubator (CUBIO), located in Texas Medical Center in Houston, is committed to gathering international resources, building an efficient bridge and platform linking China US biomedical enterprises, and helping them to cooperate on the basis of mutual benefit and win-win results. CUBIO focuses on healthcare, biopharmaceuticals, precision medicine and other related fields. Through the effective connection to the market, capital, technology and other elements, CUBIO aim to build a comprehensive oriented Incubation Platform with low cost, convenient and efficient, and comprehensive elements, and to provide a full range of services such as talent introduction, project promotion, overseas project incubation, and project docking activities to Jiangsu industrues and local industrial parks etc.	In 2020, based on the needs of industrial development, CUBIO has recommended 76 high-quality medical and health projects to JITRI and Suzhou Industrial Park. Finally, five major projects have entered the landing process, and the rest projects will be continuously recommended and listed in the next year's application sequence.	Shui LIU 025-83455180 lius@jitri.org
5	Scripps Research Institute	Scripps Research Institute is a private, non-profit biomedical research institute. Founded in 1924, it is the largest life science institute in the United States. Its area covers immunology, molecular and cellular biology, chemistry, neuroscience, autoimmune diseases, cardiovascular diseases, virology and the development of synthetic vaccines.	JITRI and Scripps Research Institute have established strategic partnership in 2018. The main areas of cooperation include neurodegenerative diseases, bacterial engineering, microbiome, drug discovery based on natural products, CH activation platform for the discovery of small molecule drugs. The types of cooperation cover many aspects which include personnel training, industrialization projects, etc.	Yun CHEN 025-83455183 cheny@jitri.org
6	University of California, Berkeley	University of California, Berkeley is a world-famous public research university, which enjoys a high reputation in the academic community and ranks first in the public universities in the United States. UC Berkeley has many advantageous fields, including chemistry, physics, computer engineering, electrical engineering, automation control, mathematics, biology, ARWU science, humanities and social sciences. Among them, engineering is at the forefront of American Engineering Science.	JITRI and UC Berkeley have established strategic partnership in 2016. The two sides are carrying out project cooperation in the field of industrialization of intelligent systems.	Yun CHEN 025-83455183 cheny@jitri.org
7	Harvard University	Harvard University is a world-renowned private research university and a member of the famous Ivy League. It is recognized as one of the top universities of higher education in the world.	JITRI and Harvard University have established strategic partnership in 2016, and JITRI have carried out industrial cooperation with Harvard School of Engineering and Applied Sciences(HSEAS) and Harvard Medical School(HMS). In 2020, JITRI, Harvard University and Lishui District have established the strategic cooperation, and promote the co-construction of the science and Technology Innovation Center for the elderly.	Yun CHEN 025-83455183 cheny@jitri.org
8	Xprize Pandemic Alliance	Xprize foundation is a non-profit organization established in the United States. It was founded in 1995. Its mission is to benefit mankind and achieve fundamental breakthroughs. It covers learning, exploration, energy and environment, global development and life sciences. To achieve this goal, Xprize foundation has set up a large-scale incentive competition with clear and objective goals, so as to stimulate individuals, companies and organizations around the world to develop innovative ideas and technologies, and help solve the major problems limiting human progress.Xprize Pandemic Alliance's mission is to help identify, connect and catalyse ideas, people, resources and solutions from alliance members and others to respond to current pandemic and prevent future pandemic.	JITRI joined the Xprize Pandemic Alliance in April 2020, and sought to share scientific research and innovation resources with its member units, contributing to the scientific formulation of the pandemic and the prediction, prevention and response to future global pandemic.	Yun CHEN 025-83455183 cheny@jitri.org
9	University of Toronto	The University of Toronto's Faculty of Applied Science & Engineering is the #1 engineering school in Canada and among the world's best across international rankings. U of T Engineering is home to 120 research chairs and more than 25 multidisciplinary, leading edge research hubs that represent six Innovation Clusters, including advanced manufacturing, data analytics and artificial inteligence, human health, robotics, sustainability and water. U of T Engineering has the breadth and depth of research excellence as well as the capacity to effect global change across these key domains.	JITRI established partnership with The University of Toronto's Faculty of Applied Science & Engineering in January 2017. The two sides have carried out joint talent development and joint R&D projects in the fields of material,electronics, etc.	Wenjing ZHEN 025-58551023 zhenwj@jitri.org
10	University of Waterloo	The University of Waterloo is a medium-sized public research university founded in 1957. It is ranked #152 by the 2018 QS World University Rankings. The University of Waterloo is well-known for subjects such as mathematics, computers, and engineering sciences. The software engineering, electronic engineering and mechanical engineering of the University of Waterloo is the best in Canada. The mathematics deparatmetn is one of the largest mathematics and computer science education and research centers in the world.	JITRI signed a strategic cooperation agreement with the University of Waterloo in 2016. The two parties have already conducted joint R&D cooperation in the field of digital control.	Wenjing ZHEN 025-58551023 zhenwj@jitri.org

No.	Name	Areas of Strengths	Existing Cooperations	Contact Info
11	University of Saskatchewan	The University of Saskatchewan is one of the top research-intensive, medical doctoral universities in Canada, and is home to world-leading research in areas of global importance, such as water and food security and infectious diseases. Their outstanding facilities include the Canadian Light Source synchrotron, VIDO-InterVac, the Global Institute for Food Security, the Global Institute for Water Security and the Sylvia Fedoruk Canadian Centre for Nuclear Innovation.	JITRI established a strategic partnership with the University of Saskatchewan in 2020, and held two info sessions. The two parties are promoting project cooperation in the fields of environmental protection and biology.	Wenjing ZHEN 025-58551023 zhenwj@jitri.org
12	University of Western Otario	Western University, founded in 1878, is amongst the best universities in Canada. It is ranked among the top 1% of higher education institutions worldwide. Western's areas of core research strengths have been defined as neuroscience, child & youth development, global health equity & social innovation, wind engineering, imaging, materials & biomaterials, environmental sustainability & green energy, planetary science & exploration, musculoskeletal health.	JITRI and the University of Western Ontario reached a strategic partnership in 2017.	Wenjing ZHEN 025-58551023 zhenwj@jitri.org
13	MaRS	The MaRS Discovery District gathers Canada's best start-up technology companies and growth companies. Since 2008, MaRS has attracted a total of 5 billion CAD in investment, and its incubated companies have contributed 11.6 billion CAD to Canada's GDP. As the largest urban innovation center in North America, MaRS has more than 1,200 companiesin filds including new materials and green energy, life science, information and financial technology.	JITRI established a strategic partnership with the MaRS Discovery District in 2016, which included assisting JITRI in setting up a representative office in Toronto.	Wenjing ZHEN 025-58551023 zhenwj@jitri.org
14	Physical, and Life Sciences (MPLS) Division(University of Oxford)	The Mathematical, Physical, and Life Sciences (MPLS) Division is one of the four academic divisions of the University. Oxford is widely recognised as one of the world's leading science universities. The disciplines within the MPLS Division regularly appear at the highest levels in world rankings and have been evaluated as conducting world-leading and internationally excellent research in UK research assessments.	JITRI and the MPLS of Oxford University established a partnership and the IMPACT Institute in 2018. JITRI has jointly launched the Oxford-JITRI IMPACT overseas R & D programme with Oxford University by using the platform. The industrialization projects have been cooperated in the field of biological treatment technology of metal processing waste liquid.	Yun WANG 025-83455108 wangyun@jitri.org
15	University of Cambridge	Cambridge University has a high academic level and wide influence in many fields.The University of Cambridge Engineering Department is the largest division of the University and one of the world's leading engineering centers.	Jitri and Cambridge University established a partnership in 2018. Project cooperation in the industrialization of photoelectric technology is under discussion.	Yun WANG 025-83455108 wangyun@jitri.org
16	UCL-IMD	The UCL Institute for Materials Discovery (IMD) has relationships across the 3 faculties within the BEAMS school: the Faculty of Mathematical and Physical Sciences (MAPS), the Faculty of Engineering Science, and the Bartlett, and also with the NIHR Biomedical Research Centre. UCL's world-leading research in new materials and related areas that span a wide range of disciplines across the institution.	JITRI and UCL-IMD established a partnership in 2019. The two sides are discussing about project cooperation in the field of surface coating and deposition technology, Nano Engineering Control and nanopowder / tube / line manufacturing technology with JITRI innovation centers.	Yun WANG 025-83455108 wangyun@jitri.org
17	University of Huddersfield	Huddersfield UK based university with world leading research capabilities targeted at the needs of industry. UoH specialises in inter-disciplinary research in enabling industrial technologies from applied and material sciences through to engineering and computer science (Materials, Manufacturing, Sensing, Measurement, Monitoring, Communications and Industrial Analytics).	JITRI and University of Huddersfield established a partnership in 2019. Several overseas events are jointly held, and cooperation in fields of textile technology and precision manufacturing are in progress.	Yun WANG 025-83455108 wangyun@jitri.org
18	The welding Institute	TWI is a membership-based organisation, supporting both individuals and companies alike. TWI exists to provide authoritative and impartial expert advice, knowhow and safety assurance through engineering, materials and joining technologies - helping design, create and operate the best products possible.	JITRI and TWI established a strategic cooperative relationship in 2016. TWI has carried out project cooperation with the JITRI Institute of Novel Metals and Applied Technologies in the field of superalloy materials. JITRI and TWI jointly held five management and technical training sessions in Nanjing and Cambridge, with nearly 200 participants. At present, TWI is negotiating project cooperation with many enterprises in Jiangsu Province in welding materials, advanced joining technology and other fields.	Yun WANG 025-83455108 wangyun@jitri.org
19	Brunel University London	Brunel University was established in 1966. Brunel University attaches great importance to cultivating students' interdisciplinary learning ability. Engineering is ranked in the top ten in the UK, especially the application research in the field of advanced materials and precision manufacturing.	JITRI and Brunel University established a partnership in 2019. Jitri officially signed the first MOU with Brunel University to launch the undergraduate internship program in Jiangsu. At present, project cooperation has been carried out in the field of precision manufacturing.	Yun WANG 025-83455108 wangyun@jitri.org
20	University of Birmingham	The University of Birmingham is a global leader in civil engineering, chemical engineering, bioengineering, physical astronomy, medicine and other fields, especially in the fields of medicine and biological sciences.	JITRI and the University of Birmingham established a partnership in 2019. 5 joint R & D projects have been carried out in the fields of biomedical and advanced vehicle , with R & D funds of nearly 20 million yuan.	Yun WANG 025-83455108 wangyun@jitri.org
21	The Association of British Chinese Professors	The Association of British Chinese Professors was established in 2018. It is an independent non-profit professional organization serving all Chinese professors living in the UK. The members of the Association represent the highest academic standards of Chinese scholars in various disciplines in the UK.	JITRI and ABCP established a partnership in 2020. many professors of ABCP have cooperated with JITRI in different industrialization projects.	Yun WANG 025-83455108 wangyun@jitri.org
22	University of St Andrews	The computer science and information technology major ranked first in the British University of the Guardian in 2019. The computer science and information technology disciplines are the university's dominant disciplines. The research in the fields of computer interaction and computer communication systems has a world-class leading level.	JITRI and the University of St Andrews established a partnership in 2018. the pretreatment technology of chemical wastewater is under discussion with several JITRI joint innovation centers.	Yun WANG 025-83455108 wangyun@jitri.org
23	Eight Great Technologies LLP	In order to bring the UK's innovative technologies to the market, Lord Willitz, the former Secretary of State for Universities and Science, established Eight Great Technologies LLP (8GT for short) as the chairman, and formed a team of top experts in 8 scientific and technological innovation fields to sort out and promote The industrialization of original technology in the UK. Areas of advantage include IT, digital revolution, intelligent manufacturing, Internet of Things, new energy, new materials, biotechnology and life sciences.	JITRI and Eight Great Technologies LLP established a partnership in 2018.	Yun WANG 025-83455108 wangyun@jitri.org

No.	Name	Areas of Strengths	Existing Cooperations	Contact Info
24	LEITAT	Founded in 1906, the Spanish LEITAT Institute is a non-profit technology research and development institution.Biomedicine and general health, circular economy, energy and environmental protection and engineering, high-end equipment manufacturing, applied chemistry and materials take the leading advantage.	JITRI and LEITAT established a partnership in 2020. Both sides have already cooperated in textile materials technology, and jointly applied for the EU horizon 2020 international project.	Yun WANG 025-83455108 wangyun@jitri.org
25	Norwegian University of Science and Technology	Norwegian University of Science and Technology (NTNU) is a top engineering and technology univeristy in Scandinavia.NTNU has very strong technology and academic strength in petro and marine technology, chemical engineering, metallic materials and automation. Research in these areas are among the world top level.	JITRI established a partnership with Norwegian University of Science and Technology in 2017, project cooperation have been carried out in the industrialization of aluminum alloy for automobile.	Cheng XU 025-83455180 xuc1@jitri.org
26	Haldor-Topsoe	Haldor-Topsoe is the global leader in industrial catalysis production. They provide energy-efficient technologies to produce clean transportation fuels as well as ammonia, methanol and hydrogen that are universally seen as the most important fuels and chemicals of the future. We now make it our mission to lead the transition of these areas into the renewable future.	JITRI established a partnership with Haldor-Topsoe in 2017, the two sides have established JITRI-Topsoe R&D center in Suzhou with a joint effort. The center has carried out project on the industrialization of improved battery materials for electric cars	Cheng XU 025-83455180 xuc1@jitri.org
27	Karlsruher Institut für Technologie (KIT)	Karlsruhr Institute of Technology (KIT), founded in 1825, is one of the world's top research universities in the field of natural science and engineering. In Germany, KIT ranks 1st place in chemistry, 2nd in engineering and materials science, 3rd in earth science and 4th in physics.	In August 2016, JITRI signed an MOU with KIT; in September 2018, both parties signed a Project Manager Agreement; in June 2020, the MOU was renewed. The two parties are expected to carry out in-depth cooperation in the fields of energy and environmental protection, clean energy and food processing.	Ye LIU 025-58551025 (6025) liuy@jitri.org
28	Fraunhofer IFAM (Institute for Manufacturing Technology and Advanced Materials)	Headquartered in Bremen, Fraunhofer IFAM is one of the most important institutions in Europe for adhesive bonding technology, surfaces, shaping and functional materials. It has more than 650 employees working in 20 departments, with core competencies in metallic materials, polymeric materials, surface technology, adhesive bonding technology, shaping and functionalization, electromobility, and automatization & digitalization.	In April 2017, JITRI signed an MOU with Fraunhofer IFAM. JITRI institutes are expected to cooperate with Fraunhofer IFAM in the fields of laser technology, robotics engineering and intelligent manufacturing.	Ye LIU 025-58551025 (6025) liuy@jitri.org
29	Fraunhofer ISC (Institute for Silicate Research)	Fraunhofer ISC is one of the leading Bavarian R&D centers for material-based research and development in the fields of energy, environment and health. With a permanent staff of about 380 scientists and technicians the Institute works to develop innovative materials and technologies for sustainable products and make essential contributions to solving the major global issues and challenges of the future.	In July 2017, both parties signed an MOU and a Project Manager Agreement. ISC is currently carrying out a feasibility research project in the field of inorganic polymer coating with one of JITRI's partner enterprises.	Ye LIU 025-58551025 (6025) liuy@jitri.org
30	The Association of China Born German Professors (GDPCH)	The Association of China Born German Professors is an association headquartered in Bonn, which is composed of around 45 Chinese professors who have obtained professorship at German universities. It especially supports the scientific and academic exchange between Germany and China.	In November 2017, the two parties established a strategic partnership. GDPCH and JITRI have worked together in academic exchange, research and development, technology transfer, etc.	Ye LIU 025-58551025 (6025) liuy@jitri.org
31	Physics Department, University of Munich	Founded in 1472, University of Munich is recognized as one of Europe's premier academic and research institutions. Its key research areas include nanoscience, photonics and quantum optics, molecular biological systems, neuroscience, protein science, translational medicine, meteorology and atmospheric science. The Physics Department of the University of Munich is one of the largest and most prestigious Physics Departments in Germany, which covers almost all fields of modern physics.	In June 2020, JITRI established a strategic partnership with the Department of Physics, University of Munich. The JITRI-WWF Global Green Technology Center (GGTC) plans to collaborate with the university in the field of harmful gas detection.	Ye LIU 025-58551025 (6025) liuy@jitri.org
32	Wageningen University	Wageningen University is one of the top research universities in Europe and the world, especially in the fields of agriculture, life sciences, food science and environmental science. It ranks 2nd in agriculture and 1st in environmental science and ecology in the world.	In December 2017, JITRI, Wageningen University and the Taizhou Municipal Government established a strategic partnership to carry out a project in the field of biological control.	Ye LIU 025-58551025 (6025) liuy@jitri.org
33	University of Groningen	Founded in 1614, University of Groningen is one of the oldest universities in Europe and one of the top 100 universities in the world. It ranks among the top three European research universities in ecology, materials science, chemistry and astronomy. It has a high reputation in nanoscience, physics, artificial intelligence, molecular biology, microbiology, medicine, neuroscience, etc.	In November 2017, JITRI signed an MOU with the University of Groningen. JITRI institutes are expected to carry out joint research projects with the University in the field of nanomaterials.	Ye LIU 025-58551025 (6025) liuy@jitri.org
34	Eindhoven University of Technology	Founded by the Dutch government in 1956, Eindhoven University of Technology ranks 3rd among European research universities. Its strength lies in the fields of electronic information technology, automation and control systems, data mining, business information system, sustainable energy, industrial design (human computer interaction), etc.	In March 2018, JITRI signed an MOU with Eindhoven University of Technology. A JITRI institute is currently carrying out joint research projects with the University in the field of liquid crystals.	Ye LIU 025-58551025 (6025) liuy@jitri.org
35	Sioux Technologies	Founded in 1996, Sioux Technologies has all the expertise in-house to contribute to the success of high-tech products and production systems. Sioux's strength lies in its unique combination of high-quality competences in software, mathware, mechatronics, electronics and assembly. With more than 700 engineers, Sioux supports or acts as the R&D department of leading high-tech companies.	In August 2017, JITRI and Sioux signed an MOU. In 2019, the two parties jointly established the JITRI-Sioux Joint R&D Center in Suzhou, Jiangsu province.	Ye LIU 025-58551025 (6025) liuy@jitri.org
36	Foundationfor Research & Technology - Hellas (FORTH)	Founded in 1983, headquartered in Heraclion of Crete, FORTH is one of the largest research centers in Greece, which consists of eight research institutes. FORTH enjoys international reputation in laser and optoelectronics, microelectronics, advanced materials, nanotechnology, precision medicine, systems biology, human and social sciences, etc.	In September 2019, JITRI and FORTH signed an MOU. The two parties are expected to carry out cooperative projects in the fields of photocatalyst nanomaterials, information and communications technology, biomedicine, electronic materials and monitoring systems.	Ye LIU 025-58551025 (6025) liuy@jitri.org

No.	Name	Areas of Strengths	Existing Cooperations	Contact Info
37	OurCrowd LEITAT	As one of the world's largest equity crowdfunding platforms, OurCrowd, a well-known Israeli venture capital company, was established in 2013 to provide qualified investors around the world with investment opportunities in early-stage growth startups, funds, etc., covering medical, AI and robotics, agriculture, Food, quantum computing, network security and other fields. The company's founder and CEO, Mr. Jonathan Medved is one of Israel's top high-tech investors and is known as the "Top Ten Americans Influencing Israel". In recent years, OurCrowd has cooperated closely with the Israeli government and has successively deployed 5 new incubators in different technical fields nationwide. OurCrowd is one of the companies with the most incubator operating licenses in Israel.	1. Co-invest in the holding platform of OurCrowd incubator JITRI and China-Israel Changzhou Innovation Park jointly invested in the holding platform of OurCrowd incubator as people acting in concert. 2. Establish JITRI (Israel) representative office In order to further gather global innovation resources, JITRI plans to establish the JITRI (Israel) representative office at OurCrow. At present, the construction plan has been initially drafted, and it is temporarily suspended due to the impact of the epidemic.	Jade Teng 025-83455181 tengy@jitri.org
38	NUS National University of Singapore National University of Singapore	Founded in 1905, the National University of Singapore (NUS) is one of the world's leading universities. It is ranked 11th in the QS world, 1st in Singapore and 1st in Asia.NUS is renowned in Engineering, Life Sciences and Biomedicine, Social Sciences and Natural Sciences. Its leading disciplines include Building and Environment, Biological Sciences, Computer Science and Information Systems, Chemistry, Electronic and Electrical Engineering, Mechanical Engineering, Chemical Engineering, Materials Science, etc.	JITRI established a partnership with National University of Singapore in November 2015, the two sides have carried out 3 project cooperation and 4 joint post-doc training projects in materials, food science, information technology, etc.	Xin LI 025-83455195 lix@jitri.org
39	CityU City University of Hong Kong	City University of Hong Kong (CityU) is a public research university.According to QS University Rankings 2021, CityU is ranked 48th in the world.CityU's strengths include Building and Environment, Biological Sciences, Computer Science and Information Systems, Chemistry, Electronic and Electrical Engineering, Mechanical Engineering, Materials Science, etc.	JITRI established a partnership with City University of Hong Kong in 2016, the two sides have carried out 3 project cooperation in VR, metal materials, and kitchen waste treatment technology.	Xin LI 025-83455195 lix@jitri.org
40	The Hong Kong Polytechnic University	The Hong Kong Polytechnic University (PolyU) is a public comprehensive research university. According to the QS World University Rankings 2021, PolyU is ranked 75th in the world,.The Hotel and Tourism Management, Management, Transportation Engineering, Mechanical Engineering, Computer Science and Engineering, Civil and Structural Engineering, Architecture and Environment in PolyU are among the top in the world.	JITRI established a partnership with The Hong Kong Polytechnic University in 2019, the two sides have carried out 1 project cooperation in human-robot interactions and 1 key project in antibiotics.	Xin LI 025-83455195 lix@jitri.org
41	University of Macau	Founded in 1981, University of Macau is a public comprehensive university in Macau. University of Macau has developed rapidly in the field of internet of things and microelectronics and has achieved significant academic achievement.	JITRI established a partnership with University of Macau in 2020，the two sides are currently carrying out 1 project cooperation in communication technology.	Xin LI 025-83455195 lix@jitri.org
42	MONASH University Monash University	Monash University is a member of G8. It ranks as number 59 in QS world university rankings.In the subject ranking, its Pharmacy & Pharmacology ranks 3rd, chemical engineering ranks 29th, medicine ranks 32nd and chemistry ranks 35th.	JITRI established a partnership with Monash University in 2015. The two sides have carried out projects cooperation in the industrialization of 12 projects, including chemical engineering, transpotation, envirnmental engineering and biomedical areas. A insitute of industrial process simulation and optimization and a company of Lamp-LDE rapid screening have been established.	Hao ZHANG 025-83455107 zhangh@jitri.org
43	CSIRO Commonwealth Scientific and Industrial Research Organisation	CSIRO is the largert national research orgnization in Australia. WiFi and many other vital technologies were invented by CSIRO. It is a leading player in the wrold in manufacturing, agriculture, envirnmental engineering, minaral, ocean, energy, health and biomedical.	JITRI has established a partnership with CSIRO in 2017. The two sides have carried out project cooperation in the industrialization of 3D printing.	Hao ZHANG 025-83455107 zhangh@jitri.org
44	THE UNIVERSITY OF SYDNEY The University of Sydney	The University of Sydney (USYD) is a world famous university and ranks as 42nd in QS ranking. USYD are famous for their advanced material, robotics, biomedical, internet of things, food manufacturing, data and computing areas.	JITRI has established a partnership with USYD in 2017. The two sides have carried out projects cooperation in the industrialization of advanced composite materials, edge computing and carbon fibre.	Hao ZHANG 025-83455107 zhangh@jitri.org
45	UNSW The University of New South Wales	The University of New South Wales (UNSW) owns the largest engineering faculty in southern hemisphere. Prof. Martin Green and dozens of his students played key role in Chinese solar cell industry establishment. UNSW ranks 45th in QS world university ranking. Its minaral ranks 9th, civil engineering ranks 15th,environmental engineering ranks 19th, materials ranks 35th and electrical and electronic engineering ranks 36th in QS subject ranking.	JITRI has established a partnership with UNSW in 2018. The two sides have carried out projects cooperation in the industrialization of environmental technology, big data and water treatment. A research company of sponge city has been established.	Hao ZHANG 025-83455107 zhangh@jitri.org
46	nfi The National Food Institute of Thailand (NFI)	The National Food Institute of Thailand (NFI) is a non-profit, independent organization under the Ministry of Industry of Thailand. The agency provides technical services to the food industry, With the goal of promoting and developing their food industry, also improving its efficiency and global competitiveness.	JITRI and NFI officially established strategic partnership in June 2018. The two sides agreed to cooperate in food health research, food industry industrialization and other related fields.	Ran DUAN 025-58551026-6026 duanr@jitri.org
47	HTU. Hussein Technical University	Hussein Technical University dedicated to education in the fields of science, technology, engineering and mathematics (STEM). HTU cooperates with top European universities such as Technische Universität München and the University College London, as well as companies such as Huawei and Cisco in personnel training and industrial projects.	JITRI and HTU officially established a strategic partnership on November 14, 2018, to carry out innovation ability training, technology research and talent exchange cooperation in the fields of advanced materials, energy and environment, information and communication technology, biomedical technology and high-end equipment manufacturing.	Ran DUAN 025-58551026-6026 duanr@jitri.org

No.	Name	Areas of Strengths	Existing Cooperations	Contact Info
48	Princess Sumaya University for Technology	Founded in 1991, Princess Sumaya University for Technology (PSUT) is a non-governmental, non-profit comprehensive university run by the Royal Society of Sciences (RSS), Jordan's leading applied research centre. PSUT dedicates to local development and modernisation programmes as well as global development, offering a series of ICT-related courses.	JITRI reached a strategic cooperation with Princess Sumaya University for Technology through WAITRO network in June 2019, and they carried out technical exchanges and joint training of talents in the fields of big data computing and water treatment.	Ran DUAN 025-58551026-6026 duanr@jitri.org
49	Royal Scientific Society	Founded in 1970, the Royal Society of Science (RSS) is Jordan's largest applied research institution, consultancy and technical support service provider. It is also a regional leader in the field of science and technology. Its main strengths are in renewable energy, energy conservation and environmental protection, information technology, big data and new materials.	In June 2019, Wang Qin, Director of Jiangsu Provincial Department of Science and Technology and Vice Chairman of JITRI signed a strategic cooperation agreement in Amman with Princess Sumaya, President of the Royal Jordanian Society of Sciences,	Ran DUAN 025-58551026-6026 duanr@jitri.org
50	The Scientific and Technological Research Council of Turkey	The Scientific and Technological Research Council of Turkey was founded in 1963. Its members are selected from the top scientific research and management personnel of Turkey's top universities, industrial research and development institutions and enterprises. It responsible for promoting, organising, carrying out and coordinating research and development of advanced technologies in response to national goals and development priorities. The Council is also the official advisory institute of the Government of Turkey on scientific and research. Its main strength areas are materials engineering, renewable energy, food engineering and additive manufacturing.	In 2019, JITRI signed a strategic cooperation agreement with The Scientific and Technological Research Council of Turkey for technical cooperation in the fields of materials engineering and additive manufacturing.	Ran DUAN 025-58551026-6026 duanr@jitri.org
51	Library of Alexandria	As one of the oldest libraries in the world, the Bibliothea Alexandria in Egypt has top resources of government agencies, international and non-governmental organizations, public institutions and so on.	In 2019, JITRI signed an MOU with the Library of Alexandria to explore the cooperation of exporting technology, equipment and talents to the local area, carrying out research and development and providing technical support with relevant enterprises of Jiangsu province.	Ran DUAN 025-58551026-6026 duanr@jitri.org
52	Central Metallurgical Research & Development Institute	The Central Metallurgical Research & Development Institute (CMRDI) is a member of WAITRO. It is part of the Egyptian Ministry of Scientific Research and conducts applied research in the fields of metal materials, biomaterials, etc. CMRDI is involved in a number of international and national projects for new material R&D and equipment manufacturing.	In September 2019, JITRI and CMRDI signed a strategic cooperation agreement. Both sides have carried out cooperation on 3D printing technology and equipment with relevant enterprises in our province.	Ran DUAN 025-58551026-6026 duanr@jitri.org
53	World Association of Industrial and Technological Research Organization(WAITRO)	Founded in Vienna in 1970, WAITRO is an international non-governmental organisation under the United Nations Industrial Development Organisation and it is the world's largest network of research and technology organisations. There are 168 member orgnizations from over 80 countries all over the world, covering North America, Latin America, Asia, Europe and Oceania. The main mission of the Association is to promote sustainable scientific and technology-oriented innovation partnerships among its members that contribute to global sustainable development.	In 2019, Fraunhofer-Gesellschaft (Germany) and JITRI were elected as the joint secretariats of WAITRO.	Ran DUAN 025-58551026-6026 duanr@jitri.org
54	World Wildlife Fund	The World Wildlife Fund is one of the largest independent non-governmental environmental protection organization. It was founded in 1961, since then it has been committed to protect the world's biodiversity and biological survival environment, reduce the impact of these organisms and their environment by human, WWF has valuable project experience and resources in the fields of green technology, industrial green transformation, and renewable energy applications.	In 2019, JITRI and WWF signed a Memorandum of Understanding. In October, JITRI, WWF and government of Wuxi Huishan District jointly established the Global Green Technology Center (GGTC), which is positioned as the world's leading provider of overall green technology solutions.	Ran DUAN 025-58551026-6026 duanr@jitri.org
55	Internation Coalition of Intenlligent Manufacturing	In 2018, the Federation of intelligent manufacturing societies of China Association for science and technology, together with 76 organizations from 16 countries, including the United States, Germany, Japan, and the United Kingdom, jointly launched the establishment of the International Intelligent Manufacturing Alliance (ICIM). The alliance is a non-governmental, non-profit international cooperation organization. With the purpose of "openness, exchange, sharing, and win-win", it is committed to deep-seated international exchanges in the field of intelligent manufacturing, and promotes cross-border, cross-border cooperation The effective cooperation of cross domain and cross industry will jointly establish an open and collaborative intelligent manufacturing ecosystem.	In 2019, ICIM established the Nanjing headquarters of the alliance relying on Jiangsu Industry Research Institute, and in 2020, Jiangsu industry research institute was elected as the director of the newly established alliance industry committee. Relying on the alliance, Jiangsu industry research institute links the international resources in the field of intelligent manufacturing to serve Jiangsu, promotes the knowledge dissemination of best practices in the field of intelligent manufacturing, explores how to best use scientific and technological tools in the digital, networked and intelligent transformation of manufacturing industry, and provides and promotes the application guide of Intelligent Manufacturing in different industries.	Yi ZHOU 025-83455129 zhouy@jitri.org

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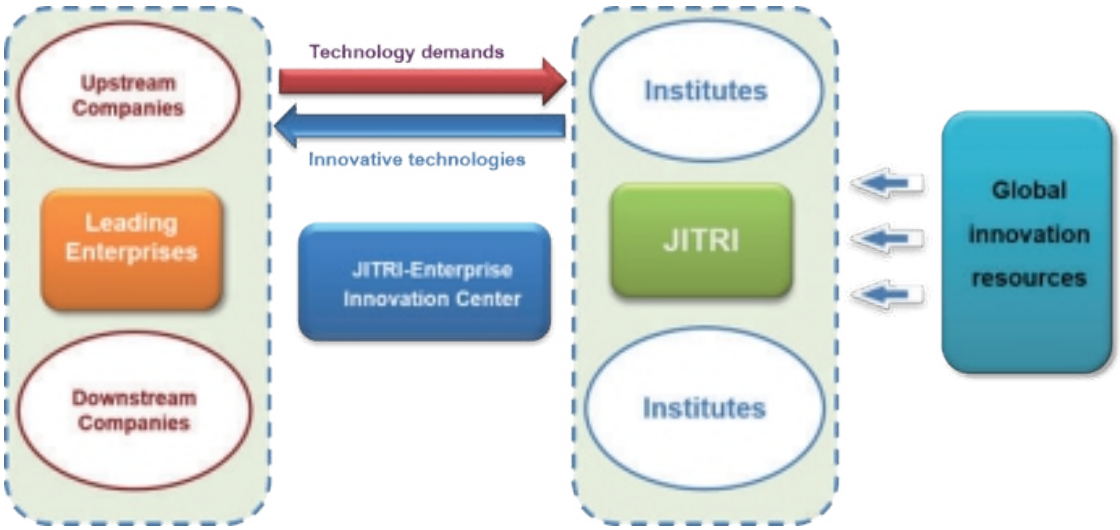
Industrial Needs

Joint Enterprise Innovation Centers

In order to understand industrial demand and provide effective technical support for Jiangsu industry, JITRI and leading manufacturing enterprises in various sectors have jointly set up enterprise joint innovation centers (JICs) since 2018 to carry out strategic research and collect and refine technology demands for which enterprises are willing to pay. Joining upstream and downstream industry chain enterprises with university research institutes nurtures industrial technology application research and development and integrated innovation.

JITRI and leading enterprises in the province have built 133 JICs that have put forward 609 technical requirements, and the enterprises intend to invest 1.913 billion CNY. Meanwhile, relying on innovative resources such as R&D carriers, project manager teams, and research from domestic and foreign partner universities, JITRI has fulfilled more than 580 demands and reached 166 technical cooperation projects, with a total contract value of 771 million CNY.



JITRI Core Partner Enterprises

No.	Cooperative Company Name	Main Products	Contact Info
	Advanced Materials		
1	Jiangsu Fasten Group Co., Ltd.	Steel wire, steel cord, optical fiber, optical cable, photoelectric products, precision equipment, etc	Dan Wu 15161601574 wudan@chinafasten.com http://www.fasten.com.cn/ No.165 Middle Chengjiang Road, Jiangyin, Jiangsu Province
2	Nanjing Julong Science & Technology Co., Ltd.	Modified polymers such as high-performance modified nylon, high-performance engineered polypropylene, long glass fiber reinforced composite materials, high-performance plastic alloys and plastic-wood environmental engineering materials	Youshan QIN 13675150229 qinyoushan@njjulong.cn http://www.njjulong.cn/ No.8 Julong Road, Nanjing Jiangbei New Area, Jiangsu Province
3	Jiangsu Longda Superalloy Material Co., Ltd.	Superalloy , Corrosion-resistant Nickel base alloys materials	Zachary ZHAO 18262267682 zch@wxlongda.com http://wxlongda.com/ 18 Xiangyun Road, Anzhen Community, Xi'shan District, Wuxi, Jiangsu Province
4	Nanjing Redsun Co., Ltd.	Environmental-friendly pesticides and biological fertilizers, animal food products, environmental-friendly materials, fine chemicals, etc	Chaoran LUO 18913323579 chaoranluo@163.com http://www.gvg-redsun.com/ 168 South Fangting Road, Changlu Community,Jiangbei New Area,Nanjing, Jiangsu Province, China
5	Nanjing Kerun Industrial Medium Co. Ltd.	Heat treatment quenching medium, steel rolling medium, metal processing and forming medium, surface treatment medium, cleaning and anti-rust industrial medium; complete sets of equipment and overall solutions	Biya ZHONG 15195911730 zhongby@njkerun.com http://www.njkerun.com/ No. 31 Qinhuai Road, Jiangning District, Nanjing, Jiangsu Province, China
6	Jiangsu Sidike New Material Technology Co. Ltd.	Functional film materials, electronic grade adhesive materials, thermal management composites, film packaging materials, etc	Wei PEI 18151450082 pei-wei@sidike.cn http://www.sidike.com/ No. 6, Shuangyang West Road, Sihong Economic Development Zone, Jiangsu Province
7	JIANGSU KINGFA SCI. & TECH. ADVANCED MATERIALS CO., LTD.	Advanced materials such as modified plastics, fully biodegradable plastics, high-performance carbon fibers and composite materials, special engineering plastics, and environmentally friendly high-performance recycled plastics	Heming WU 18221157024 1632630026@qq.com https://www.kingfa.com.cn/ No. 388, Xijiang Road, Kunshan Economic and Technological, Jiangsu Province
8	Jiangsu Haoran Spray Forming Alloy Co., Ltd.	Development of equipment for spray forming, production technology of spray forming, material application technology development	Wantai MA 13913950226 958862663@qq.com http://www.haorantech.com/ No. 16, Sipingshan Road, Zhenjiang New District, Jiangsu Province
9	Jiangsu Dingsheng New Energy Materials Co., Ltd.	Aluminum and aluminum alloy plates, strips, foils and their deep processed products，etc	Yuwei WANG 15262983212 wyw910310@163.com http://www.dingshengxincai.com/ Jingkou Economic Development District, Zhenjiang, Jiangsu Province
10	Wuxi Paike New Materials Technology Co. Ltd.	Superalloy, titanium alloy, aluminum alloy, magnesium alloy, heat-resistant steel, stainless steel, alloy steel, carbon steel ring forgings, free forgings and small and medium die forgings	Fangyou HE 15061826816 jszx@wuxipaike.com http://www.wuxipaike.com/ 22 Lianhe Road, Hudai Industrial Park, Wuxi, Jiangsu Province
11	China Machinery Metal Co., Ltd	Special alloy, high temperature alloy, corrosion resistant alloy, precision alloy and other alloy materials	Song XUE 13915201386 xuesonglove@163.com http://www.cmmetal.cn/ No. 810, Baiyu Road, Nanzha Street, Jiangyin, Jiangsu Province
12	Metalink Special Alloys Co., Ltd	Special rare metal alloy materials and products (rare refractory metal alloy, special master alloy, high purity refractory metal, cast superalloy)	Xiaoyu MIAO 13584038803 58029339@qq.com http://www.metalink.com.cn/ Road, Jiangning Economic Development Zone, Nanjing, Jiangsu Province

No.	Cooperative Company Name	Main Products	Contact Info
13	Jiangsu QIYI Technology Co., Ltd.	Continuous fiber reinforced thermoplastic composite materials	Huaping ZHU 18362039999 zhuhuaping@china-qiyi.com http://www.china-qiyi.com/ http://www.qiyi-cfrtp.com/ No.9 Changwanxi Road, Danyang, Jiangsu Province
14	Changzhou Tronly New Electronic Materials Co., Ltd.	Photosensitive chemicals (initiators and sensitizers) for PCB photoresists, photoinitiators for LCD photoresists,etc	Ring CHEN 13813663705 chenling@tronly.com http://www.tronly.com/ Changzhou wujin district Yao guan qian jia industrial park, Jiangsu Province
15	Sunnywell (China) New Material Technology Co., Ltd.	Steel wire products such as cutting steel wire (including spiral wire), diamond wire (including diamond wire) and steel cord for radial tire reinforcement for crystal cutting	Xuesong LEI 15151914518 xuesong.lei@sunnywellchina.com http://www.sunnywellchina.com/ No. 268 Nanhuan 2 Road, Jintan, Changzhou, Jiangsu Province
16	Jiangsu Bote New Materials Co,Ltd.	Concrete admixtures (high performance water reducing agent, water reducing agent additive, crack control materials, durability improvement materials, high performance cement-based materials), special concrete, traffic engineering materials, waterproof and repair materials, etc	Ziwei NI 13776568804 niziwei@cnjsjk.cn http://www.cnjsjk.cn/ 12 Beijing West Road, Gulou District, Nanjing, Jiangsu Province
17	Changzhou Almaden Co., Ltd.	Photoelectric glass, encapsulation film, photovoltaic coating glass, ultra-thin physical toughened glass,ultra-thin chemical toughened glass, double glass modules, etc	Junliang LIN 18068537865 cll@czamd.com http://www.czamd.com/ No. 639, Qinglong East Road, Changzhou, Jiangsu Province
18	Jiangsu Gian Technology Co, Ltd.	Professional MIM solution provider; R&D of vacuum ion coating equipment; manufacturing and processing of vacuum coating, precision parts, craft accessories, photoelectric equipment; sales of mechanical equipment, electronic products, hardware products, plastic products, metal materials and metal target materials,etc	Shaohua SU 15189734659 sushaohua@jsgian.com https://www.jsgian.com/ No.59, Zonglv Road, Zhonglou Economic Development Zone, Changzhou, Jiangsu Province
19	Suzhou Eunow Company limited	R&D and production of electronic soldering materials, electronic assymbly and packaging materials; and a comprehensive technical solution provider	Qin CHEN 18912646936 chenqin@ubondtech.com No.8 Aimin Road, Huangdai Dongqiao, Xiangcheng District, Suzhou, Jiangsu Province
20	Suzhou Jinhong Gas Co., Ltd.	Integrated R&D, production, sales and service for bulk gas, special gas and natural gas	Xinxi WANG 13656216256 xinxi.wang@jinhonggroup.com http://www.jinhonggroup.com/ No.6, Anmin Road, Xiangcheng District, Suzhou, Jiangsu Province
21	Giant Light Metal (Kunshan) Technology Co., Ltd. D.MAG New Material Technology Co., Ltd.	Advanced aluminum alloy material research and development, production and processing	Ailin GAO 18912687761 18912687761@189.cn http://www.giant-alloy.com/ No.188 Nanhe Road, Kunshan, Jiangsu Province
22	Nuovo Film Suzhou China Inc.	Nano silver conductive film, touch module, silver ion antibacterial products, etc	Hak Fei Poon 18662600928 hfp@nuovofilm.com http://www.nuovofilm.cn/ Building A, Huanpu Industrial Park, 126 Qingqiu Street, Suzhou Industrial Park, Suzhou, Jiangsu Province
23	TOLYY Optronics Co., Ltd.	Providing engineering and technical solutions for optoelectronic manufacturing enterprises, including optical grade Nano silicone direct bonding adhesive and bonding service，high reliable outdoor photoelectric touch-display modules，etc.	Stong 13812699519 stong.shi@tolyy.com http://www.tolyy.com/ Unit D,Building 21, , 428 Xinglong Road, Suzhou, Jiangsu Province
24	Jiangsu Sopo Corporation (Group) Ltd	Chemical raw materials and products (production and sales of ADC foaming agent, bleaching powder, chlorine, alkali and acetic acid)	Guisheng ZHU 13815158847 zgsrst@sina.com http://www.sopo.com.cn/ No.101, Qiusuo Road, Jingkou District, Zhenjiang, Jiangsu Province
25	Jiangsu Zhengdan Chemical Industry Co., Ltd.	High-end environmental-friendly new materials and special fine chemicals	Fu WANG 13775329357 wf@zhengdanchem.com http://www.zhengdanchem.com/ 18 Songlinshan Road, International Chemical Industry Park, Zhenjiang New Area, Zhenjiang, Jiangsu Province
26	Hysol Huawei Electronics Co., Ltd.	Epoxy molding compound	Ken PAN 18602116855 ken.pan@hysolhuawei.com http://www.hysolhuawei.com.cn/ No.8, Zhenhua Road, Lianyungang High Tech Industrial Development Zone, Jiangsu Province
27	LDZ New Aoshen Spandex Co., Ltd.	Polyurethane elastic fiber spandex and related products	Bin ZHANG 13505133168 zhangbin@ldz.cn http://www.ldz.cn/ No.8 Kunlunshan Road, Lianyungang Economic and Technological Development Zone, Lianyungang, Jiangsu Province

No.	Cooperative Company Name	Main Products	Contact Info
28	Jiangsu Aoshen Hi-tech Materials Co., Ltd.	High performance polyimide fiber and derivative products.	Shihua WANG 13961392222 wangsh@asxc.com.cn http://www.asxc.com.cn/Home/ Aoshen New Material Engineering Center, No.20 Dapu Road, Dapu Industrial Zone, Lianyungang Economic and Technological Development Zone, Jiangsu Province
29	Changzhou Marine Cable Co., Ltd.	Cable products for various purposes	Minghui SUI 15051983452 suimh@cmc.com.cn http://m.gb.cmcw.com.cn/ No.8, Beitanghe East Road, Tianning District, Changzhou, Jiangsu Province
30	Zenith Steel Group Company Limited	High quality special steel material	Yan SHEN 15161126025 119438955@qq.com http://www.zt.net.cn/ No.1 Zhongwu Avenue, Changzhou, Jiangsu Province
31	Jiangsu Xiuqiang Glasswork Co., Ltd	touch screen cover glass, thin film battery (TCO) glass, photovoltaic coated glass (AR), ITO glass, home appliance color crystal glass, home glass	Jin LU 13732681355 jszxlyj@xqglass.com http://www.jsxq.com/ No.28 Jinagshan Road, Suyu, Suqian, Jiangsu Province
	Energy & Enviromental Protection		
32	Nanjing Wondux Environmental Protection Technology Corp. Ltd.	Providing complete sets of equipment and overall solutions for landfill pollution recovery, high difficulty wastewater treatment, kitchen waste disposal; smart environmental protection big data platform	uan CHEN 18068801518 cheny02@njwds.com http://www.njwds.com/ No. 57 Qiande Road, Jiangning High-tech Zone, Nanjing, Jiangsu Province
33	Xuzhou Xinjing Semiconductor Technology Co., Ltd.	Semiconductor silicon wafer, silicon wafer materials, compound semiconductor materials, artificial crystal materials, composite semiconductor materials and semiconductor devices, etc	Hongfu JIANG 17705208388 jianghongfu@gclsemi.com http://www.gcl-power.com/ No.1 Xinxin Road, Xuzhou Economic and Technological Development Zone, Jiangsu Province
34	Trina Solar Co., Ltd.	Photovoltaic module products and solutions,etc	Zhenwei WANG 0519-81587679 zhenwei.wang@trinasolar.com https://www.trinasolar.com/cn/our-company/ No. 2 Tianhe Road, Tianhe Photovoltaic Industrial Park, Xinbei District, Changzhou, Jiangsu Province
35	Jiangsu Lason Chemical Environmental Protection Co.,Ltd.	Treatment of high concentration organic chemical wastewater, environmental facilities operations, environmental assessment and testing, environmental engineering design, environmental protection capacity building, etc	Feng GAO 13961511471 gaofeng@china-lason.com http://www.china-lason.com/ Zhalin Industrial Park, Dingshu, Yixing , Jiangsu Province
36	Jiangsu Jinhe Technology Energy Co., Ltd.	High performance composite phase-change materials and their derivatives	Yi JIN 13810670240 Yi.jin@jinhe-energy.com http://www.jinhe-energy.com/ No.1, Sci & Tech Aenue, Economic and Technological Development Zone, Jurong, Jiangsu Province
37	China Lithium Battery Technology Co., Ltd. (CALB)	Lithium-ion power battery, battery management system, energy storage battery and related integrated products,etc	Zhichao QI 18052536376 zhichao.qi@calb-tech.com http://www.calb-tech.com/ No.1 Jiangdong Avenue, Jintan District, Changzhou, Jiangsu Province
38	Changzhou Blest Lithium Battery Intelligent Factory Co., Ltd.	Lithium battery materials & carbon materials (plant planning and production line design), MES control system and software, intelligent distributed control system, etc	Jianhao HE 13801509529 hejianhao@b-ndz.com http://www.blest.com.cn/jtgk No.2 Tenglong Road, West Taihu Science and Technology Industrial Park, Changzhou, Jiangsu Province
39	Shuangdeng Group Co,Ltd	Lithium ion batteries、Lead-acid batteries、Power System Product and Energy Storage solution for Telecom、IDC、Energy storage、Traffic Power and other fields	Wei LIU 13812485093 liuw@shuangdeng.com.cn http://www.shuangdeng.com.cn/ Jiangyan Economic Development Zone, Taizhou, Jiangsu Province
40	Suzhou Shijing Environmental Protection Technology Co., Ltd	Treatment of waste gas, waste water and other pollution	He Wen 13913521511 hewen@sz-sjef.com https://www.sz-sjef.com/ No.58, Jinrui Road, Taiping Street, Xiangcheng District, Suzhou, Jiangsu Province
	Information and Communication Technology		
41	Jiangsu Wisedu System Co., Ltd.	Smart Campus Operation Platform ; Management System and Learning System at universities; Collaborative Platform and Saas Services	Lili LV 13645177776 lllv@wisedu.com http://www.wisedu.com/ Floor 10, 11 and 12, Building 1, Keya Science and Technology Pioneer Park, No. 59, West Tianyuan Road,Jiangning District, Nanjing, Jiangsu Province
42	Duolun Technology Co., Ltd.	Smart vehicle management, smart driving training, smart city, smart vehicle inspection, etc	Tiejian ZHANG 13814511154 zhangtiejian@duoluntech.com http://www.duoluntech.com/ No. 1555 Tianyin Avenue, Jiangning District, Nanjing, Jiangsu Province
43	Nanjing Estun Automation Co., Ltd.	Nanjing Estun Automation Co., Ltd.	Wei QIAN 15850601090 qianwei@estun.com http://www.estun.com/ No. 16 Shuige Road, Jiangning Economic and Technological Development Zone, Nanjing, Jiangsu Province

No.	Cooperative Company Name	Main Products	Contact Info
44	Jiangsu Hoperun Software Co., Ltd.	Financial technology services and Internet of Things services based on digital solutions	Yuanyuan WANG 18951690621 wang_yuanyuan@hoperun.com http://www.hoperun.com/ No. 168 Software Avenue, Nanjing, Jiangsu Province
45	Hengtong Optic-Electric Co., Ltd.	System integration and network services for optical fiber network and smart grid	Xiangyong HAO 13701699426 haoxy@htgd.com.cn http://www.htgd.com.cn/ No.2288 Zhongshan North Road, Wujiang District, Suzhou, Jiangsu Province
46	BestLink Technologies Co., Ltd.	Communication technology servicess, network planning and design, engineering construction, equipment debugging, basic network optimization, comprehensive maintenance, wireless network planning and network optimization, education and training consultation, system integration, Internet of Things, big data, artificial intelligence and software development. Integrated Service Of Intelligent: Smart Campus、Smart Factory、Smart Home、Smart Transportation、Smart Power、Smart Lamppost、Smart Charging pile、Smart Water、Smart Park、Smart City	Liang CHEN 13951675933 liang.chen@bestlink.com.cn http://www.bestlink.com.cn/ Yunmicheng Building E , No. 19 Ningshuang Road, Yuhuatai District, Nanjing, Jiangsu Province
47	Suzhou Jinfu Technology Co., Ltd.	Photoelectric material die-cutting, backlight modules, intelligent detection and automation equipment.	Limin LI 18662665677 lilimin@jin-fu.cn http://www.szjin-fu.com/ No. 601, Building C1, Artificial Intelligence Industrial Park, 88 Jinjihu Avenue, Suzhou Industrial Park, Jiangsu Province
48	ArcherMind Technology (Nanjing) Co., Ltd.	Embedded software and technical services in the fields of smart phones, smart cars, intelligent hardware, artificial intelligence and mobile Internet	Xiaoyu WANG 18651894345 xiaoyu.wang@archermind.com https://www.archermind.com/ Building B, Yunmicheng, 19 Ningshuang Road, Yuhuatai District, Nanjing, Jiangsu Province
49	Huayun Data Holding Group Co., Ltd.	Infrastructure platform for cloud service, including cloud computing platform, IaaS services (cloud server, cloud storage, cloud application, cloud monitoring), IDC cloud services, customer services based on cloud computing,etc	Ya YANG 15852520635 yangya@huayun.com https://www.huayun.com/ Huayun Data Building, No. 6, Block B, Science and Education Software Park, Huize West Road, Binhu District, Wuxi , Jiangsu Province
50	Suzhou Keda Technology Co., Ltd	Washing machines, dryers, etc	Pengcheng XU 13382203326 xupc@midea.com https://www.littleswan.com/ No.18 South Changjiang Road, Wuxi New District, Wuxi, Jiangsu Province
51	苏州科达科技股份有限公司	Video conference system, video surveillance system and various industry video application solutions	Lijun CAO 13913125078 caolijun@kedacom.com https://www.kedacom.com/cn/ No. 131 Jinshan Road, High Tech Zone, Suzhou, Jiangsu Province
52	Wuxi Zgmicro Co., Ltd.	Chips for audio sensor network, video sensor network and battery power management,etc	Jun XUE 13814215130 xue.jun@zgmicro.com http://www.zgmicro.com/ Zone A 10th Floor, 530 Building, Qingyuan Road, Taihu International Science and Technology Park, Xinwu District, Wuxi, Jiangsu Province
53	Nanjing Shenghang Shipping Co., Ltd.	Water transportation services for liquid chemicals and refined oil products.	Shushai CHEN 13601454748 chenss@njshshipping.com http://www.njshsh.com/ Building S11, Science and Technology Pioneer Park, October Commune, No. 9, Guangyue Road, Qixia District, Nanjing , Jiangsu Province
54	Wuxi Taclink Optoelectronics Technology Co., Ltd.	Optical fiber amplifier, optical transceiver module, optical device package component, data transmission module and subsystem, LAN, data acquisition solution, FTTH, super long-span relay-free transmission, etc	Yunfeng JIN 13912388086 jinyunfeng@taclink.com http://www.taclink.com/ Plot 93-C, Science and Technology Industrial Park, Xinwu District, Wuxi, Jiangsu Province
55	Yangzhou Yangjie Electronic Technology Co., Ltd.	Chips for discrete device, rectifier device, protection device, small signal, MOSFET, power module, silicon carbide, etc	Weiming JIANG 13852722567 weiming.jiang@21yangjie.com http://www.21yangjie.com/ No.6, Heye West Road, Jiangyang Industrial Park, Hanjiang District, Yangzhou, Jiangsu Province
56	Shine Optoelectronics (Kunshan) Co., Ltd.	Optoelectronic thin films with ultra high resolution and micro nanostructures，electromagnetic shielding films, dynamic three-dimensional imaging films, etc	Yulong GAO 18015585660 ryan@soe-tech.com http://www.soetech.com/ Room 9, No.111 Nansong Road, Yushan Town, Kunshan, Jiangsu Province
57	Memsensing Microsystems (Suzhou) Co., Ltd.	MEMS microphone, MEMS pressure sensor and MEMS inertial sensor	Wei HU 18136066768 walehu@memsensing.com https://www.memsensing.com/ Room 102, NW-09 floor, 99 Jinjihu Avenue, Suzhou Industrial Park, Jiangsu Province
58	InnoLight Technology (Suzhou) Ltd	High-speed optical communication transceiver modules	Yinchao DU 13862130332 jdu@innolight.com https://www.innolight.com/ 8 Xiasheng Road, Suzhou Industrial Park, Suzhou, Jiangsu Province
59	ElexTec Bozhi Safety Technology Co., Ltd.	Products, services and solutions in the field of information security, such as network security range, industrial control safety protection, digital forensics, security verification, etc	Guijuan ZHAO 13382066457 zhaoguijuan@elextec.com http://www.elextec.com/ 5F, Building 3, No. 168 Software Avenue, Yuhuatai District, Nanjing, Jiangsu Province

No.	Cooperative Company Name	Main Products	Contact Info
60	Suzhou Yinke Electronics Co., Ltd.	Robot, machine vision, new materials, intelligent manufacturing, intelligent storage, 5G intelligent factory, 3C and small power battery, etc	Jianhui GU 18501617955 gu@yinko.com.cn http://www.yinko.com.cn/ Bei Qiao Zhen Ling Feng Cun, Xiangcheng District, Suzhou, Jiangsu Province
61	Kunshan Luxshare RF Technology Co., Ltd.	Antenna, filter, ceramic products, RRU, small cell, indoor distribution products	Sophie LU 13584972026 Sophie.Lu@luxshare-ict.com Http://www.Luxshare-ict.com/ No.99 Xubang Road, Wuzhong Development Zone, Suzhou, Jiangsu Province
62	Nanjing Pioneer Awareness Information Technology Co., Ltd	Comprehensive safety monitoring and risk perception solutions for high-speed railway and Urban rail transit; Train Drive Safety Assistance System、Staff Invasion Guard、Tunnel Security Guard、Hybrid Fiber Fence、Railway Line Security Guard、Distributed Fiber Optical Sensing Device、Tunnel Inner Face Guard, etc.	Liewei WANG 15555156836 wangliewei@pgsensing.com http://www.pgsensing.com/ 18th Floor, Building 01, No. 18, Jialingjiang East Street, Jianye District, Nanjing, Jiangsu Province
63	Yadea Technology Group Co.,LTD	electric two-wheeled vehicle	Wei CAO 19952265556 wei_c@yadea.com.cn http://www.yadea.com.cn/ No.515 Xishan Road Xishan District, Wuxi, Jiangsu Province
64	Suzhou Delphi Laser Co., Ltd.	Laser equipment for high-end industrial applications, laser solutions for various ultra-thin, super hard, brittle, flexible and transparent materials.	Yan SHI 13914034095 y.shi@delphilaser.com http://www.delphilaser.com No. 98 Xinglin Street, Suzhou Industrial Park, Jiangsu Province
65	China Design Group	Strategic planning, engineering consulting, survey and design of R&D, testing and monitoring, project management, construction, operations and other integrated solutions.	Fei CHEN 13951685690 3777368@qq.com http://www.cdg.com.cn/ No. 9 Ziyun Avenue, Baixia Science Park, Qinhuai District, Nanjing, Jiangsu Province
	Equipment & Manufacturing		
66	Daqo Group Co., Ltd.	Electrical equipment, intelligent components, power system automation and system integration, new energy power generation system, intelligent substation system, distribution network automation system, factory automation and energy efficiency management system, solar polysilicon, rail transit traction power supply equipment	Sichen WANG 13915962530 wangsichen@daqo.com http://www.daqo.com/ Daquan Science and Technology Park, 66 Daquan Road, Yangzhong, Jiangsu Province
67	Jiangsu Transportation Research Institute Co., Ltd.	Comprehensive infrastructure solution provider that specializes in planning, design, testing and execution of infrastructure construction projects	Chao YANG 13921405018 yc72@jsti.com http://www.jsti.com/ No.8 Fuchunjiang East Street, Jianye District, Nanjing, Jiangsu Province
68	Suning Logistics Co., Ltd	Warehousing services, cold chain logistics, TC transshipment, cross-border logistics, rural logistics, express delivery, intra-city services, logistics finance, Suning Bangke services, logistics cloud computing, cloud warehousing, etc	Shouliang WANG 17602533155 wangsl@cnsuning.com https://wuliu.suning.com/ No.2 Longzang Avenue, Yuhuatai District, Nanjing, Jiangsu Province
69	PGTEX China Co., Ltd.	Glass fiber fabric, carbon fiber fabric, aramid fiber fabric, blended fabric, high molecular weight polyethylene, etc	Shihai LIU 13382804816 liushihai@pgtex.cn http://www.pgtex.cn/ No.28 Lijiang Road, Xixiashu Town, Xinbei District, Changzhou, Jiangsu Province
70	WELLE Environmental Group Co., Ltd.	Waste leachate treatment, food and kitchen waste treatment, urban and rural organic waste treatment, biogas and bio-methane generation, industrial energy saving, oil and gas recovery and VOCs treatment, etc	Huimin HUANG 18862245357 huanghuimin@wellegroup.com https://www.wellegroup.com/ 156 Hanjiang Road, Changzhou, Jiangsu Province
71	FAMSUN Group Co.,Ltd.	Feed machinery manufacturing and engineering, as well as system solutions	Dongliang HAN 18852716293 hdl@famsungroup.com http://www.famsungroup.com/ No.1, Huasheng Road, High Tech Development Zone, Yangzhou, Jiangsu Province
72	JIANGSU SHANGSHANG CABLE GROUP	500kV and below power transmission&distribution cables, mineral insulated fire-proof cables, fire-resisting cables, I&C cables, compensating cables; nuclear cables, wind energy cables, photovoltaic cables; new energy vehicle cables, locomotive cables, robot cables, electrical equipment cables, marine engineering and ships cables, mining cables, etc	Hongjie DI 13801497576 kjxxb@shangshang.com http://www.shangshang.com/ 68 Shangshang Road, Liyang, Jiangsu Province
73	Nanjing Yzwisdom Co., Ltd.	Gas velocity and flow measurement equipment, waste water treatment system, high voltage electrode boiler equipment, etc	Ke WU 13913879358 wuke@yzwisdom.net http://www.yzwisdom.net/ Building 9, Wangu Science and Technology Park, Yuhuatai District, Nanjing, Jiangsu Province
74	KTK Holding Group Co., Ltd.	Accessory products of rail transit vehicles such as interior decoration, equipment and electrical systems	Jinqin LIU 13921049387 liujq@ktk.com.cn http://www.ktk.com.cn/ No. 88-89 Jinchuang Road, Yaoguan Town, Wujin District, Changzhou, Jiangsu Province
75	CRRC Qishuyan Institute Co., Ltd.	Key components of rail transit vehicles, large road maintenance machinery, auto parts, wind power products, etc	Na TANG 13651506103 tangna@csrqsyri.com.cn https://www.crrcgc.cc/qsys/ No. 258, Wuyi Road, Changzhou, Jiangsu Province

No.	Cooperative Company Name	Main Products	Contact Info
76	HODO Group Co., Ltd.	Textile and clothing, rubber tire, the healthcare industry, real estate, etc	Chunbin DAI 13961895530 382373102@qq.com http://www.hongdou.com/ Hongdoucheng, Wuxi, Jiangsu Province
77	Jiangsu S&S Inteligent Science and Technology Co., Ltd.	High end jacquard weaving equipment and its key parts	Xianming YANG 18853512001 yxm32785134@126.com http://www.songrs.com/ 20 Taibei Avenue, Shuyang Economic and Technological Development Zone, Suqian, Jiangsu Province
78	Jiangsu Sunway Precision Forging Co., Ltd	Automobile constant velocity universal joint series precision forging, automobile gearbox shaft cold forging, automobile gearbox gear cold precision forging, engineering machinery precision forging, etc	Binbin WANG 15962072278 wangbinbin1205@163.com http://www.js-spf.com/ No.299 Nanxiang West Road, Economic and Technological Development Zone, Dafeng District, Yancheng, Jiangsu Province
79	Nanjng YueBoo Power System Co., Ltd.	R&D, manufacturing and sales of new energy vehicle powertrain systems	Yuanguang JIANG 13951882573 jiangyuanguang@yuebooemt.com http://www.yuebooemt.com/ No.29 Buyue Road, Qiaolin Street, Pukou District, Nanjing, Jiangsu Province
80	CCTY Bearing Co., Ltd.	High performance bearing and customized bearing solutions	Linghui ZHANG 15162975217 levana.zhang@cctybearing.com https://cctybearing.com/ No.458 Jinrun Avenue, Dantu District, Zhenjiang, Jiangsu Province
81	Jiangsu JOYEA Joint Intellectual Manufacturing Co., Ltd.	Automatic packaging solution	Juan CHEN 13952876770 chenjuan@joyea.cn http://www.joyea.cn/ No.1 Garden, No.111 Qianjin Road, Development Zone, Danyang, Jiangsu Province
82	Yangli Group	Mechanical press machinery, CNC punching machine, laser cutting, sheet metal machine, hydraulic press machine, mask machine, etc	Chunyu SHU 13605272700 1004@yangli.com http://www.yangli.com/ Yangli Road, High Tech Industrial Development Zone, Yangzhou, Jiangsu Province
83	Kersen Technology Co., Ltd.	Structural parts of consumer electronic products, medical surgical instruments, metal components of solar mounting bracket, auto parts, etc	Yang LI 15151612602 yang.lee@kersentech.com http://www.kersentech.com/ No. 389 Kunjia Road, Kunshan, Jiangsu Province
84	Wetown Electric Group Co., Ltd.	Low voltage busbar, high voltage busbar, wind power busbar, resin busbar, distribution cabinet (box), photovoltaic new materials, pipe gallery, cable tray, etc	Xueming ZHOU 13952901060 zxm@wetown.cc http://www.wetown.com.cn/ No.1 Nanzi Road, Xinba Science and Technology Park, Yangzhong, Jiangsu Province
85	Jiangsu Evalve Co. Ltd.	Gate valve, globe valve, check valve, ball valve, butterfly valve, control valve, etc	Chunfang ZHANG 13914577568 13914577568@126.com http://www.evalve.cn/ No. 16 Gangbei West Road, Xilaiqiao Town, Yangzhong, Jiangsu Province
86	Sino-Galvo (Jiangsu) Technology Co., Ltd.	Optical scanning galvanometer and its control system	Xinyi ZHAO 15052943372 1020622031@qq.com http://www.jhckj.com/ Building 33, No. 99, Dingmaojing 15th Road, Zhenjiang New District, Jiangsu Province
87	Jiangsu Chaoli Group	Motor, fan, radiator module, air conditioner for autos	Jingqi WU 13921575470 jingqi.wu@chaoli-electric.com http://www.chaoli-electric.com/ No.1 Xingyuan East Road, Quxian Town, Danyang, Jiangsu Province
88	Danfoss Power Solutions (Jiangsu) Co., Ltd.	Hydraulic, electronic and electric solutions for the construction, agriculture and other off-highway vehicle	Longtao QIU 15365230649 longtao.qiu@danfoss.com https://www.danfoss.com/zh-cn/ No.1-8 Ningzhen Road, Zhenjiang, Jiangsu Province
89	DareGlobal Technologies Group Co.,Ltd.	Household products such as laminate floor, solid wood floor, standard wooden door, integral wardrobe, kitchen cabinet, etc.; packaging materials for cigarettes, food, medicine, power capacitor; aluminum alloy wheel hub and other auto parts	Ping ZHANG 13405596525 zhangping@cndare.com https://www.dareglobal.com/ No.99 Qiliang Road, Danyang, Jiangsu Province
90	Changzhou Haili Tools Co., Ltd.	Metal cutting tools (drills, milling cutters, reamers, forming cutters, etc.) for 3C, automobile, railway, ship, as well as core components in aviation and aerospace	Yulin CHAO 15251913029 708878128@qq.com http://www.hltool.cn/ Xixiashu Town, Xinbei District, Changzhou, Jiangsu Province
91	Changzhou Pacific Electric Power Equipment (Group) Co., Ltd.	High voltage and low voltage power transmission and distribution	Zhimin SUN 13915058572 sunzhimin@cpepe.cn http://www.cpepe.cn/ No. 88, No. 4 Huanbao Road, Xinbei District, Changzhou, Jiangsu Province

No.	Cooperative Company Name	Main Products	Contact Info
92	AnronX® 安荣信科技 Anrongxin Technology (Nanjing) Co. , Ltd.	Continuous Emission Monitoring System，Continuous Dust Concentration Monitor，Gas Analyzer，Flow Meter，Dust（TSP/PM10/PM2.5）Monitoring System	Rukai YANG 19952004066 yrk@anronx.com http://www.anronx.com/ Building 5, Liandong U Gu International Enterprise Port, 1001 fuying road, Jiangning District, Nanjing, Jiangsu Province
93	OMK Suzhou OMAX Alloy Tools Co., Ltd	Cemented carbide cutting tools, molds, wear-resistant parts, etc	Yanfang ZHOU 13986211815 zhouyf@yp-tec.com http://www.omk-tec.com 80 xihenggang street, Yangchenghu Town, Xiangcheng District, Suzhou City, Jiangsu Province
94	greenworks Greenworks Tools Co., Ltd.	Garden tools, air compressors, cleaning machines, generators, off road vehicles, electric tools, household appliances, etc.	Xiaoli LU 13921081152 xiaoli.lu@globetools.com http://www.globetools.com No. 65-1 Xinggang Road, Zhonglou District, Changzhou City, Jiangsu Province
	Biology & Medicine		
95	yuwell 鱼跃 Jiangsu Yuyue Technology Development Co., Ltd.	Respiratory solutions, durable equipment and consumables, imaging diagnosis and treatment, chronic disease monitoring, infection control and disinfection, ophthalmology and vision care, life information monitoring, etc	Hongzhe ZHENG 18751986224 zhenghz@yuyue.com.cn https://www.yuyue.com.cn/ Yuyue Science and Technology Center, No.1 Huanyuan East Road, Xuanwu District, Nanjing, Jiangsu Province
96	钱璟康复 Changzhou Qianjing Rehabilitation Co., Ltd.	Rehabilitation equipment and therapy (for children, adults, the elderly), Jingyun precision rehabilitation service platform	Yi LIU 13921089695 liuyi@qjrehab.com http://www.qjrehab.com/ No.6 Fengming Road, Wujin National High Tech Development Zone, Changzhou, Jiangsu Province
97	万邦医药 Jiangsu Wanbang Biopharmaceuticals Co., Ltd.	Medicine and active pharmaceutical ingredients for diabetes, metabolism and digestion, cardiovascular, anti-tumor and nephrotic, etc	Zhongshuai XIN 18626008077 xinzs@wbpharma.com http://www.chinawanbang.com/ Xuzhou Economic Development Zone, Jiangsu Province
98	 Jiangsu Aosaikang Pharmaceutical Co., Ltd.	Anti peptic ulcer proton pump inhibitor (PPI) injection products, anti-tumor drug-resistant bacteria infection drugs, etc	Yao TANG 13914749218 tangyao@ask-pharma.com https://www.yuyue.com.cn/ No. 699 Kejian Road, Jiangning Science Park, Nanjing, Jiangsu Province
99	YOKO优科生物 Nanjing Yoko Pharmaceutical Group Co. Ltd.	Anti-infective drugs, cardio cerebrovascular drugs, anti-tumor drugs, nervous system drugs, etc.	Lili PENG 13770526713 penglili@yoko-bio.com http://www.yoko-bio.com/ No.28 Hengjing Road, Nanjing Economic and Technological Development Zone, Jiangsu Province
100	MICRO-TECH (Nanjing) Co., Ltd. Micro-Tech (Nanjing) Co., Ltd.	Endoscopic minimally invasive diagnosis and treatment equipment, tumor ablation equipment	Lirong ZHANG 18913000298 89642970@qq.com http://www.micro-tech.com.cn/ No.10, Gaoke 3rd Road, High Tech Development Zone, Nanjing, Jiangsu Province
101	基石药业 CSTONE PHARMACEUTICALS Cornerstone Pharmaceuticals (Suzhou) Co., Ltd.	Tumor immunotherapy and precise treatment drugs	Juan ZHANG 18962401199 zhangj@cstonepharma.com http://www.cstonepharma.com/ Building C1, Biological Nano Park, 218 Xinghu Street, Suzhou Industrial Park, Jiangsu Province
102	正大天晴 CHIATAI TIANQING Chiatai Tianqing Pharmaceutical Group Co., Ltd.	Drugs for anti-tumor, liver disease, respiratory disease, infection, endocrine and cardio cerebrovascular disease	Wei ZHAO 13675152276 zhaowei@cttq.com https://www.cttq.com/ No. 369 Yuzhou South Road, Lianyungang, Jiangsu Province
103	 Changzhou Siyao Pharmaceuticals Co., Ltd.	Drugs for diseases in the respiratory system, digestive system, cardio cerebrovascular system and mental system	Jilong GE 13506147875 gejilong_gjl@sina.com http://www.czsiyao-pharm.com/ No. 567 Zhongwu Avenue, Tianning District, Changzhou, Jiangsu Province
104	常州千红生化制药股份有限公司 Changzhou Qianhong Biochemical Pharmaceutical Co., Ltd.	Pancreatic kininogenase series, compound digestive enzyme capsule II, asparaginase series, heparin sodium and small molecular heparin series	Lijun WEI 15151976018 wljcpu@qhsh.com.cn http://www.qhsh.com.cn/ No. 518 Yunhe Road, Life Health Industrial Park, Xinbei District, Changzhou, Jiangsu Province
105	GP 基蛋生物 GeteinBiotech Getein Biotech, Inc.	In vitro diagnostic reagents and medical equipment (colloidal gold immunochromatography, fluorescence immunochromatography, biochemistry, chemiluminescence and diagnostic raw materials), etc	Pingsheng YE 15651860329 yenjau@126.com http://www.bio-gp.com.cn/ No. 412, Wangxin Road, Zhongshan Science Park, Jiangbei New District, Nanjing, Jiangsu Province
106	MEDICALSYSTEM Suzhou MedicalSystem Technology Co., Ltd.	Anesthesia clinical information system, intensive care clinical information system, surgical and medical behavior management system, emergency clinical information system, pre hospital emergency clinical information system, specialist center information system, intelligent operating room, intelligent intensive care center, intelligent emergency emergency platform, etc	Junbo LI 18901548828 jinchao.l@medicalsystem.com.cn http://www.medicalsystem.com.cn/ No.222 Guijiaxiang, Suzhou Industrial Park, Jiangsu Province

No.	Cooperative Company Name	Main Products	Contact Info
107	Nanjing Sanhome Pharmaceutical Co., Ltd	Anti-tumor drugs, anti infection drugs, nutrition drugs, digestive system drugs, etc	Cheng LUO 13705145620 liuxr@sanhome.com http://www.sanhome.com/ No.99, Hexi Road, Yunliang, Nanjing Qilin hi tech Industrial Development Zone, Jiangsu Province
108	Jiangsu Apon Medical Technology Co. Ltd.	Medical devices for pain management (electronic injection pump, microcomputer injection pump, disposable injection pump, wireless analgesia management system, pulse oximeter, anesthesia depth monitoring apparatus，sensor, etc.), and medical devices for nasal care	Fei MIAO 13228899399 miaofei@apon.com.cn http://www.apon.com.cn/ Yongtong Avenue, Rudong Economic Development Zone, Nantong, Jiangsu Province
109	Nanjing Luye Pharmaceutical Co. Ltd.	Anti-tumor drugs (paclitaxel liposome for injection, lentinan for injection, Amifostine for injection, etc)	Lili QIN 15077882513 qinlili@luye.com http://www.kanghaipharm.com/ No.28 Gaoxin Road, Jiangbei New District, Nanjing, Jiangsu Province
110	Jiangsu Zilong Pharmaceutical Co., Ltd.	Drugs for diseases in the digestive system, urinary system, cardiovascular system and musculoskeletal system; anesthesia auxiliary drugs; intelligent medicine manufacturing factory, etc	Yijie LENG 18260609761 lengyijie@yangzijiang.com http://zilong.yangzijiang.com/ No.9 Yunhe Road, Xuejia Town, Xinbei District, Changzhou, Jiangsu Province
111	Suzhong Pharmaceutical Group	Natural drugs, chemical drugs, marine drugs and biochemical drugs	Haitao GE 13851872795 geht@suzhongyy.com https://www.suzhongyy.com/ No.1 Suzhong Road, Jiangyan District, Taizhou, Jiangsu Province
112	Jiangsu Bioperfectus Technologies Co., Ltd.	In vitro diagnostic reagents (infectious disease pathogen detection, female reproductive tract microecology detection, tumor screening, etc.), automatic biological microscope, automatic nucleic acid extraction instrument, etc	Jiafa XU 18036781116 xujiafa@s-sbio.com http://www.s-sbio.com/ 3rd Floor, G19 Building, No.1 Yaocheng Avenue, Taizhou, Jiangsu Province
113	Jiangsu Aidea Pharmaceutical Co., Ltd.	Human protein products, distribution Abbott HIV diagnostic equipment and reagents,etc	Hui CHEN 15150838908 chenh@aidea.com.cn http://www.aidea.com.cn/ No.2 Liuzhuang Road, Hanjiang District, Yangzhou, Jiangsu Province
114	JIUXIN Meditech Group	Aseptic operating room systems, digital medical solutions, pneumatic logistics solutions and rail logistics solutions,etc	Zhenghua WANG 13776800061 437064921@qq.com http://www.jxmed.com/ No.103 Hanjiang West Road, Xinbei District, Changzhou, Jiangsu Province
115	Tianjiang Pharmaceutical Co., Ltd.	Traditional Chinese medicine granule, healthcare and fitness products, traditional Chinese medicine services	Ting YAN 13921264700 yant@tianjiang.com http://www.tianjiang.com/ No.1 Xinsheng Road, High Tech Zone, Jiangyin, Jiangsu Province
116	Nanjing Mindray Bio-Medical Electronics Co., Ltd.	In vitro diagnostic reagents, medical imaging, life information monitoring and support, surgical instruments, etc	Le HAN 13512531263 hanle@mindray.com https://www.mindray.com/cn/index.html/ No. 666 Zhengfangzhong Road, Jiangning District, Nanjing, Jiangsu Province
117	Angelalign Technology Inc.	Invisible orthodontic appliances without brackets	Ju ZOU 13771127587 zouju@angelalign.com https://www.angelalign.com EA 1619 Huishan Avenue, Huishan District, Wuxi, Jiangsu Province
118	Jiangsu Superbio Biomedical Co., Ltd.	Forensic identification (toxicology, pathology, clinical, etc.), judicial expertise of documents, maritime judicial expertise, judicial expertise of electronic evidence, food testing, drug testing, environmental testing, cosmetics and daily necessities testing, public security technical services, etc	Xiaofang ZHAO 18120126630 zhaoxiaofang@superbio.cn https://www.superbio.cn/ 5F, Building B, Phase I, Zhongdan Ecological Life Science Industrial Park, No. 3-1, Xinjinhu Road, Suqian High Tech Development Zone, Jiangsu Province
119	Wuxi CHISON Medical Technology Co., Ltd	Covers the whole body applied ultrasound, specialized ultrasound, intelligent ultrasound and core components of the probe	Jianjun CHEN 13656197981 chenjianjun@chison.com.cn http://www.chison.com/cn/ 228 East Changjiang Road, Shuofang Industrial Park, Xinwu District, Wuxi City, Jiangsu Province
120	Nanjing Medlander Medical Technology Co., Ltd	Pelvic floor function analysis products, biological stimulation feedback instrument series products, consumables and household rehabilitation equipment series products, pelvic floor disease grading diagnosis and treatment system, app and Internet products	Yanmei ZHU 18652068198 zhuyanmei@medlander.com http://www.medlander.com/ 2nd floor, building 5, No.2 Qiande Road, Jiangning District, Nanjing City, Jiangsu Province
121	Jiahe Foods Industry Co., Ltd.	Non-dairy creamer, coffee and other solid beverage, etc.	Zhiqiang XING 18012729895 rd@kingflower.com https://www.jiahe-foods.cn/ No. 127, Wufang Road, Friendship Industrial Zone, Taihu New Town, Wujiang District, Suzhou City, Jiangsu Province
122	Powersite Electric Co., Ltd.	Medical high voltage generator, combined X-ray source, power distribution system for X-ray imaging equipment, tumor treatment equipment, etc.	Teng DOU 0512-62913368 teng_dou@powersite-group.com http://www.powersite-group.com No.8, Jinfeng Road, high tech Zone, Suzhou, Jiangsu Province
123	Sinomune Pharmaceutical Co., Ltd.	Metronidazole Gel, Compound Clobetasol Propionate Ointment, Tacrolimus Ointment, Tripterygium Hypoglaucum Tablet, Kunxian Capsule, etc.	Jing Wang 18051592370 wangjing@sinomune. com http://www.sinomunepharma.com No. 35, Jingxin Road, industrial park, Xibei Town, Xishan District, Wuxi, Jiangsu Province

Local Partnerships

JITRI, together with local governments, has built professional R&D industrial parks to gather various kinds of industrial research and development institutions and companies across the Yangtze Delta region. Taking Nanjing and Suzhou as examples, JITRI has cooperated with Wuxi, Changzhou, and other cities and regions, and has explored cooperation with Central and Northern Jiangsu Province. JITRI now has partnerships with 13 prefecture-level cities in Jiangsu.

The economic development and industrial base across Jiangsu Province is uneven. In South Jiangsu, the economy is strong, central Jiangsu is developing fast, and the north of the Province has strong potential. Although the different regions have different needs, the need for cooperation is uniformly strong. In the process of serving local areas, JITRI has made innovations in its cooperation modes. Eight mechanisms are explored for different cooperation objects

Regional innovation clusters and R&D communities

JITRI builds innovation clusters combining core functions such as technology R&D, service and operation, to form a belt of research industry clusters. At present, JITRI has built the Yangtze Delta International R&D community with the Xiangcheng District of Suzhou City, with a construction area of 350,000 ㎡, the Jiangbei R&D Industrial Park with the Jiangbei New District of Nanjing, with a planned construction area of 400,000 ㎡, and the 230,000 ㎡ Zhongrui Zhenjiang Ecological Industrial Park. Among these, Xiangcheng Yangtze Delta International R & D community has six projects, including Micro-Nano Automation Technology Institute, Brain-Machine Fusion Research Institute, Institute of Future Urban Application Technology, Yangtze River Delta Advanced Materials Research Institute, JITRI-TOPSOE joint R & D center and JITRI-SIOUX joint R&D center.

Innovating financial support for upgrading industry

In order to accelerate the transfer and transformation of scientific and technological achievements of JITRI in Kunshan Economic and Technological Development Zone, to meet the needs of Kunshan industrial technology, and to promote talent exchange and technology research and development, JITRI and Kunshan Economic Development Zone jointly established the "Cross strait industrial upgrading promotion center". The two partners invested 100 million CNY in the first phase to collect and refine technical problems in which enterprises are willing to invest, and to provide matching funds for them to solve technical problems using the JITRI ecosystem.

When local enterprises put forward technical needs, the center helps them dock with a JITRI research institute or partner to seek solutions. After cooperation between the enterprise and research provider is established, the center provides funding subsidies, which differs from the traditional modes of financial support.

In 2020, more than 60 on-line and 30 off-line docking exchanges have been carried out. Two batches of 25 enterprises, including Henghao Optoelectronics, Sany Heavy Machinery, Zhangquan Hardware, GIANT Special Light Alloy, Jiekai Pump and Liufeng Machinery, have been approved for funding. The total contract amount is 33.76 million CNY, and the total amount of guiding funds is over 8.7 million CNY.

Enhance the scientific and technological innovation ability of enterprises and promote the construction of enterprise joint innovation centers

In 2020, JITRI and local science and Technology Bureaux have promoted the construction of enterprise joint innovation centers (JICs), selecting appropriate enterprises, reviewing application materials, and jointly reviewing their plans to build a JIC. In 2020, 37 JICs have been jointly established. Among them, 11 were added jointly with the Zhenjiang Science and Technology Bureau.

Boost the development of local industries with policy support from local governments

JITRI's policy and financial support spans research institutes, major projects, JIC construction and joint postgraduate training. More and more government parks have contributed supporting policies. Nantong City, Lianyungang City, Suqian City, Jiangyin City, Tianning District of Changzhou City, Hanjiang District of Yangzhou City, etc. will support operating funds and project funds of the JICs. Among them, Lianyungang has given the JICs a 1:1 matching operation fund of 20% of the actual R&D costs up to 500,000 CNY. Changzhou City has issued policies to support the construction of research institutes and JICs in the form of 1:1 supporting funds. For newly built research institutes with a total investment of more than 100 million CNY, the municipal finance will provide no more than 10 million CNY. Suzhou Industry Technology Research Institute will provide supporting funds for major projects with JITRI up to 30 million CNY.

Help local talent introduction and build a joint training base for JITRI postgraduates

Starting with joint postgraduates, JITRI has explored the introduction, training and gathering of high-level talent for local areas, acting as a bridge to build a training base for JITRI postgraduates jointly with local areas. Postgraduates are provided with housing, living facilities and appropriate subsidies by the local area. At present, joint training bases for postgraduates have been established with Lianyungang City, Suqian City, Nantong City, Kunshan City, Changshu high tech Zone, Jiangyin City, Tianning District, Yangzhou Hanjiang District, etc. For example, Jiangyin City provides 50 sets of free talent apartments to graduate students and provides a subsidy for students (10,000 CNY per master's graduate student, 30,000 CNY per doctoral student per year, 50,000 CNY per year for postdoctoral students).

Leverage local industry to build a major innovation platform

JITRI has built a number of major innovation platforms with local governments, such as Suzhou Industrial Technology Research Institute, the Yangtze Delta Advanced Materials Research Institute with Suzhou, Jiangsu Integrated Circuit Application Technology Innovation Center with Wuxi, and Jiangsu China Israel Industrial Technology Research Institute with Changzhou.

Resource introduction via a roadshow platform

The introduction of project resources is often a "stepping stone" to cooperation and exchange with local areas. In the past, projects were recommended to focus on "point-to-point communication", with a single project introduced to the provincial parks. After the roadshow, the project team had a one-to-one conversation with the intentional parks. For the local park, this mode can only receive limited project resource information, and the project matching success is not high. Through in-depth communication with Suzhou Industrial Park, this traditional model of project roadshow has been changed, and many projects are now introduced using a local park roadshow, which has achieved great results. In 2020, together with the Dushuhu Science and Education Innovation Zone of Suzhou Industrial Park, JITRI held three project roadshows in the fields of electronic information, advanced materials, equipment manufacturing and other industries, and participated in 20 roadshows, including RDMA smart network card, silicon carbide project, environmental biology, intelligent composite materials, terahertz detection, all solid-state thin-film lithium battery. Projects have been landed more efficiently.

Jointly carry out strategic research according to local needs

Using the Jiangsu Institute of China Engineering Technology Development Strategy, JITRI has jointly organized and carried out strategic research projects around local industries. In 2020, the strategic consultation project of "Shanghai-Jiangsu High Speed Railway integration development research" was jointly implemented with Xiangcheng District of Suzhou, the strategic consulting project of "Research on cross river integration of high-speed railway in southern Jiangsu central region" was jointly implemented with Wuxi City, and the strategic consultation project of "Jiangsu (Jiangyin City) research on the development of life and health industry" was discussed with Jiangyin. Through strategic research with local governments, the level of local government planning and decision-making has been greatly improved, and a basis for local government decision-making is provided.

06

Financial Ecosystem

Jiangsu Industrial Technology Research Institute (JITRI) Co., Ltd.

In order to enhance the science and technology ecosystem, improve its market-oriented focus, and promote the transformation of scientific and technological achievements into industrial applications, in September 2016 JITRI set up a wholly-owned subsidiary, JITRI Co., Ltd.

The main objective of JITRI Co., Ltd. is to advance the strategic goals of JITRI by building a financial ecosystem for science and technology innovation. The company has carried out equity investment in the following areas:

1. Invested in 41 integrated innovation platforms and research institutes (operated as companies).

2. Invested in enterprises incubated by JITRI in areas of disruptive and forward-looking technology, or technologies that solve bottleneck problems. A total of 25 start-ups were supported by JITRI Co., Ltd. following JITRI's hybrid grant and investment model.

3. Invested in 12 early venture capital funds launched jointly by JITRI institutes and professional private fund management companies. Through these investments, JITRI has created a "three-in-one" innovation ecosystem that consists of innovation platforms, professional incubators and angel investment funds.

4. Invested in 3 overseas incubators in North America, Europe and Israel through overseas wholly-owned subsidiaries. Through this mechanism, JITRI has successfully introduced multiple innovative resources to Jiangsu Province.

Overview of the Funds

The aim is to promote R&D companies to build early-stage, sector-specific venture capital funds, and to thereby realize the effective combination of technical resources and venture funds for technological innovation. To date, 12 venture capital funds have been established with a total size of 1.824 billion CNY. JITRI typically owns 5% – 20% of each fund, with the rest leveraging from various sources.

Main Investment Areas

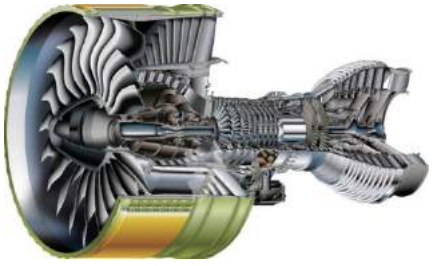
Field of Investment	No. of Funds	JITRI Investment	Total Fund Size
New Materials/ Energy and Environmental Protection	5	15000	90000
Equipment and Manufacturing	5	8400	48900
Information and Communication Technology	1	1500	8500
Biology, Medicine and Pharmaceutical	1	2000	8100

Key Projects

1. Suzhou Hanhua Semiconductor Co., Ltd. (Suzhou Hanhua)

Founded in November 2017, Suzhou Hanhua is the first project jointly supported by JJITRI and Suzhou Industrial Park in the form of "combination of allocation and investment". Suzhou Hanhua is committed to the R&D and industrialization of 5G RF and other high-end GaN epitaxy. It is the only private supplier of GaN high-end RF epitaxy chips that has been industrialized in China. It takes the lead in realizing self-sufficient RF GaN epitaxy production. Suzhou Hanhua takes the lead in the R&D of GaN RF epitaxy on silicon carbide, which has reached the world's leading level. Its production capacity can supply more than 50% of the domestic demand for GaN RF epitaxy on 5G base stations and some 6G high frequency (millimeter wave, terahertz). In the first quarter of 2021, the company will complete Series A financing of 100 million CNY, with a post investment valuation of over 1 billion CNY, which will be jointly invested by Dynamax Group (Guanya Investment) and the National SME Development Fund.

2. Single Crystal Blade for Aeroengines



The project was launched in December 2018 with the joint support of JITRI and Changshu National University Science Park. The project aims to develop the international advanced manufacturing technology of single crystal blade by gathering many senior technical R&D personnel domestically and from abroad. This technology is based on liquid metal cooling process and seed + spiral single crystal growth technology to manufacture single crystal blades. The products have small dendrite spacing, fine structure, good high temperature strength, high production efficiency and good process compatibility. It can also be used to manufacture larger size single crystal blades for ground industrial gas turbine and marine gas turbine. After nearly two years of technical research, the project team has successfully mastered the technology of high temperature resistant inert mold shell system, alumina based ceramic core and seed crystal samples, and the single crystal blade samples grown by liquid metal cooling directional solidification equipment have reached the domestic leading level.

3.Jiangsu Sponge City Technology Research Institute Co., Ltd.

Jiangsu Sponge City Technology Research Institute Co., Ltd. was established in April 2020 with the joint support from JITRI and Chongchuan District People's Government. It is committed to providing one-stop services and technical support including planning, design, construction, monitoring, evaluation, technical standard formulation, R&D and demonstration for Jiangsu Province and the whole country to systematically promote the construction of sponge city. Jiangsu Institute of sponge has built two R&D bases at home and abroad. With the support from a technical team of a top international academician, the Institute has built an innovative carrier of sponge city and river basin water environment treatment system, helped upgrade the green industry technology of sponge city, and built a future oriented ecological complex of urban space green industry. At present, the Institute has applied for nearly 20 intellectual property rights of sponge city related products with green ecological technology as the core. The related technology is at the leading level in the world and has been verified in domestic and foreign projects. It will be fully implemented and promoted in the construction of sponge city demonstration base.

4. Suzhou Efficient Profile Intelligent Manufacturing Co., Ltd. (Suzhou Yichuangte)

Suzhou Efficient Profile Intelligent Manufacturing Co., Ltd. Was founded in March 2020 with the joint support of JITRI and the Management Committee of Kunshan Development Zone. It was founded by Dr. Yan Peijie and his team. Suzhou Yichuangte continuously explores the development of new material profiles including aluminum alloy, magnesium alloy, etc. through the systematic research on the application, development and manufacturing technology of roller profiles, taking the flexible customized roller forming technology as the core, and leading the technology upgrading and industrial development of domestic roller industry. At present, it has built a domestic leading roll forming production line, developed nearly 30 products, submitted 15 patent applications (including 5 invention patents), and received awards of Suzhou leading talents and Kunshan innovation talents in 2020.

5.Core Third Generation Semiconductor (Suzhou) Co., Ltd.

Core Third Generation Semiconductor was founded in September 2020 with the joint support of JITRI and Suzhou Industrial Park. The company is committed to building a world leading platform for key equipment and technology of third generation semiconductor production based in China. With advanced technology, high-performance and reliable equipment, professional and efficient customer service, it entered the high-end market of the industrial chain through SiC epitaxy equipment, which is the key of the third-generation semiconductor. Meanwhile, it is actively expanding the R&D and mass production of the third-generation semiconductor epitaxy equipment, and strives to develop into a world-class benchmark company for R&D and mass production of high-end equipment. At present, the design of R&D prototype No. 1 and No. 2 has been completed, and the parts required for processing have been ordered. It is planned to complete the assembly test and demo of the first prototype in September 2021, and the assembly test and demo of the second prototype in November 2021.

6. Jiangsu VISCORE Technology Co., Ltd.

Founded in September 2020, with the joint support of JITRI, Suzhou Industrial Technology Research Institute and Suzhou Industrial Park, VISCORE Technology develops and sells advanced intelligent network card and data processor (DPU) chips for IDC, HPC and enterprise data center clusters, and provides high-speed data transmission integrated solutions. In the first half of 2021, the company launched RDMA network card product (dual port 25G), completed compatibility verification with mainstream x86 CPU and domestic CPU ecological partners, and is preparing for mass production. In the second half of 2021, the second generation of RDMA smart card products (dual port 100G) will be launched, and DPU chips with complete independent intellectual property rights will be developed.

7. Jiangsu Pengju Semiconductor Equipment Technology Co., Ltd.

Founded in December 2020, supported by JITRI and Nantong Central Innovation Park, and led by top semiconductor equipment teams at home and abroad, Pengju Semiconductor is committed to providing "bottleneck" key components and consumables for IC process production equipment, wafer (chip) production line, mini LED, micro LED and MEMS production equipment. It aims to assist the localization of semiconductor core components and equipment, and develop semiconductor process equipment with independent intellectual property rights. At present, the thermal electron emitter for ion beam etching and deposition and the vacuum high temperature ceramic plug-in designed and developed by Pengju semiconductor have reached the international leading level, and have been jointly tested with the industry customers.

8.JITRI Jingsheng (Nanjing) Electronic Technology Co., Ltd. (JITRI Jingsheng)

JITRI Jingsheng was established on May 18, 2017 with the joint support of Jiangsu Industrial Technology Research Institute Co., Ltd. and Nanjing Advanced Laser Technology Research Institute. This project is committed to the development of a new generation of ultra fast pulsed electron beam ultra precision machining and manufacturing technology. It is expected to achieve breakthroughs in ultra-high surface precision manufacturing technology and equipment development in China, and provide new technical support to solve the problems of micro nano machining, ultra-high precision machining, ultra-high precision machining and equipment development of aerospace, intelligent robots, precision scientific research equipment, medical equipment and other fields of high efficiency nano precision processing needs. At present, the team has developed and completed the construction of the conceptual prototype, and realized the function of emitting pulsed electron beam on October 30, 2020.

9.Suzhou Nano Space Dynamics Co., Ltd.

Suzhou Nano Space Dynamics Co., Ltd. was founded in September 2018, jointly supported by JITRI and Changshu Yushan High Tech Zone. It is committed to providing a new generation of solid-state electric propulsion system for micro satellite's orbit raising, orbit leaving and orbit keeping, and helping to open up new paths for complex tasks such as deep space exploration, ultra-low orbit cruise and on orbit service. At present, the first system developed by the company has reached the international leading level in engineering assessment, and has been delivered to Shanghai Microsatellite Engineering Center, which will fly for the first time in the middle of 2021, and has participates in the construction of State Grid Satellite Project since 2020. In December 2020, Series A financing was completed with a post investment valuation of 110 million CNY.

10.Wuxi Techinao Intelligent Technology Co., Ltd.

Founded in July 2019, Wuxi Techinao is jointly supported by JITRI and Wuxi Hi-tech Zone, and is committed to providing high-performance and low-power intelligent computing platform for the automatic driving of special vehicles. It applies embedded artificial intelligence technology and special vehicle field to realize intelligent and unmanned special vehicles and empowers traditional vehicle enterprises. It also carries out R&D for technical update and product capability upgrading. At present, the company has completed the development of the third generation products. After the third-party testing, the calculation power reaches 21 trillion times per second, and the power consumption is less than 20W, which meets the application requirements of high temperature, wide impact under severe environment. Together with State Automobile Zhilian and other companies, the company is applying for major projects of automatic driving technology sponsored by the Ministry of Industry and Information Technology. Its products have matched the functions and performance with more than three kinds of enterprises, and it has started project cooperation with enterprises such as Xuzhou Construction Machinery Group Co., Ltd. (XCMG).

11. Suzhou Meimeng Machine Co., Ltd.

Meimeng Machine was founded in October 2019 with the joint support of JITRI and Suzhou Taicang High Tech Zone, which focuses on the R&D and production of "non-metallic surface forming equipment". The core technology of the company covers the key technical links such as extrusion nozzle, high-precision multi-stage dynamic material conveying system, etc. The self-developed non-metallic surface forming equipment will lead the transformation of additive manufacturing to large-scale chemical industry manufacturing, which contains a market space of 100 billion. At present, the company has completed the development and processing of prototype equipment, started the development and testing of printing process, and applied for more than 10 national invention patents and Patent Cooperation Treaty (PCT) applications.

12.Nanjing Nanli New Material Co., Ltd.

Nanjing Nanli New Material Co., Ltd. was established in September 2019 with the joint support of JITRI and Lishui District of Nanjing. It is committed to the development and applied research of bio based materials and biodegradable materials. With microfluidic and microbubble reactors, and biomimetic catalysis as the key technologies, a series of products have been developed in the field of bio based functional polyester, polycarbonate ether polyol and degradable materials. The corresponding products have been successfully used in the production of plastic film plasticizer, degradable polyurethane fiber, bio based adhesive, bio based high resistance diaphragm and degradable plastic bag. At present, the company has carried out technical cooperation and product promotion with Jiangsu Ruiyang Antai New Material Technology Co., Ltd., Duzhong Spandex Co., Ltd., Jinpu Group Zhongshan Chemical Co., Ltd., Jinzhihong New Material Co., Ltd., etc.

13.Suzhou Galatec Power Co., Ltd.

Galatech was founded in June 2017, and is a high-tech enterprise founded by the U.S. Silicon Valley returnees entrepreneurial team. It mainly researches and produces inverter and three-in-one electric drive power assembly for new energy vehicles. It is one of the few providers of three-in-one power assembly in China. The Falco series three in one electric drive assembly developed by the company is superior to the industry level in power density, volume, energy efficiency and cost performance. The inverter project based on the third generation semiconductor SiC has won the praise of BMW automobile and has become a cooperative enterprise of BMW automobile development and innovation. Galatech was rated as a potential Unicorn enterprise in Jiangsu Province in March 2020, and "unicorn cultivation enterprise" of Suzhou High Tech Zone in 2021. At present, pre-Series A financing has been completed, and the post investment valuation is 510 million CNY, and the production scale of 100,000 inverters and 50,000 three-in-one electric drive power assemblies has been completed.

14. Warner Innovation (Suzhou) Advanced Manufacturing Co., Ltd.

Warner Innovation (Suzhou) Advanced Manufacturing Co., Ltd., founded in December 2020 with the joint support of JITRI and Suzhou High Tech Zone, is committed to the development of rail welding, pre-welding and post-welding treatment equipment for high-speed rail, including rail welding and normalizing integrated machine, intelligent normalizer, post welding flatness detection and flaw detection system, etc., with the goal of better ensuring the safe and smooth operation of high-speed rail, and promote the establishment of high-speed rail welding process system with completely independent intellectual property rights. At present, the company has completed the phased test of rail induction high temperature heating, applied for several intellectual property rights, and is cooperating with relevant scientific research institutions to develop new rail welding machine.

15.Ximu Intelligent Manufacturing (Suzhou) Technology Co., Ltd.

Founded on March 2, 2021, with the joint support of JITRI and Taicang high tech Zone, Ximu is committed to the R&D of intelligent die manufacturing technology and its industrialization and application. This technology fundamentally changes the traditional empirical production and manufacturing method of "testing and identifying errors" of stamping die, which can effectively reduce the debugging cycle of stamping die and the manufacturing cost of die. It greatly improves the quality of mold and helps domestic mold enterprises to improve their overall mold design and manufacturing capabilities. The technology has been widely used in famous domestic and foreign engine plants and mould factories such as Volkswagen, Fiat/Chrysler, FAW-VW, Saic-VW, SAIC-GM, Chang'an and GAC, with more than 80 projects implemented. Ximu plans to build an exclusive design and debugging technology platform with advanced RDSC intelligent mold manufacturing and robot automation research and distribution as the core technologies in five years. Taking the unique advantage of "Chinese cost & German quality" as the market entry point, it will attract domestic automobile enterprises and mold enterprises to work together to enter China's high-end mold design market as well as European and American mold market.

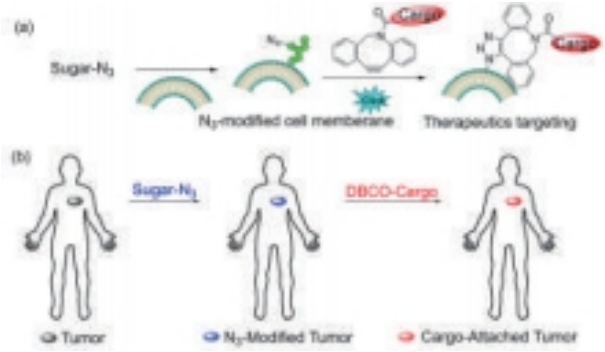
16.Suzhou Ruixin Guanyuan Terahertz Technology Co., Ltd. (Suzhou Ruixin Guanyuan)

Founded in April 2021, with the joint support of JITRI and Suzhou Industrial Park, Ruixin Guanyuan is committed to providing safe, radiation-free, high traffic efficiency, non-contact and cost-effective low-temperature superconducting passive human body security equipment for government agencies and industrial customers. The company has core technology in terahertz low temperature probe, filter, etc. The overall design scheme has been determined, all components and the first prototype are being developed, and the market expansion of the first prototype has been started.

17.Jiangsu Yousiwei Intelligent Technology Co., Ltd.

Founded in May 2021, Jiangsu Yousiwei is jointly supported by JITRI and Suzhou High Tech Zone, and is committed to the design, R&D and related application development of self stabilized small and medium-sized unmanned ship in the whole area. The unmanned ship adopts lightweight, modular and wind wave resistant structure, which improves the stability and reliability in relatively harsh water environment. At the same time, it can carry UAVs and underwater robots, carry relevant sensors, and form the air, water and underwater global monitoring platform, which can work in the remote control or autonomous state, providing a full range of demonstration applications and services for water environment inspection, water related emergency management, underwater security, marine and river surveying and mapping. At present, the company is carrying out the design, development and testing of new products, striving to launch a finalized product by the end of 2021.

18. Suzhou Surio Therapeutics Co., Ltd. (Suzhou Ruiao)



Founded in January 2019 with the support of JITRI, Surio Therapeutics is a company dedicated to the development of innovative cancer targeted drugs by using the original selective cell labeling platform technology (attack). It mainly realizes the delivery of targeted cytotoxin through specific tissue labeling technology to solve the pain points of cancer targeted therapy without known receptors. The technology can also be applied in the field of non tumor treatment, such as intraoperative imaging, bacterial infection detection and so on. At present, the company has completed the pharmacodynamics experiment of ST101 and established the related bioanalysis method. As of May 2021, the company is carrying out pre-Series A financing, with an estimated post investment valuation of 100 million CNY.

19.ANGALBIO (Suzhou) Co., Ltd. (anku Biotechnology)

ANGALBIO was established in June 2019, jointly built by Josef Penninger, academician of European Academy of Sciences and Canadian Academy of Sciences, JITRI and Suzhou High Tech Zone. Through the introduction of international cutting-edge innovative technologies such as forward genetic screening and haploid cell engineering technology platform, the company is committed to building an international first-class drug target analysis and drug screening center in Suzhou, discovering breakthrough new drug targets, and developing first in class original drugs. At present, ANGALBIO has built a joint technology platform focusing on the early development of new drugs, including drug target screening platform, cell engineering platform and AI assisted drug screening platform, and a number of anti-tumor and anti-virus new drug R&D projects are in progress. In addition, ecobio has established project cooperation with many well-known scientific research institutions and pharmaceutical enterprises at home and abroad to jointly promote new drug development and commercialization.

20.Suzhou ThorGene Co., Ltd.

Suzhou ThorGene was founded in June 2017, supported by JITRI, Suzhou Medical Equipment Research Institute of Southeast University, Suzhou Medical Equipment Research Institute and Suzhou University. Suzhou is committed to the R&D and commercialization of the most sensitive digital PCR system in the world. It can be widely used in clinical tumor gene detection, microbial gene detection, noninvasive screening and other scenarios. In 2020, the product of the full automatic sample processing system of the company's digital PCR instrument project has obtained the product certificate. The product research and verification of the biochip analyzer of the digital PCR instrument project has been completed. The company completed the trial production in the first quarter of 2021, and submitted the registration inspection in April 2021. It is expected to obtain the product registration inspection report in the third quarter of 2021. Recently, the company has reached a preliminary cooperation intention with domestic investment companies, with a plan to raise 50 million CNY, and the company's valuation is expected to exceed 250 million CNY.

21.Changzhou Trendi Co., Ltd.

Changzhou Trendi Co., Ltd. was established in September 2020 with the joint support of JITRI and Changzhou Science and Education City. It is committed to the development of rapid in vitro diagnostic products based on LAMP-IDE technology, providing an advanced diagnostic system for the increasingly developed precision medicine and targeted drug development, aiming to build a rapid gene screening ecosystem At present, the company's first epilepsy drug screening product prototype is under development, and the instrument development function has been completed. It has initially reached the cooperation intention of clinical trials and scientific research with several hospitals. At the same time, it is negotiating with customers to expand the application of this technology to the field of food safety and environmental detection. It plans to complete the initial prototype development and start clinical trials in 2022, and start Series A financing in 2022.

22. Tomowave Medical Imaging Co. Ltd, China

Tomowave Medical Imaging Co. Ltd, China was established in December 2020. JITRI, Taicang Biomedical Industrial Park and Taicang Innovation Investment Development Co., Ltd. jointly invested in the company. The company is committed to the development and transformation of high resolution, high contrast, and high sensitivity 3D photoacoustic tomography (PAT) technology. It provides accurate diagnostic imaging solutions for global clinical breast cancer diagnostics, and is a pioneer of the world's biomedical photoacoustic imaging technology. This year, the company plans to complete the first commercial breast cancer detection equipment and file relevant patent applications. It plans to complete the production of 4 breast cancer detection devices in 2023 and conduct clinical trials in hospitals.

23.Suzhou Cure Genetics Co., Ltd.

Suzhou Cure Genetics Co., Ltd. was founded in the Suzhou Industrial Park in July 2016. It is an innovative gene therapy company focusing on the application and development of virus delivery and gene editing systems. The company's proprietary VELP^{TM} platform can quickly and systematically design, select and optimize AAV vectors with special functions, and significantly improve the gene delivery performance in vivo. AAV based gene therapy can be used in a wider range of disease treatment. In January 2021, the company and Boehringer-Ingelheim sealed a cooperative project to develop a new type of AAV vector, which is the first time for a global pharmaceutical company to cooperate with a Chinese biotechnology company in the frontier field of AAV vector engineering. The company has successively obtained three rounds of financing with a total of US $30 million led by China Life Insurance and Qiming Venture Capital, with a post investment valuation of US $172.5 million.

24.Advanced Composite Design and Manufacturing Project

The Advanced Composite Design and Manufacturing Project has been implemented by the Yangtze Delta Advanced Materials Research Institute since the end of 2020, aiming to develop low-cost and high-performance composite industrialization technology and promote the application of composite materials in the aerospace field. At present, the team has 20 employees and is carrying out 7 R&D projects. The main customers are AVIC, China Aerospace, COMAC, CRRC and other companies. In addition, strategic cooperation agreements have been signed with Nanjing Julong, Jiangxi Jiuyou and Zhongfu Shenying. Two projects of aerospace parts development were completed in April 2021. The parts were designed and developed by the project team at the Institute and produced by Nanjing Julong.

25. R&D Platform Project of Advanced Electron Microscope

The R&D Platform Project of Advanced Electron Microscope has been implemented by the Yangtze Delta Advanced Materials Research Institute since September 2020. The project will build an advanced, high resolution electron microscope platform with 2 - 3 world-class products to fill gaps in the domestic supply chain.At present, a nine member project team has been set up to complete the design of core components and ultra-high vacuum system. Ultra high vacuum components and other key components have been purchased and put in place one after another. Sourcing of precision processing equipment and processing cooperation chain are being implemented, as well as the cooperative design of high-precision power suppliers. The super clean room is expected to be completed in early June 2021.

26. Characterization Device And Technology Development Platform Project for Engineering Structural Materials

The Characterization Device And Technology Development Platform Project for Engineering Structural Materials has been implemented by the Yangtze Delta Advanced Materials Research Institute since September 2020. The project plans to set up a professional team for the R&D of “materials to component” applied technology, and complete the development of EBSD/EDS system, X-ray microscopy system and in-situ device, and in-situ neutron diffraction experiment system for the detection and control of stress field of manufacturing process components. At present, the development of EBSD system and X-ray microscope equipment is in progress. It is expected to develop a functional prototype of X-ray microscope in August 2021.

27. Big Data Project of Industrial Application Materials

The Big Data Project of Industrial Application Materials has been implemented by the Yangtze Delta Advanced Materials Research Institute since December 2020. The project plans to establish database and application tools of industrial application materials. It aims to establish a public technology service platform, and provide data base and technical support for industrial upgrading and transformation of related manufacturing industries in the Yangtze Delta by using digital and big data technology. At present, the database design and standardization have been completed in the area of applications of high strength steel high strength steel, light alloy and composite materials. The data testing has started, and contracts have been signed with enterprises and universities to develop the database construction and application tools. The public technology service platform is building high performance computing and storage system, computing simulation system and data management system.

28. 3D Free Bending Technology and Equipment Project

The 3D Free Bending Technology and Equipment Project has been implemented by the Yangtze Delta Advanced Materials Research Institute since December 2020. Through the implementation of this project, the 3D free bending equipment will be transformed from prototype to commercialized product. It can solve the bottleneck problem of important models and projects in China for the efficient and accurate forming of overall complex components, completely replace imports, and break the long-term technical monopoly of foreign countries in this field. At present, the project has set up a 9-member R&D team, completed the modular design and appearance design of the hardware system, the whole machine parts have been processed or purchased, and some components have entered the assembly stage. The transformation from process algorithm to program language is completed, and the design of software function and interface has been carried out.

29.Wuxi GX Photonics Co., Ltd.

Wuxi GX Photonics was founded in March 2021, which focuses on high-performance VCSEL and DFB lasers. Its products are in high demand in the construction of data center and 5G optical networks, which have broad market applications. The core team has long been engaged in the R&D of related technologies and processes, and has mastered the core technologies and process production experience of optoelectronic epitaxial materials, optical chips, devices and modules, which keeps pace with the first-class enterprises in the industry. It has the ability of long-term development, scientific research innovation and industrialization implementation to participate in international high-level scientific and technological competition. At present, 10G DFB and 25G VCSEL optical chip products have been successfully developed and small batch purchase orders have been obtained. The next generation of 25G DFB and 50G VCSEL optical chip products are also in the R&D stage.

30. Wuxi Morrow Technology Co., Ltd.

Founded in February 2021, Wuxi Morrow Technology Co., Ltd. develops 5G terminal baseband chips with low cost, low power consumption and low delay for 5G industry applications. As one of the most critical components of terminal modules, 5G baseband chips will be of high demand in the future. The core team members of the company have rich experience in 4G baseband chip design, who have successfully developed 4G terminal baseband chip in the field of military broadband communication and realized mass production and sales. The company has the ability to develop 5G terminal baseband chips; the R&D is on track and will lead the field in China. The FPGA prototype has been verified for 5G function and performance, and tested in China Mobile Design Institute.

31. Shanghai Feibo Laser Technologies Co., Ltd.

Founded in June 2012, Shanghai Feibo Laser Technologies Co., Ltd. is a high-tech enterprise focusing on R&D, production and sales of high-power all-fiber lasers. Its main products are solid-state lasers, fiber lasers, optoelectronic devices, etc. It is a leading fiber laser R&D company and manufacturer in China. It is the first company with ring spot single cavity CW fiber laser in China, of which the cutting speed and section quality are greatly improved. It is one of the three enterprises in the world that have mastered this technology.

32.Nanjing SemiDrive Co., Ltd.

Founded in 2018, SemiDrive is headquartered in Jiangbei New Area, Nanjing. The company focuses on developing the hardware to enable intelligent automobiles, aiming to serve the global automobile industry with high quality and high performance "made in China" components. The company has already released nine series of high-performance systems-on-a-chip (SoC) for intelligent cockpit and automatic driving applications. It has built a rich industrial ecosystem with more than 70 partners. JITRI plans to establish a joint innovation center with the company, gathering innovative resources in the fields of automatic driving and automotive electronics, and carrying out in-depth cooperation in strategic research, technical requirements, and exploration of collaborative R&D mechanism.

33. Jiangsu Sanqiang Composite Materials Co., Ltd.

Founded in December 2016, Jiangsu Sanqiang Composite Materials Co., Ltd. is a high-tech enterprise integrating the design, development, production and service of high-performance composite products. The company focuses on the development and production of high-end composite products in the aerospace field, and is committed to providing users with high-level composite technology, products and services. It is a science and technology company undertaking R&D tasks in the domestic aerospace field.

34. Suzhou Jucui Materials Technology Co., Ltd.

Established in April 2017, Suzhou Jucui Materials Technology Co., Ltd. is a company dedicated to the R&D, production and sales of high-performance electronic chemicals such as polyimide and organic film materials required by the new display industry. It has filed a number of patents and obtained intellectual property rights in transparent polyimides. Relying on the channel resources, the company has reached sample delivery agreements with domestic mainstream panel manufacturers. The company is working on the next round of financing.

35. Jiangsu JITRI GemPharmatech LLC

JITRI GemPharmatech was founded in December 2017, co-established by Dr. Xiang GAO's team, JITRI and Nanjing Biotech and Pharmaceutical Valley. The company focuses on building three R&D platforms, namely, human model creation platform, sterile animal and human intestinal microbial platform, and human antibody drug screening platform. The model production and reproduction service technology platform is one of the most qualified mouse model suppliers in the world, and also a co-constructed unit of the National Genetic Engineering Mouse Resource Bank. In July 2019, JITRI GemPharmatech completed Series A financing of 160 million CNY, led by CDH Investment and China Pharmaceutical Holding. In August 2020, the company completed Series B financing of more than 400 million CNY, and was invested by GL Ventures (leading investment), YF Capital, Morgan Stanley, Sequoia Capital China and TF Capital.

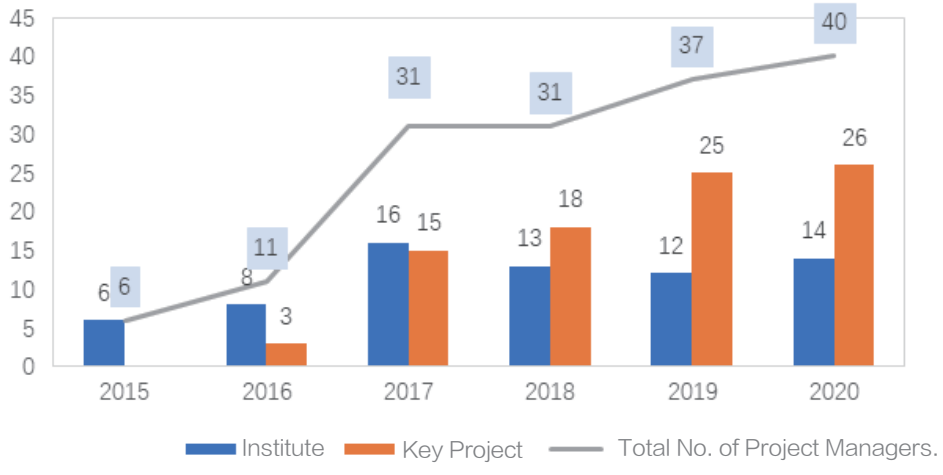
07

JITRI Talent

Project Manager

In 2020, around the goal of solving common key technologies and breaking through major original technologies in the industry, we introduced 40 project managers (14 institute project managers and 26 key project managers). Among them, there are 3 foreign academicians, 1 academician of Chinese Academy of engineering and 1 academician of Chinese Academy of Sciences. The level of project manager has been improved year by year. So far, 174 project managers have been employed.

Employment of project managers over the years



Tianbin REN: Focusing on organic functional materials and applications, building platforms for incubation of scientific and technological projects and the cultivation of innovation and innovative talent.

As a university professor, he has long been engaged in the R&D of adhesive functional materials and nano biomaterials; he started his own business with friends while still in college. Dr. Ren hopes to commercialize scientific research and help more people with professional scientific and technological services. He has already set up more than 10 companies with students and like-minded partners, including WEIPU Chemical Technology Service Ltd. and Polyton New Material Technology Ltd, ranging from new materials, technology services, biomedicine, education and training, to incubators and other businesses. They have formed core capabilities and competence, built core teams and gathered core resources in the fields of innovation and entrepreneurship training, and science and technology enterprise management.

At the end of 2020, attracted by JITRI's unique institutional mechanism, Prof. Ren's team, JITRI, Suzhou Xiangcheng High-Speed Railway New Town and Suzhou Industrial Technology Research Institute launched the JITRI Organic Functional Materials and Applied Technology Institute. Focusing on areas such as functional bonding and coating materials, high-end organic functional films, pharmaceutical excipients and preparations, environmentally friendly materials, and domestic analytical instruments, the Institute will transform technological achievements, train high-end talent, and empower innovative companies, forming a five-in-one innovation ecosystem of technology value-adding, precision transformation, application marketing, venture capital, innovation, and personnel training in the field of organic functional materials.

Xuemin LIN has attained many world-class academic achievements in big data computing

Prof. LIN and his team have been working in the fields of database theory, and query processing mining systems for graph data, streaming data, text matching, and uncertain data using a probabilistic approach, as well as graph data visualization. According to the statistics from CS ranking in the field of databases, his team ranks the second in score per capita and the fifth in total score, based on the papers published in the last 10 years in top conferences including SIGMOD, VLDB, ICDE, PODS. His team has obtained many world-class academic achievements in big data computing. For example, Prof. Lin and his team proposed the first algorithm for skyline computation in streaming data in 2005, the first efficient algorithm for subgraph isomorphism testing in 2008, the top-k tree matching methodology based on the optimal enumeration in 2015.

His paper on core decomposition algorithms in massive graphs was selected as the best paper of ICDE 2016. The graph computing and mining system developed by his team achieves 10 times speedups on the test of pattern matching compared with Neo4J. The e-commerce fraud detection algorithm designed by his team has been deployed by Alibaba since 2017 and has brought results beyond all expectations. In the meantime, Prof. Lin and his team also provided core graph analysis algorithms support for Huawei Cloud. In cooperation with Alibaba, Prof. Lin and his team proposed a more efficient distributed query language FLASH.

Zhenhai LIU, global expert in process manufacturing control field, autonomous factory technology founder

Dr. Liu received his PhD from Imperial College and was supervised by Prof. Sandro Macchiato, who is a member of the Royal Academy of Engineering, the former director of the Imperial College Key Laboratory of Batch Processing, Invention Group global consulting chief control expert, and member of the international IAS S-88 standard committee. Dr. Liu led the standard formulation and system design of BP's "Future Oil Plan" and the system construction of several global petrochemical plants. He was responsible for the control optimization, production operation management, intelligent plant planning and intelligent upgrading projects of nearly 40 foreign companies, covering more than 30 countries. He was involved in petroleum, natural gas, chemical, pharmaceutical, electric power, paper, food and other process industries, and is known as "the enterprise doctor". His international team is committed to the process of manufacturing quality, and the efficiency of core technology research, development and industrialization, and will provide the competitive edge of the process industry in China and revolutionary changes from intelligent manufacturing. Autonomous Process Manufacturing (APM) is an original technology in the process industry, based on process systems engineering, industrial big data, and artificial intelligence principles. The aim is to establish a comprehensive industrial software platform and to achieve an unmanned factory, which is described as the "brain" of intelligent manufacturing process companies and can be applied in many different industrial fields such as the petrochemical or chemical industries, papermaking, medicine, metallurgy, and electric power. APM ensures all different equipment is coordinated in the optimal conditions of automatic operation (unmanned workshop), achieving safety, stability, long life, and optimal performance of a production process. Dr. Liu has been accepted as a JITRI project manager.

Xiuquan MA: make all endeavors to be a "jewel in the crown" of the laser industry.

Dr. MA is currently a professor of the School of Mechanical Science and Engineering, and the School of Optical and Electronic Information in Huazhong University of Science and Technology. He received his Bachelor degree from the Physics Department of Peking University and his PhD from the Center of Ultrafast Optical Science (CUOS) in the University of Michigan, Ann Arbor. He worked for 5 years at JDSU located in the Bay Area of California as senior director engineer in the CTO office. After moving back to China in 2016, he led several major national projects and started a high-tech company named Guangdong GZ Photonics, focusing on industrial and medical high power laser products. GZ Photonics has achieved the highest power output among all industrial lasers. In 2021, GZ Photonics is entering a fast-growing stage, and the forecasted revenue is above 150 million CNY.

As a project manager of JITRI, he is constructing a new research institute called the Institute of Energy Photonic Manufacturing Technology. The technology of manufacturing energy photons includes fiber lasers and ultrafast lasers, high power laser diode chips, specialty optical fibers and other optical components, fiber processing equipment, and MOCVD equipment. The technology of energy photon manufacturing includes intelligent manufacturing, high precision manufacturing, medical equipment, and so on. Recent research is focused on two aspects: one is a ten kilowatt single modal field laser source; the other is high power cold ablation laser sources applied in the field of high precision manufacturing. The institute will become a leading global industrial technology center in the fields of laser sources, laser equipment, laser diode chips and optical fibers.

Yi YANG: Build a low-cost point of care multiplex nucleic acid detection platform based on the technology of Fluorescent RNA

Dr. Yi Yang is deputy director of the State Key Laboratory of Bioreactor Engineering, East China University of Science and Technology, Distinguished Professor of Changjiang Scholars, and a winner of the National Fund for Distinguished Young Scholars. In 2019, he and Dr. Linyong ZHU reported the world's first stable and bright fluorescent RNA, providing a powerful tool for nucleic acid research. Covid-19 has caused global awareness of the importance of nucleic acid detection. However, due to the high cost and time-constraint of current nucleic acid detection technology, it has not been widely used in screening for diseases and pathogens. JITRI invited Dr. Yi YANG 's team to start a business in Jiangsu Province. By combining fluorescent RNA nucleic acid labeling technology with existing nucleic acid detection methods, they aim to develop low-cost point of care multiplex nucleic acid detection technology. In April 2020, Dr. Yi Yang was accepted as a JITRI project manager. After nearly a year of preparation, the project company is about to be launched, planning to develop automatic multiplex quantitative point of care nucleic acid detection chips and instruments to solve current clinical pain points of respiratory infection diagnosis.

Faming ZHANG: Introduced an international advanced micro-ecological treatment team to build the first bacteria transplantation platform in China.

Faming Zhang is Vice President of Institute of Translational Medicine of Nanjing Medical University, Director of the Key Laboratory of integrated enterology of Nanjing Medical University and director of the enterology center of the Second Affiliated Hospital. He developed the first intelligent fecal bacteria isolation system for washing flora transplantation, realizing repeated flora transplantation and administration through the whole colon by endoscopic intestinal catheterization (Transendoscopic Enteral Tubing - TET), and transparent cap assisted endoscopic sclerotherapy (CAES) which was used to treat hemorrhoids and prolapse of the mucous membrane.

He initiated the China fecal bacteria Bank - emergency rescue plan (www.fmtbank.org) for the rescue and treatment of infected patients in the whole country, and established a Chinese flora transplantation platform for service and long-term evaluation of flora transplantation. He is actively promoting the application of flora transplantation to upgrade the treatment strategy and flora transplantation domestically and abroad. Fifteen invention patents have been applied for and ten have been authorized, including one International PCT patent, some of which have been or are being transformed into clinical applications. In December 2019, Professor Zhang was accepted as a project manager of JITRI. The Integrated Micro Ecological Technology Research Institute (Preparatory) led by him is oriented to the three major directions of human micro-ecological clinical treatment, microbial drug development, and the relationship between microorganisms and diseases. In 2020, it established a complete team, including strategic consultants, scientific research team, clinicians, and market expansion personnel. It plans to build a chain of specialty micro-ecological treatment hospitals, drug development companies, and CRO service platforms based on sterile animals. Ultimately, the plan is to build the largest and most advanced bacteria transplantation platform in China, and to ensure safety and quality control with a standardized flora transplantation system to promote the development of bacterial medicine and the industrialization of bacterial colony transplantation.

JITRI Entrepreneurs

These can be project managers, or JITRI Fellows. In 2020,as entrepreneurs, they have integrated and optimized resources, linked science and market, and helped carry scientific and technological achievements across the “valley of funding death."

Jinhua ZHANG: We are aiming at delivering not only technical achievements and outputs on bookshelves, but also products, standards and high-tech companies.

As a university professor, he has long been engaged in the R&D of adhesive functional materials and nano biomaterials; he started his own business with friends while still in college. Dr. Ren hopes to commercialize scientific research and help more people with professional scientific and technological services. He has already set up more than 10 companies with students and like-minded partners, including WEIPU Chemical Technology Service Ltd. and Polyton New Material Technology Ltd, ranging from new materials, technology services, biomedicine, education and training, to incubators and other businesses. They have formed core capabilities and competence, built core teams and gathered core resources in the fields of innovation and entrepreneurship training, and science and technology enterprise management.

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Peijie YAN: a leader in basic materials and technology for high-quality development of manufacturing industries

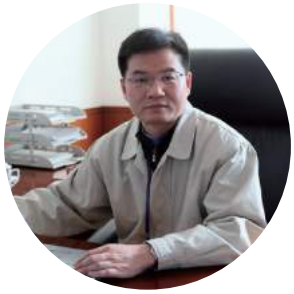
As a JITRI project manager, Dr. Yan resigned from one of the Top 500 companies in March 2020 to establish the Suzhou Echuangte Intelligent Manufacturing Co., Ltd. He invented the technology of advanced flexible customization roll forming, which upgraded the traditional single process of roll forming to a customized roll forming technology, which is an intelligent manufacturing technology that integrates processes like roll forming, punching, stamping, welding, cutting into a single process using automation. At the same time, using modularization, intelligence, and light weighting in product design, he changed traditional thinking in the roll forming industry and provided a package of solutions from design to applications. In 2020, the company completed construction. All the equipment, imported from Germany, was delivered within six months, and the first product was produced and delivered in November with a sales income of nearly 6 million CNY. At present, the team has obtained orders from customers such as GWM, BYD, Ford, Lear, and Quansheng Group. The products are widely used in many industrial fields, especially in new energy vehicles, lightweight materials, and 5G antenna stands.

Dr Kun LI: a Cambridge University senior research associate joins the optical communication core device industry

Dr Kun LI received his PhD from the Dept. of Engineering, University of Cambridge in 2013, specializing in photonic device technology. He was elected as a Junior Research Fellow of Clare Hall College, Cambridge, in 2017, and promoted to Senior Research Associate in the Dept. of Engineering in 2020. During the same year, he decided to commercialize photonic device technology for the optical communications industry in China.

During his time in the UK, Dr. Li led a team to develop a number of photonic devices, including the design, assembly, testing, application and commercialization. He has collaborated with multiple companies including Jaguar Land Rover, and applied for more than ten PCT patents, of which six have been granted in the US, the EU and China. One project was selected as the winner of the 2019 Tata InnoVista European Regional Round, and was also awarded the Pathfinder Investment from Cambridge Enterprise. He was a co-founder of CamOptics Ltd, which develops and manufactures next-generation spatial light modulators. The company works with world-leading CMOS design houses, and develops digital-driven spatial light modulators with extremely high signal-to-noise ratio for the optical communications industry. Engineering samples have been provided to more than ten companies and research institutes.

The internationalization, innovation eco-system and core competitiveness of JITRI has made Dr. Li reconsider his career planning. He gave up the stable research environment abroad to became an entrepreneur in the JITRI ecosystem, and now devotes himself to research and commercialization in China's core photonic device business.



Dr Hong LI: Left an executive position in a listed company to join a JITRI Institute

Dr. Li, doctor of Mechanical Engineering, Master of Business Administration (E-MBA) and Senior Engineer, is now the General Manager of the JITRI Institute of Advanced Composite Forming Technology and Equipment. Dr. Li has served as an executive in two listed companies over 20 years, and was responsible for technology R&D and new product commercialization. During this time, he won a Science and Technology Advancement Award from the State Administration of Science, and a prize from the Wuxi Science and Technology Advancement Award. With the leadership of Li, the National Center for Enterprise Technology was ranked in the top 10% of companies in China by the National Development and Reform Commission, and was recognized as a National Intellectual Property Model Enterprise by the China National Intellectual Property Administration. After meeting the founding team of the Institute, he joined full-time as the General Manager and has formulated a series of management systems for the Institute, including a Staff Management, Financial, and Project Management Systems. At the same time, Li has connected with innovation needs and market demands, with more than 50 patents filed, and established business cooperation with more than ten large enterprises with a contract value of more than 10 million CNY.

Sijie YAN: Led a team to open up the transformation of technical results, and achieved three year sales revenue of more than 100 million CNY.

Sijie YAN is a professor in Huazhong University of Science and Technology and the head of the blade intelligent manufacturing team in the JITRI Digital Manufacturing Equipment and Technology Institute. In 2017, the institute transferred technology in the field of multi-robot grinding technology for large complex structural parts to CRRC Zhuzhou Institute, Ltd., with a market value of 21 million CNY, and jointly established Wuxi CRRC Times Intelligent Equipment, Ltd., where Prof. Yan serves as the General Manager. In the past three years, he has led the innovation team, developed key core technology in large component manufacturing, and constantly promoted the demonstration and application of products.

Original achievements in key fields such as rail transit, aerospace and new energy have driven technological change and collaborative innovation in the industrial chain. He leads his team to revenue of 100 million CNY in three years. In 2020, the development of a multi-robot grinding production line for coating high-speed rail rolling stock has filled a domestic gap. Behind these achievements is commitment to the institute's mission to promote the development of local industries.

Yong CHEN: The venture into the "valley of death" of scientific researchers

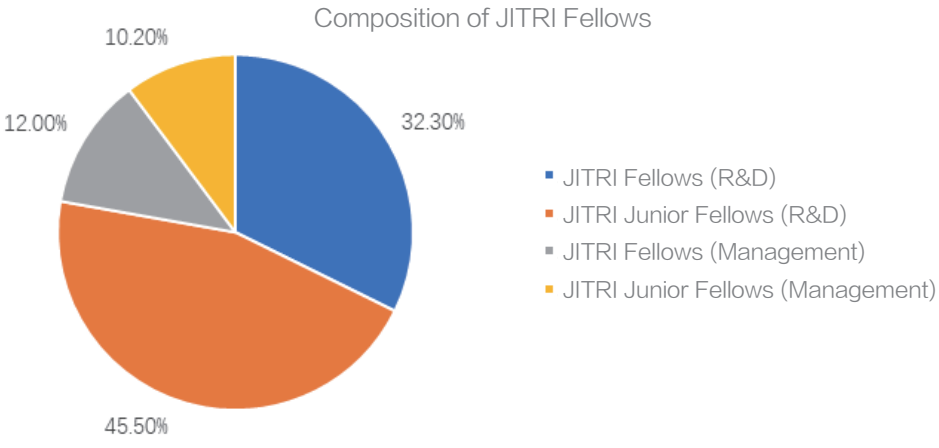
Dr. Chen was supervised by the Chinese Academy of Engineering member Professor Pingkai Ouyang from Nanjing Tech University. During his postdoctoral period, he developed a set of key technologies based on the cell cluster effect for immobilized continuous catalysis. The development of new technologies will always be impeded by the "valley of death". During the process of scaling up from the laboratory flask to the industrial fermentation tank, there are many engineering problems that need to be solved. Fortunately, the establishment of the JITRI Industrial Biotechnology Research Institute provided a good platform for Dr. Chen and his team. The institute is committed to solving the problems of engineering scale-up, filling intermediate links in technology transformation between universities and enterprises. But there is a second "valley of death" in this platform: how to turn products into commodities? Yong took the initiative to go to enterprises to promote his own technology. He commercialized nuclease, fuel ethanol, citric acid, lysine and other products. For the first time, he realized an industrial-scale immobilized fermentation system based on the cluster effect, solved the problem of reuse of biocatalyst, greatly improved the production efficiency and reduced energy consumption. The related technologies have been industrialized and demonstrated in COFCO Biochemical, Ningxia Eppen Biotech and other leading enterprises. As the deputy director of the Institute, Dr. Chen has grown rapidly from an academic to a seasoned businessman. Looking back on the ups and downs of entrepreneurship, he was particularly grateful for support from JITRI and the local science parks in Jiangsu: "Strengthening technology transfer is our original goal, and we will strive to connect science and technology to industry to upgrade our industrial structure."

Prof. Shuqing CHEN achieved the first domestic publication of tumor somatic mutations and individualized treatment. The upcoming product from his team has the potential to disruptively change tumor treatment.

As a professor at the Pharmacy School at Zhejiang University, Shuqing Chen has nearly 30 years of research experience in personalized medicine and precision tumor treatment, with many research results published in top international journals such as Cell. Prof. Chen is not only the first researcher in China to propose the concept of neoantigen therapy, but also the founder of Hangzhou Neoantigen Therapeutics, Ltd. in 2016, a company focusing on neoantigens and the development of personalized tumor vaccines. In November 2020, Prof. Chen was accepted as a JITRI project manager. Thanks to the funds provided by JITRI, Prof. Chen and his team can speed up the commercialization of a second product based on neoantigens, Individualized T-Cell Immunotherapy. Prof. Chen claimed: “to unleash the power of the human immune system and win the battle of tumors, we need to specifically activate the immune cells and relieve the immunosuppression of the tumor microenvironment. It's the only way to optimize the therapeutic effects and minimize the side effects. Since neoantigens are the key elements for the specific recognition of tumor cells by immune cells, the targeting of neoantigens is a key way to solve this specificity problem.” After six months’ preparation, the project company has moved into the last phase. Once this reaches the market, it will disrupt current tumor treatment methods.

JITRI Fellows

In 2020, the selection criteria were further clarified, and 36 applicants were selected from more than 70 applicants for project support. Among them, 26 came from enterprises, accounting for 72% of the total; There are 19 young researchers (including management), more than half of the total number of researchers, with an average age of 34. After four years, a strong, R&D and management industrial and technical talent team has been formed in the JITRI system. At present, 167 outstanding researchers have been introduced.



Kang TAO: from theoretical research highland to market demand frontline

Dr. Tao, Professor of Engineering, graduated from the University of Science and Technology of China (USTC), and is a postdoctoral fellow of the Shanghai Institute of Organic Chemistry, CAS. He has served as Associate professor of Ningbo Institute of Materials Technology and Engineering (NIMTE, CAS) and as a senior manager of Orinko Materials Group. He has also run a technology-based company for five years as a founder. Dr. Tao has been engaged in materials research for more than twenty years. In order to further meet the needs of the market, Dr. Tao joined the JITRI Institute of Advanced Polymer Materials Technology (APM) in 2019 and established the Light Materials Division. The micro-porous polymer materials developed by Dr. Tao 's team have strong filtration, absorption and loading capacity. With the support of APM, the team is focusing on the development of applications, such as liquid material carrier, oil-water separation material, filler for oil pollution and water environment control. Up to now, many high-tech products and technologies have been put into the market to serve many enterprises. More than 10 patents have been applied for. From the theoretical research to the market demand, exploration and innovation is always the foundation of the team. The innovation ecology, entrepreneurial culture and good working environment of JITRI are the cornerstones of success.

Lei XIE: Gave up the financial industry to return to technological innovation

Dr. Xie received his PhD from Peking University. Based on his belief in the development of the hydrogen energy industry, Dr. Xie gave up his financial career and left Guangzhou. He came to Changshu alone and joined the JITRI Molecular Engineering Research Institute, Ltd. in July 2019. He thus returned to technological innovation, leading a team to engage in the research and commercialization of storage and transportation for hydrogen. After arriving in Changshu, he benefited from the JITRI flexible innovation mechanism, support from the local government and the agreeable working environment of the institute. During this period, Lei Xie developed a device for the production of hydrogen using the hydrolysis of nano-hydrides. The device uses no high-pressure hydrogen gas, and has good safety, a stable hydrogen supply and high mass density storage. The integration of hydrogen supply products and small and medium-sized hydrogen fuel cells results in a power source with high energy storage density (⩾ 350Wh/kg), which portable, and can be widely used in outdoor power supplies, drones, inspection robots/patrol vehicles, small unmanned underwater vehicles (UUAs), etc. Related products have been provided for testing to the China State Shipbuilding Corporation, Sinosynergy, the Beijing Institute of Technology and other customers.

Yingchun YE: Working in the field of communication for 20 years, having a new beginning in network technology innovation

Yingchun YE has been employed as a JITRI young researcher since 2018 and he works as Deputy Director of the JITRI Future Network Institute. Ye is mainly in charge of the construction of the core technology demonstration of future networks and industrial development. In 2020, Ye made outstanding achievements. A high-quality external network based on SDN technology covers the main cities around the country, and there is regional coverage in the Yangtze River Delta and Guangdong-Hong Kong-Macao Greater Bay Area. The SDWAN system has been completed, with the construction of 29 POP sites around the country. The industrial deterministic intranet and FN-IND platform have been the first batch of "new scenery" key products in Nanjing City. The new features enable new applications. Ye participates in 4 national projects and cooperates with 15 leading enterprises to build up a Jiangsu industrial internet pilot demonstration zone with a total investment of 210 million CNY. Ye has built strategic partnerships with 144 enterprises in the industrial chain, six national major science and technology infrastructures, four national double-cross platforms and five provincial key platforms to build up a regional integration service capability of industrial internet. There are 21 new patent applications and 30 software copyrights, as well as two new business licenses.

Xuesong GAO: Made breakthroughs in multiple applications of intelligent laser manufacturing technology

Dr. Xuesong GAO used to work in the Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, as an associate professor. In 2018, he joined the JITRI Advanced Laser Technology Institute as Vice Director. As a Chinese expert in the innovative technology field of laser special machining, Dr. Gao is the first in China to successfully prepare Al2O3 - 13% TiO2 ceramic coatings on nickel base high temperature substrate using a laser cladding process. A metallurgical bonding interface is obtained, which greatly improves the corrosion resistance and wear resistance of the protected interface.

In 2020, Dr. Gao led a team of over 20 researchers and technicians, advancing mobile LASER repair technology and equipment, laser cladding technology of wear-resistant and corrosion-resistant coating of large-scale marine equipment, and other core technologies. Related technologies are applied in the petrochemical industry, iron and steel metallurgy, marine equipment and automobile scenarios. With significant breakthroughs, the team's technical service revenue in 2020 exceeded 20 million CNY. As the director of the laser manufacturing equipment and technology R&D center, Dr. Gao and his team established a process database, which includes laser cutting, laser welding, laser cladding, laser 3D printing, laser micro processing and other related processing technologies. In 2020, Jiangsu intelligent laser manufacturing technology public service platform has been successfully passed evaluation and acceptance by the Jiangsu Provincial Science and Technology Department.

Yuxiang JIANG: break technical barriers and promote the domestic production of core parts for new energy vehicles

Yuxiang JIANG has 23 years of experience in the automotive industry and 13 years of experience in the field of new energy vehicles and electric drive. He has led an R&D team of EV pure electric and PHEV hybrid vehicle powertrain (including extended range fuel cell vehicles) in many large vehicle companies and has rich experience in technology development in the field of vehicle integration and control. In 2020, he joined the JITRI New Energy Vehicle Research Institute and moved his family to Yancheng in Jiangsu Province, joining the institute as deputy director and director of the vehicle control technology center. He quickly set up a development team of more than twenty people to develop core control parts of new energy vehicles such as a motor controller, gearbox controller and domain controller. At the same time, he also provided engineering services on vehicle control and powertrain integration for several vehicle manufacturers. Some products have entered the supply catalogue of vehicle manufacturers and will be in mass production soon.

Dr. Feng HANG: from tiny bacteria to a big dream, devoting himself to the probiotics industry

Dr. Hang used to be the director of the Science and Technology Management Department of the State Key Laboratory of Dairy Biotechnology. He joined the JITRI Food Biotechnology Institute (Yangzhou) in 2017, and was appointed as vice director of the institute. His research mainly focuses on probiotics and their applications. He has carried out programs on high-density culture, spray freeze drying, and cryoprotectants for the probiotics industry. He has designed two pilot plants, one for 500 kg/year of lyophilized probiotics powder, another for 5 million pouches per year of probiotics powder. He developed products using probiotics and prebiotics, led two government-financed research projects, applied for eight Chinese invention patents (three of which are authorized), and incubated six enterprises using the research platform. He has also set up a high-tech enterprise integrating research, design, and manufacturing with sales for probiotics (Yangzhou Jiangda food biotechnology Ltd.). The products such as Jiangnan University's probiotics powder, can be purchased from JD.com Mall online; they are attracting customers and receiving good market feedback.

JITRI Postgraduates

Across each department, research institutes and partners of JITRI aim is to promote the joint training of graduate students using various methods. In 2020, 55 research institutes, major project companies, JICs, and provincial R&D enterprises jointly trained 1045 graduate students together with 30 universities, with a total number of nearly 1500. There were 721 master students, 299 doctoral students and 25 postdoctoral students. According to the geographical division of colleges and universities, 30 cooperative colleges and universities are involved, among which 245 are jointly trained with 14 colleges and universities outside the Province, and 800 are jointly trained with 16 colleges and universities in the Province.

Chunlei YANG: The first batch of graduate students, rooted in the JITRI Metal Institute after graduation.

As the first batch of graduate students supported by JITRI in Chongqing University, Chunlei came to the JITRI Metal Institute and joined the superalloy materials and key process research team at the end of 2019. During the joint training period, he mainly participated in the project of heat treatment and phase precipitation behavior of GH5188 alloy. With the help of the analysis and testing platform, Chunlei designed experimental plans and solved problems under the guidance of supervisors. Meanwhile, he also kept close communication with Chongqing University, regularly reporting progress and discussing theoretical questions, and adjusting his research plan accordingly. Through research on the high temperature homogenization process, as well as the second phase and its precipitation and dissolution law of GH5188 alloy, Chunlei identified the best thermal processing and heat treatment process, and finally optimized a GH5188 production process. After finishing his study, he made a decision to stay at the JITRI Metal Institute to develop his career further.

Yi ZHOU: Joint doctorate between JITRI and XJTLU, use AI to make traffic management more intelligent

After completing his master's degree in Artificial Intelligence in the UK, Yi applied for the joint doctoral program between the JITRI Institute for Deep Perception Technology (IDPT) Institute and Xi'an Jiaotong-Liverpool University (XJTLU) in his specialty area of intelligent transport. The program focuses on real industrial technology needs, and is aiming to combine academic research and enterprise R&D. XJTLU provides abundant academic resources and JITRI IDPT provides industrial experience in the field of millimeter wave radar. In November 2020, Yi started his PhD study at IDPT. After inspecting the hardware platform and real traffic data, he found the limitations and bottlenecks in the visualization pipeline. With the help of supervisors and technical teams, he proposed a research topic of "probabilistic target detection based on millimeter wave radar and vision fusion". In this study, radar is introduced into the probability perception framework based on AI, which is expected to greatly reduce the missing and false detection rate of traffic target detection, and improve the performance of multi-target tracking. In the next few years of his doctoral study, he will make great efforts both in academic research and engineering and contribute to the evolution of intelligent transportation in China.

The Southeast University – JITRI graduate team: proposed feasible plans based on the actual needs of the enterprise.

Jianwei DAI, Yanbin ZHAO, Xianli WANG and Qiman XU from the School of Materials Science and Engineering, and Zhijie ZHANG and Changjun ZHONG from the School of Civil Engineering at Southeast University, participated in the first JITRI training camp for the 2020 Innovation Cup competition. They won the first prize with results from their project "carbon fiber composite material reinforcement transverse shear performance research ". This project was jointly supervised by professors from the Materials and Civil Engineering schools, as well as by the Chief Engineer of Fasten Group Ltd. To solve the problem of insufficient radial shear performance caused by the anisotropy of carbon fiber reinforced polymer (CFRP), the feasibility of using CFRP for long-span bridge cables was analyzed through two months of numerical simulation, performance tests, and microstructure characterization. Methods for improvement were suggested, based on material selection, interface optimization and structural design.

Using the platform of JITRI training camp, six students can get connected with Jiangsu industry, better understand real technology needs, and propose solutions. It can inspire the creativity of graduate students, and enhance their practical ability.

JITRI Headquarter Excellent Staff

Kaiwen CHENG (Comprehensive Management Department)

Working hard and remaining true to our original mission, fulfilling our duties and excelling in our performance.

Zhengfeng MA (Strategic Management Department)

JITRI shape the future. As a JITRI employee, I am hardworking, keep up with the time, and devote myself to building JITRI's dream!

Junlin XU (Department of Investment and Finance)

Life is full of motivation because of dreams. It's better to make a little progress everyday than not to do anything at all. Don't give up dreams, always believe that the harder you work, the luckier you become!

Xingjian GU (Domestic Cooperation Department)

With the JITRI's continuous efforts, business cooperation has bloomed and developed in all 13 Jiangsu cities and the entire Yangtze River Delta region.

Yu TENG (Overseas Cooperation Department)

Real power lies in our present, everyone should live in the moment.

Qian LI
(Materials, Energy & Environmental Protection department)

Stay true to the original mission, keep your integrity, and be a person of strong sensibilities; Never stop supporting JITRI's dream.

Sheng XU (Information Technology department)

Continuously improve our own capabilities and ability to provide high-quality service, we will build up the JITRI brand with our efforts.

Kun CHEN (Equipment and Manufacturing Department)

Try to be a friend of time and pursue long-term values.
Stay hungry, stay foolish!

Yana LV (Biology and Medicine department)

Little drops of water make the mighty ocean, sand and rocks come together to form a mountain, each JITRI member is important to help JITRI build its dream and shape the future.

08

Innovation Achievements

Section 1

Advanced Materials

The Yangtze Delta Region Institute of Advanced Materials.

At the end of 2019, the Yangtze Delta Region Institute of Advanced Materials (YDRIAM) was officially established in Xiangcheng District, Suzhou. During the past year, by building an open research platform, the Institute gathered innovation resources and carried out a number of major projects. It expanded its teams and moved into new headquarters. The Institute has become a key R&D platform for advanced materials in the Yangtze River Delta.

YDRIAM has seen a successful year of operations in 2020. By the end of the year, the headquarters had a team of nearly 60 people. The metal materials team led by the Director of the Institute, Gan Yong, was recognized as a Top Talent Team of Suzhou and was awarded 50 million CNY in funding support. Over the past year, YDRIAM gathered together JITRI's research institutes in the field of advanced materials, and established JICs with 40 leading enterprises. YDRIAM moved into a twenty acre headquarters in the Yangtze River Delta International R&D community and established three major platforms in the fields of materials analysis, big data for materials, and instrumentation and characterization technology. It led the formation of the Advanced Materials Innovation Alliance in the Yangtze River Delta and strengthened cooperation with internationally renowned universities and research institutes, national key laboratories and the Institute of Materials of the Chinese Academy of Sciences. The Institute implemented a number of major innovation projects, including the development of structural engineering materials, an ultra-high resolution, spin-polarized electron microscope system, and 3D bending technology for forming.

The Institute of Molecular Engineering promoted the transfer of high-quality innovation achievements from universities.

The JITRI Institute of Molecular Engineering was established jointly with the School of Chemistry and Molecular Engineering, Peking University, focusing on molecular engineering in the fields of new materials, new energy, and bio-medicine. It applies innovation achievements from Peking University and gathers high-quality R&D and industrial resources from Peking University alumni. It is committed to discovering new technologies and insights with good market prospects.

In 2020, the Institute made great progress in building an R&D platform. It installed 24 pieces of equipment for testing services, which attracted more than 30 external customers, and more than 3000 samples were tested. In terms of technology transfer, the Institute accelerated the prototyping and commercialization of rare earth complex luminescent materials, hydrogen energy storage and utilization materials, and electro-chemiluminescence kits. The Institute incubated 12 spin-off companies in 2020 (25 enterprises in total since it was founded) which raised a total of nearly 100 million CNY. In terms of providing R&D services, the Institute established a partnership with Wuxi AppTEC and signed cooperation agreements with more than 10 companies such as Aluminum Rare Earth Jiangsu Co., Ltd., Suzhou Nano Micro Technology Co., Ltd etc. In terms of personnel training, the Institute and the School of Chemistry and Chemical Engineering of Lanzhou University jointly launched a Master's Program of Engineering for staff members from JITRI-enterprise joint innovation centers. Twenty five students have enrolled in the program, which aims to explore new models of graduate school education in collaboration with universities, research institutes and enterprises.

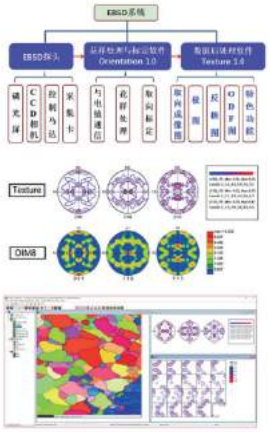
Important Progress on the Construction of R&D and Pilot Platforms

In the field of aerospace materials, producing high-quality superalloys for rotating parts has always been challenging. The product quality of most superalloy companies in China is not up to standard. Single crystal blades in a high pressure turbine need to function in an extreme environment compared to other parts of the aero-engine, so they have the most complex manufacturing process and the highest technical requirements and constitute one of the most important technical bottlenecks in the development of aero-engines.

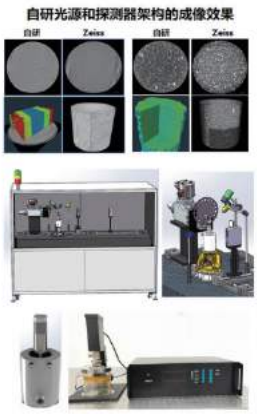
Since its establishment, the Institute of Advanced Metal Materials and Application Technology (INMAT) has endeavored to develop an R&D system in the field of superalloys, with a focus on building core competence, operating mechanisms and new business models. After three years of effort, the Institute has improved its core R&D capabilities and made important progress in establishing an R&D platform. It has completed the first phase construction of the superalloy and aero-engine R&D platform. Self-designed pilot production equipment for high-quality superalloy products has been put into operation. It completed the installation of the first imported LMC single crystal furnace in China and tested a series of prototype single crystal blades.

The superalloy R&D platform has installed multi-functional VIM, ALD ESR, heat treatment furnaces, and auxiliary equipment and has mastered an electroslag remelting processes for superalloys such as GH2132, JCNi36, GH4169, IN625 and C276. The single crystal blade R&D platform is now equipped with an LMC single crystal casting furnace, a ceramic shell manufacturing system, a firing and sintering furnace, a wax injection machine and a ceramic injection machine. The manufacturing processes of ceramic cores, ceramic shells, and material for single crystal seeds have been mastered, and the technical indicators are in line with expectations. Furthermore, the Institute has completed the development of two aluminum-based ceramic core formulations and two ceramic shell systems, and the quality meets technical standards.

Development of high-end automatic structural analysis instruments



EBSD/EDS系统



多功能X射线显微镜

部件应力场探测与调控
中子衍射原位实验系统

The progress of materials technology depends heavily on advanced analysis and testing technology. Advanced analysis instruments have been monopolized by foreign companies and annual imports cost nearly 70 billion USD. Considering the need for future development, high-end instruments need to be manufactured domestically.

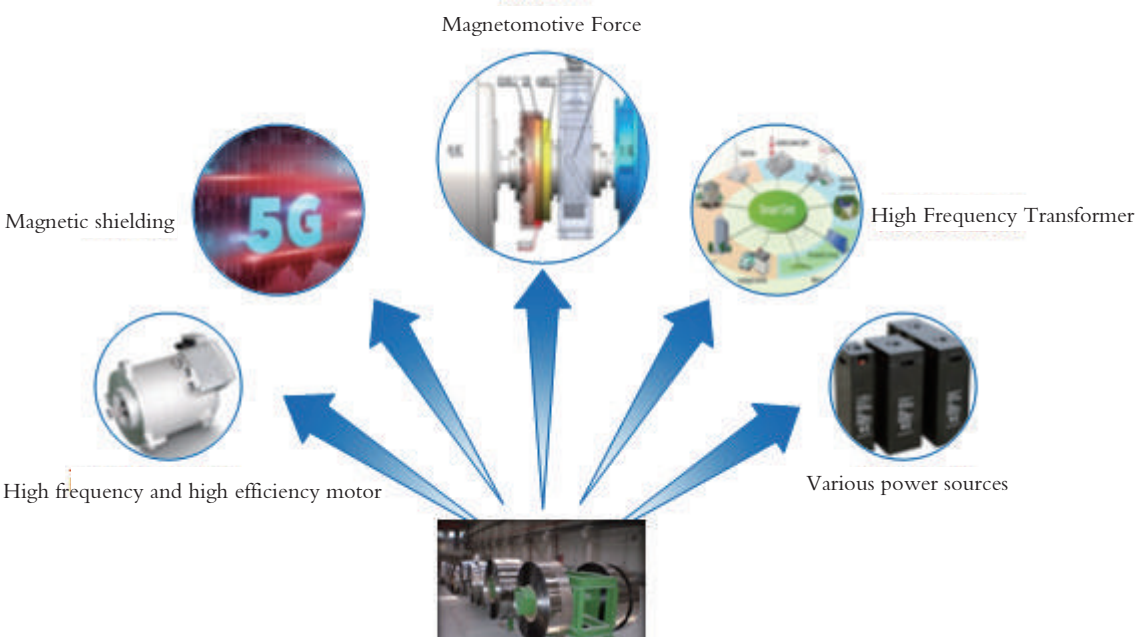
To support the industrial development of Jiangsu Province, JITRI initiated a project to characterize devices and develop technology for engineering structural materials at the Yangtze Delta Region Institute of Advanced Materials. The project is led by Prof. Guohua FAN and supported by the China Institute of Atomic Energy, German FRM Center, Spallation Center Source Science Center, Nanjing University of Technology, Chongqing University, and Shanghai Jiaotong University. It focuses on the development of an EBSD/EDS system, a multifunctional X-ray microscope, and stress field detection for structural components through an in-situ experimental system using neutron diffraction.

Through the implementation of the project, a series of special instruments, devices and software with good market prospects will be developed. This will accelerate the development of high-end material analysis instruments in China.

Continuous production of high-quality wide amorphous materials strip

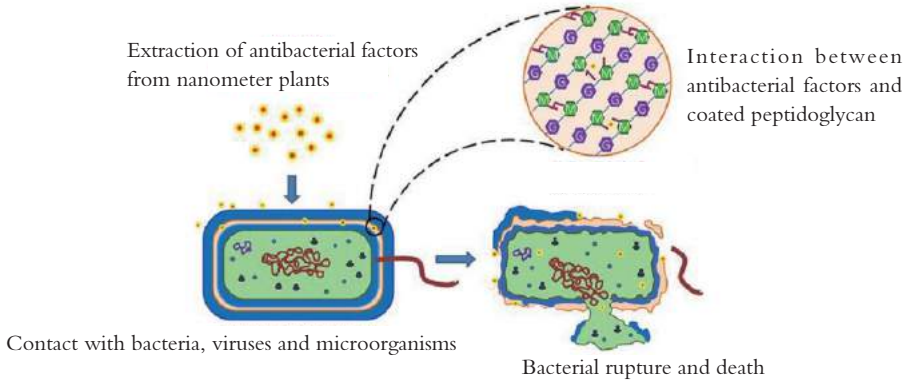
Iron-based amorphous/nanocrystalline strip has the characteristics of high permeability, low loss and high magnetic induction, which makes it a key material for the electronic industry. The core loss can be reduced by 80-95% when applied to a high-frequency motor. The motor power density and torque density can be greatly improved to meet the needs of emerging industries such as high-speed fans, high-speed machine tools, new energy vehicles, intelligent manufacturing and aerospace applications.

The Institute of Advanced Energy Materials and Application Technology pioneered the high-speed continuous production of amorphous materials in China and achieved low-cost, high-efficiency and continuous production of high-quality wide amorphous/nanocrystalline strips. The yield of the materials can reach more than 90%, which is 8 times higher than that of discontinuous production, and the cost of strip manufacturing can be reduced by more than 40%. The technology has reached international level according to the appraisal of the Chinese Society for Metals. The high-efficiency motor core technology developed by the team has significantly improved the efficiency of high-speed motors, and the project achievements have been widely applied in medium/high-power amorphous/nanocrystalline stator cores and magnetic separators for wireless charging. The team has built the first amorphous motor stator core production line in the world, with a capacity of 10,000 sets/year, overcoming technical barriers and the market monopoly.



Application area: Continuous production of new high quality wide amorphous strip

New Antiviral Filter Materials for Pandemic Prevention and Control

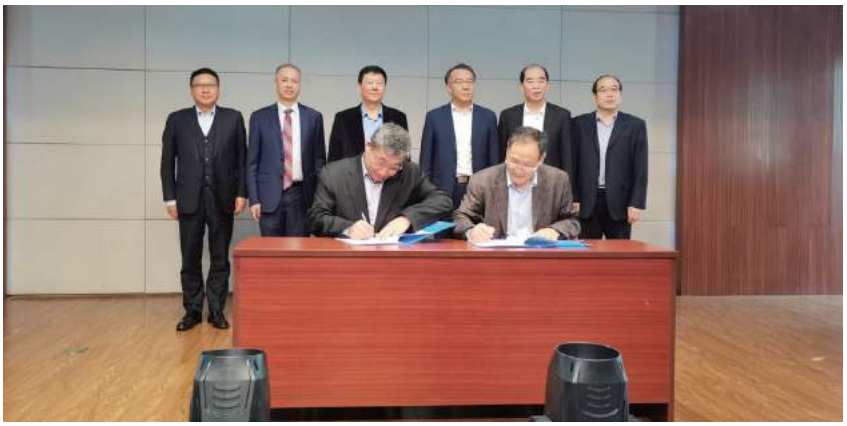


Since the outbreak of COVID-19, masks have become indispensable. An epidemiology journal in the United States revealed that COVID-19 can survive for over 2 hours on the surface of a mask, rendering the worn mask a dangerous source of infection. If handled improperly, the mask could potentially transmit the virus to a human. Additionally, the charge of melt-blown cloth, a common mask filter material, is easily lost, lowering the filter efficiency if worn for a long time.

The team led by Professor Zhaoxiang ZHONG from the JITRI Institute of Membrane Science and Technology developed an antiviral nano-membrane mask by using nano-membrane technology with natural plants to extract antiviral factors, which addressed this worldwide concern. When bacteria, viruses and other microorganisms encounter the antiviral nano-membrane mask, they are first intercepted by nanofibers. The antiviral factors on the fiber come in close contact with the surfaces of any bacteria, viruses or other microorganisms, thus inhibiting their fission and reproduction. At the same time, equipped with strong biological penetration ability, the factors can penetrate microbial cell membranes, protein capsids and other structures, break into bacteria and viruses, and disperse and disintegrate nucleic acids, inactivating and killing them. The antiviral mask can be worn and used for a long time without the worry of charge loss and efficiency reduction. According to the test results from a level-3 biosafety laboratory, the mask can kill more than 99.9% of COVID-19 in 5 minutes, and there is no cytotoxicity; it is safe and non-toxic.

At present, the Institute has filed 5 invention patents for the technologies and the products. Its key materials have been put into mass-production in Jiulang Hi-Tech Corporation, a spin-off company of the Institute. As the production capacity reaches 3 million m2/year, it can produce more than 100 million antiviral nano-membrane masks annually. The material can also be used in air purifiers and fresh air purification systems, which can effectively eliminate bacteria, viruses and other microorganisms in the air.

Affordable and Useful Structural Design and Manufacturing Technology for Advanced Carbon Fiber Composites



Carbon fiber composite material has many strengths such as high stiffness, strong design ability and with multi-functionality. It has become one of the major materials for the aerospace industry and its application is rapidly expanding into other fields. However, China still falls behind in key technologies, with weak design capabilities, low production capacity and high production costs.

Nanjing Julong Technology Co., Ltd. is one of the first companies to establish a joint innovation center with JITRI. With support from JITRI, Nanjing Julong and the Yangtze Delta Advanced Materials Research Institute reached a cooperation agreement. An international team with extensive experience in advanced composite design and manufacturing led by Dr. Zhiping CHEN implemented a project to develop affordable and useful carbon fiber composite materials. The two parties plan to spend around three years focusing on liquid composite molding technology for carbon fiber composite materials, particularly in the fields of aerospace, railway and automobile. They aim to develop carbon fiber composite products with a competitive price, and achieve mass production of carbon fiber composite parts.

By leveraging the respective advantages of Nanjing Julong and the Yangtze Delta Material Institute, they will jointly open up the market and build a collaborative application platform for the entire value chain. They will jointly promote and lead the application and development of carbon fiber composite materials and create competitive advantages along the entire value chain of composite materials.

Catalytic process improvement helps companies achieve green technology upgrades for pesticide intermediates

Nanjing Red Sun Co., Ltd. is the world's largest manufacturer of pyridine bases. In recent years, Red Sun has gradually accelerated the R&D of new diquat and the production of related raw materials, in order to make breakthroughs in key technologies such as catalyst, process and reactor and realize green technology upgrades. In 2019, Red Sun and JITRI jointly established the JITRI-Red Sun Enterprise Joint Innovation Center.

In response to technical problems in developing the pesticide intermediate catalytic process, Red Sun and the Institute of Advanced Catalytic Technology jointly carried out a research project on catalytic process reactor transformation. Drawing on extensive R&D experience, after careful evaluation, design, and experimental simulation, the Institute has transformed the original stirred-tank reactor into a special external circulation reactor. The project successfully solved the technical problems such as catalyst fragmentation during the production of pesticide intermediates, and improved the efficiency and life of the catalyst. Considering the urgency of the company's needs, the Institute worked long hours and shortened the project implementation period from one-year to three months. It completed all the design and tests efficiently with relevant process drawings delivered.

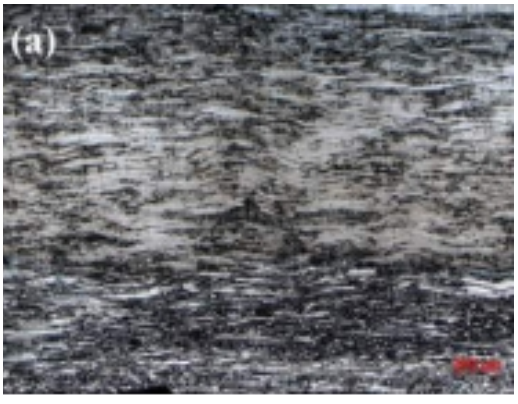
Due to the successful cooperation of this project, Red Sun and the Institute plan to sign a strategic cooperation agreement to jointly establish laboratories and undertake research projects, where the Institute carries out R&D of the catalyst and process, and the company carries out pilot tests and industrial scale-up. The two parties aim to achieve efficient production and green transformation of the pesticide intermediate industry.

Development of high grade non-oriented electrical steel and upgrading of equipment.

Electrical steel refers to low-carbon ferrosilicon alloy with silicon content of 0.5% ~ 4.5%. It is mainly used to manufacture iron cores for motors, generators, compressors, and transformers. It is an indispensable product for the power industry. Electrical steel is often referred to as the "artwork of steel products" due to its long manufacturing process, high standards of composition and complex manufacturing process, which makes it an important indicator of the technical capability of iron and steel enterprises.

The Institute of Advanced Metallurgical Technology, which uses equipment from the Shagang Group, carried out a project of transforming and upgrading the equipment. It optimized the whole process and developed high grade non-oriented electrical steel (SG50W350 and SG35W300), which helped Shagang improve its electrical steel manufacturing processes.

In 2020, the Institute of Advanced Metallurgical Technology solved many technical problems such as desulfurization in the smelting process of high grade non-oriented electrical steel, high equal axis crystal ratio of continuous casting billet, hot rolling process, normalizing process and brittle fracture control during cold rolling, etc. The technologies have been used in the whole production process in Shagang. The average desulfurization rate is about 50%, and the high equal axis crystal ratio of continuous casting billet has been increased from about 30% to more than 55%. The first roll of SG50W350 steel was successfully produced. The implementation of the project has filled a gap in electrical steel production in Jiangsu Province, and will make great contributions to energy conservation and emission reduction.



Suzhou Hanhua Semiconductor Co., Ltd. made breakthroughs producing 4-inch GaN HEMT epi-wafers for 5G applications

Epi Structure	Key Specs	Characterization
Substrate thickness (μm)	500 ±25 or customized	Microsense Profilometer
Total epi thickness (micron)	0.6 – 2.5 or customized	PL
Dislocation density (cm^{-2})	≤ 10^8	XRD
XRD Rocking Curve	(002) ≤ 200 arc sec (104) ≤ 250 arc sec	XRD
Epi sheet resistance (Rsh)	225 – 450 Ω/sq or customized	Lehighton
Rsh uniformity	Rsh Stdev. ≤ 2%	Lehighton
Carrier concentration (cm^{-2})	0.9 – 1.1 X10^{13} or customized	Lehighton
Carrier mobility ($cm^2V^{-1}s^{-1}$)	≥2000	Lehighton
Epi surface roughness (rms)	≤ 1.0 nm	AFM
Wafer thickness (TTV)	≤ 5 μm	Microsense Profilometer
Wafer Bow & Wrap	≤ 30 μm	Microsense Profilometer
In situ Nitride	Available upon request	Available upon request

Suzhou Hanhua Semiconductor Co., Ltd. was established in November 2017, jointly initiated by Jiangsu Institute of Industry and Research, Suzhou Industrial Park and the original founding team. In 2020, the company has achieved a new breakthrough in the key technology of 4/6-inch GaN HEMT epi wafers. The products are currently serving domestic and oversea foundry customers as well as research institutes. They are mainly used in high-end 5G communications which has a market size of hundreds of billion RMBs. At present, the company has achieved product penetration of most leading companies within the domestic as well as Taiwan industrial chains, and currently being adopted by the system users. After the tape-out of these mainstream customers, Hanhua's GaN RF epitaxy has been recognized as among the highest quality with the whole industry, meeting or exceeding the leading standard set by Sumitomo and IQE. At present, company has applied for more than 60 patents, with 34 of them have been patented, including 15 Chinese invention patents, 9 utility model patents, and 10 US patents. In January 2020, Hanhua was recognized as a national high-tech enterprise.

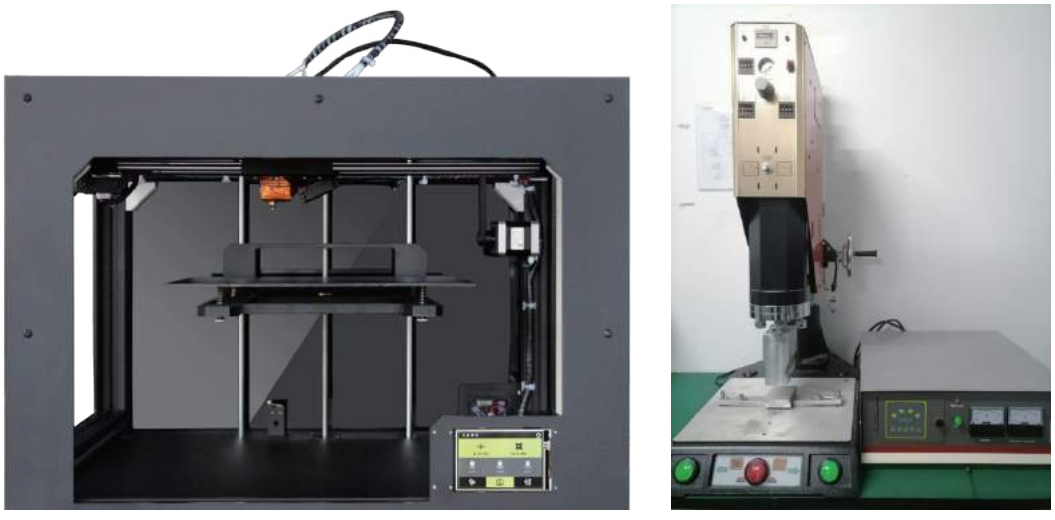
The company has now completed the A round of market financing, and its post-investment valuation exceeds RMB 1 billion. In 2021, the company will complete the second phase of expansion. By then, it will build the largest high-end epitaxial production base in China, with an output value of 1.5 billion yuan within five years.

Nanjing Advanced Thermoplastic Composites, Ltd. – domestic manufacturing of special engineering plastic-based thermoplastic composite materials

In 2018, Nanjing Advanced Thermoplastic Composites Co., Ltd. was jointly established by JITRI Advanced Polymer Materials Research Institute Co., Ltd and the Polyarylene Sulfide Research Group of Sichuan University. It is one of the earliest high-tech enterprises engaged in R&D, production and sales of high-performance thermoplastic composite materials in China.

In 2020, the company successfully mastered the technology of equipment production and the molding process for a composite material made from "pre-impregnated" fibers and a partially cured polymer matrix (pre-preg) for high-performance thermoplastics. It built a 20 ton/yr special engineering plastic-based thermoplastic composite production line, and produced continuous fiber, long fiber and short fiber with high-performance thermoplastic composite with polyphenylene sulfide (PPS) and high temperature resistant nylon (PA6T). The company filed 30 patents and undertook three science and technology projects in Jiangsu Province and Nanjing City. It obtained certifications including "Jiangsu Province 2020 Storage of Technology-based SMEs", and "Quality Management System" (GB/T19001-2016/ISO9001:2015).

At present, the company's main products include carbon fiber reinforced thermoplastic composite sheet pre-preg, continuous carbon fiber reinforced thermoplastic composite wire pre-preg for 3D printing , continuous fiber reinforced thermoplastic composite fabric pre-preg, and long carbon fiber reinforced thermoplastic composite sheet pre-preg. The fiber mass content of the pre-preg is 60-65%, and the specification of the 3D printing wire is ϕ 0.4mm-1mm.



3D printing equipment for continuous carbon fiber reinforced thermoplastic composite wire prepreg

Suzhou Polytri Material Technology Co., Ltd. developed special polyimide materials

Suzhou Polytri Material Technology Co., Ltd. is a spin-off from the “PI flexible substrate project” of the Institute for Smart Liquid Crystal (SLiC) which mainly focuses on the development and production of specialty polyimide materials. The materials are mainly used for the substrate (yellow PI) of flexible organic light-emitting displays (OLED), the transparent film material (transparent PI or CPI) of touch panel and display cover materials.

After four years of development, the company has completed the benchmark test and the pilot-scale tests of polyimide products with high transmission, high heat resistance and excellent mechanical properties. The performance is equal to or better than the existing foreign products, and it has passed the tests of well-known domestic companies. In order to accelerate commercialization, at the end of 2019, the construction of a polyimide materials production base covering an area of 23 acres and an annual output of 1,100 tons has begun. In 2020, the plant and production line have been built. It is expected that the production line will be completed in April 2021 and mass production will begin. In 2020, the company launched series-A financing and the company's overall valuation has reached 200 million CNY with an expected annual revenue of over 100 million CNY.

Section 2

Energy and Environmental Protection

Build a high-level "one-stop" standard-setting service platform for environmental protection

国家标准化管理委员会

国标委发函〔2020〕17号

国家标准化管理委员会
关于同意筹建国家技术标准创新基地
（水环境技术与装备）的函

江苏省人民政府：

根据《国家技术标准创新基地管理办法（试行）》和《国家技术标准创新基地建设总体规划（2017-2020年）》要求，经审核论证，同意由南京大学宜兴环保研究院作为承担单位，筹建国家技术标准创新基地（水环境技术与装备），建设周期为2年。

请创新基地承担单位按照已报送的建设方案开展工作，统筹各类资源，加大保障力度，确保按期完成各项任务。创新基地指导单位和组织单位要加强指导，协调有关方面对创新基地建设给予支持。我委将按照要求加强管理，适时对创新基地建设情况进行考核评估。

（此件依申请公开）

Since 2016, the JITRI Institute of Water Environmental Engineering Technology Research (Yixing) has been focusing on developing technical standards to lead the high-quality development of the industry, and has taken the initiative to establish two organizations: 1) the water environmental engineering technology and equipment specialized committee of the China Quality Inspection Association and 2) the industrial water reuse sub-committee of the water reuse technical committee of the International Standardization Organization (ISO/TC282/SC4).

In 2020, the institute, together with six universities (including Nanjing University), seven research institutes (including National Environmental Protection Equipment Quality Supervision and Inspection Center) and 21 enterprises (including China Three Gorges Group Ltd.), has successfully established the nation's only national-level standards-setting innovation center in the field of water environmental technology and equipment, which will provide high level "one-stop" standard-setting services consisting of technical standards setting, standards development, test verification, personnel training, international exchange and cooperation, education, and demonstration.

In 2020, the institute led and participated in the setting of 53 standards, including 14 standards newly published (3 ISO international standards, 4 national standards, 2 industry standards, 2 local standards, and 3 group standards), and 21 new standards. Eighteen new applications or pre-research standards are under development. It has formed a "technology-equipment-engineering-testing-service-evaluation" standard-setting model in the field of water environment and water ecology.

During the COVID-19 pandemic, the institute issued two local standards for Jiangsu Province, which guided the virus detection and emergency treatment of medical sewage. The standards developed by the Institute have been applied in 41 countries such as the United States, Singapore, Vietnam, Australia and Malaysia, promoting the transformation and upgrading of 11 state-owned enterprises, 41 industry leading enterprises, 5 publicly listed companies and 25 Institutes in China, thus effectively promoting the rapid transfer of technology achievements in the field of water environment in China as well as the upgrading of the environmental protection industry.

Building a platform that provides ecological environmental protection services

Relying on the expert team and technical advantage of Nanjing University, the Institute is committed to chemical "three wastes" treatment, resource utilization and clean production. It aims to promote local economic and social development.

In 2020, the Institute continued to upgrade its R&D platform. Firstly, academician Quanxing ZHANG's workstation was established in Jiangsu NJU Huaxing Environ-Protection Co., which focuses on creating a circular development model of "plant-breeding-processing," and explores a new path for agricultural pollution reduction and efficiency improvement, which can be scaled-up and duplicated. Secondly, a joint training base for JITRI graduate students was built. To become a test bed for the reform of teaching for Masters students, a repository for R&D experts, and a driver for school-industry innovation, the Institute has completed a construction plan for the platform, established a working group for graduate student training, approved the enrollment criteria, and accepted the first cohort of 15 students for engineering practice.

By 2020, the Institute focused on providing regional and ecological environmental protection services, and successively reached an agreement with Yancheng Economic Development Zone and Xiangshui County Industrial Economic Zone to jointly build a platform and share the achievements. At the same time, the Institute established a station in the Yellow River Basin, and explored Shanxi, Qinghai, Ningxia and other regions to serve economic and ecological environment protection. The new contract amount of the Institute is nearly 300 million CNY annually, and the funds received exceeded 100 million CNY. In 2020, the Institute continued to carry out applied research and technological innovation, and the self-developed photocatalytic wet oxidation technology and equipment were selected into the Catalogue of Major Environmental Protection Technology and Equipment Encouraged by the State (2020 edition).

Building a new advanced energy materials & technology service center

JITRI Institute of Advanced Energy Materials Research has a top-notch research team, which includes 23 scholars with PhD degrees. They provide a series of technical services and support for the development of new energy materials, including new component design, trial production, and system integration for new energy materials. They can also develop customized products and a solid-state hydrogen storage system for fuel cell batteries, stator cores for amorphous motors, soft magnetic cores for transformers, and active carbon materials with high surface areas for high power super capacitors, etc.

In the past three years, the Institute obtained a qualification from the Jiangsu Science and Technology Service Platform for Advanced Energy Materials. It provided technical consulting services and materials evaluation services to companies. In order to provide efficient services to local enterprises, the platform organized a variety of activities to popularize the relevant materials and technologies. In 2020, the platform provided testing and analysis services for 20 companies, and cooperated with 6 universities on joint-supervision programs for graduate students. During the 1st JITRI Innovation competition in 2020, the joint-supervised student team from Nanjing University of Aeronautics and Astronautics won the championship.

Commercialization of two wheeled vehicle with solid hydrogen storage as hydrogen source

Hydrogen energy, as a clean, efficient, safe and sustainable new energy, is considered to be the clean energy with the most development potential. The key of hydrogen storage technology is to realize high density storage. Solid state hydrogen storage materials with low pressure, safety and high energy efficiency are one of the most promising hydrogen storage materials, and are regarded as an enabler of a hydrogen storage industry of the future.

The Advanced Energy Materials and Application Technology Research Institute has taken the lead in manufacturing a hydrogen fuel power generation system using solid hydrogen storage. It has the advantages of low pressure (<1MPa), convenient replacement of the hydrogen storage tank, high volume hydrogen storage density and simple, public hydrogenation and auxiliary facilities. It is suitable for hydrogen fuel cell bikes, motorcycles, forklifts, automobiles, and other applications. The hydrogen powered bicycle with solid hydrogen storage as its hydrogen source is an original product , with 55 grams of hydrogen and 80 kilometers of driving range.

The hydrogen fuel cell power generation system has been successfully applied to the hydrogen energy bicycle produced by Youon Technology Ltd. It has completed trial public cycling activities in Changzhou and Nantong. The bicycle's hydrogen can be exchanged in one minute, and the driving range is more than 70 km, which will not decline even during the winter. The production capacity of hydrogen fuel cell power generation systems is expected to reach 10,000 sets/year with revenues of 250 million CNY/year.

Promoting green development of the fine chemical industry–sodium chloride waste salt recycling

The treatment and disposal of industrial waste salt is a problem faced by the fine chemical industry. A large amount of organic wastewater with high concentration of salt cannot be treated by evaporation crystallization.

In the past two years, the Solid Waste Disposal and Resource Recycling Division of the JITRI Water Environmental Engineering Technology Institute (Yancheng) has made great efforts on a national project to demonstrate and industrialize sodium chloride waste salt treatment in the fine chemical industry. Dr. Lifang Chen led a team to develop integrated technology for waste salt refining and purification using resin adsorption and photocatalytic oxidation technology. The team worked on integrating the core technology with the

equipment design process, site selection, business negotiation, evaluation and project demonstration. The technology was used to treat sodium chloride waste salt of 2,4-D, dimethyltetrachloride, atrazine and other pesticides. The benchmark and pilot experiment results showed that the refined salt meets the requirements of TOC ≤ 50mg/kg and TN ≤ 10mg/kg. Three patents were filed and four invention patents have been licensed out.

Complete sets of equipment for emergency treatment of hospital wastewater in epidemic areas to effectively prevent and control health risks

Aiming at the prevention and control of virus risks from hospital wastewater in key epidemic areas, the JITRI Water Environment Engineering Technology Research Institute (Yixing) has developed technology and equipment for hospital wastewater disinfection and virus transmission control to protect public health. It aims to block virus transmission and to control the pandemic.

The first generation of mobile emergency equipment (water treatment capacity of 250 m3/day) and the second generation of mobile emergency equipment (water treatment capacity of 400 m3/day) were applied in Huanggang Maternal and Child Health Care Hospital and the People's Hospital in Xiaogan and Hanchuan, respectively, and were praised by both hospitals. The results showed that common pathogenic viruses were not detected in the treated effluent, and no associated waste gas and excess sludge were detected after treatment. The treated effluent reached the first-class emission standards. Compared with the conventional biochemical process, the sludge yield was reduced by more than 15%. Compared with the conventional UV disinfection process, the energy consumption was reduced by about 50%. The equipment has high efficiency and strong flexibility, thus, it has great market prospects.

MBR membrane treatment technology driving pesticide wastewater upgrading

At the end of 2019, Jiangsu Lason Chemical Environment Protection Co., Ltd. (Lason) and JITRI jointly established the JITRI- Lason Joint Innovation Center, which mainly carries out cooperative projects on the treatment of the "three wastes" (water, gas and residue) from the chemical industry. In response to the technical problems of chemical pesticide wastewater treatment suffered by enterprises, JITRI communicated with the technical team of Lason to gain a better understanding of their special technical requirements. Lason was accurately matched to the JITRI Institute of Membrane Science and Technology. In 2020, the Institute carried out a pilot study on a membrane bioreactor (MBR) for pesticide wastewater. It adopted its core product - MBR membrane with a pore diameter of 25nm. The result suggested that the MBR integrated activated carbon process is effective for the removal of chemical oxygen demand (COD), suspended solid (SS), and other indicators of pesticide wastewater. Subsequently, the Institute carried out a pilot test on this technology in the wastewater treatment project of Anhui Huaxing Chemical Industry Corporation operated by Lason, with a scale of 1.5 tons/hour. After more than 110 days of continuous operation, the membrane process achieved the expected outcome. Currently, the Institute has officially signed a development agreement with Lason.

Pesticide wastewater contains highly toxic and refractory substances. The MBR membrane integrated activated carbon process developed by the Institute can ensure that pesticide wastewater meets the standards for further treatment, effectively reducing the cost. The successful implementation of this project will contribute to the upgrading of wastewater treatment in the agricultural and chemical industries.

Simultaneous nitrogen and phosphorus removal without a carbon source to achieve effective carbon reduction

Eutrophication is considered to be one of the most serious global water quality problems. The "Water Pollution Prevention and Control Action Plan" proposes that the total nitrogen and phosphorus discharge in each river basin and region should be strictly controlled. To achieve low cost and high efficiency water treatment, the Institute of Water Environmental Technology (Yancheng) has developed technologies for simultaneous nitrogen and phosphorus removal to achieve efficient reduction of nitrogen and phosphorus pollution without using a carbon source, and provide technical support for the improvement of water environment quality in the regions.

Through selected microbes, the simultaneous nitrogen and phosphorus removal technology without a carbon source has greatly improved the drainage quality with a Sentrin-Specific Protease (SENP) filler. This filler overcomes the shortcomings of traditional materials, such as high specific gravity, small specific surface, long hydraulic retention time, and low removal efficiency, which enables the advantages of autotrophic denitrification without external carbon sources. Compared with the traditional denitrification technology, this technology shows low sludge output and low operating costs, which reduces the total operating cost by 50%. SENPs effectively reduce nitrogen and phosphorus pollution in the drainage; the phosphorus and nitrogen levels have reached class IV.

In 2020, the technology of SENPs were applied to a pilot industrial experiment for deep nitrogen and phosphorus removal in Nanjing Chengnan Wastewater Treatment Co., Ltd. The critical parameters of the process have been optimized by this pilot application. The first large-scale application demonstration was successfully carried out in the "Landscape Management Project" of Menggou and Yunlianggou in Huaibei Coal Chemical Base. This marks a solid step forward in the commercialization of SENPs.

淮北产业化项目

Certification platform to carry out special investigation on soil pollution of national key industry enterprises

After years of technical and testing experience, the testing center of JITRI Water Environmental Engineering Technology Research Institute (Yixing) has obtained a number of important certifications, such as metrology accreditation including metrology accreditation for food (CMA), quality and safety testing agency of agricultural, livestock and aquatic products (CATL) and environmental damage judicial expertise, including damage assessment. It has provided professional and high-level technical services such as testing and environmental damage identification and assessment, soil pollution control and remediation, and environmental protection consulting.

In 2020, the Institute provided contract services for more than 350 leading enterprises, such as China Construction Water Jiangyin Co., Ltd., and undertook the investigation, sampling, and analysis of soil pollution from national key industry enterprises. It developed a soil pollution investigation scheme and conducted sample collection from key enterprises in the Jiangyin region. Through sampling, testing, process quality control and data analysis, the work was carried out in accordance with the most stringent national soil testing standards. During the COVID-19 pandemic, the Institute completed on-site study, sampling and analysis of more than 1200 samples in 18 contaminated sites in the Jiangyin area.

Jiangsu Jiumo High-tech Corporation – The leader of preferentially permeable organic compounds membrane technology

Established in 2020, Jiangsu Jiumo High-Tech Corporation is the first domestic company with preferential organic membrane materials as its core products. It is the first specialized company incubated by the Institute of Integrated Membrane Science and Technology. The company has the largest production capacity in the world, which provides customized services and flexible production. It produces three types of preferential organic membrane materials in six series and eighteen specifications, such as VOC recovery membranes, wine membranes and solvent recovery membranes.

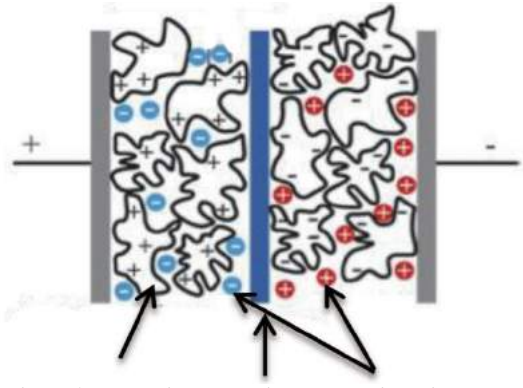
To better treat VOCs, it has developed the world's first flexible polymer anti-static diversion technology. The technology upgrades the explosion-proof level of a VOC recovery membrane module from "flameproof" to "intrinsically safe", which eliminates potential safety hazards. The recovery rate of organic solvent is above 95%, and the energy consumption is reduced by more than 25% compared with traditional technology. It has been applied in more than 60 enterprises such as Sinopec, with a cumulative emission reduction of more than 2.5 billion m3 of organic waste gas, and has recovered more than 150,000 tons of organic solvent and generated revenue of more than 1.85 billion CNY. In 2020, it won the first prize of technical invention of the China Petroleum and Chemical Industry Federation.

For wine purification, the company's original wine membrane technology was praised by industry experts, and was evaluated as "revolutionary" by Academician Baoguo Sun. The technology is the first ever to prepare and extract high-alcohol liquor by methods other than distillation. At present, it has been successfully applied to producing Maotai-flavor liquor, Luzhou-flavor liquor, and preparing alcohol-free wine and brandy. Large-scale demonstration projects have been established in well-known liquor enterprises such as Jiangsu King's Luck Liquor Corporation.

Changzhou Chuangming Supercapacitor Materials Science & Technology Ltd. (CZCD))
——Commercialization of supercapacitor electrode materials

CZCD, founded in Nov. 2020, was incubated by the JITRI Advanced Energy Material Research Institute. CZCD focuses on R&D, production, marketing, and technical services of supercapacitor electrode materials. The technical team has developed a series of products, such as MRP16, MRP18, MSP25, for different types of supercapacitors. The mass specific capacitance, internal resistance, service life, and leakage current at high temperatures of MRP18 has been recognized as advanced by international standards. The mass specific capacitance has reached 28 F/g. The reduction of capacitance is less than 15% after charge/discharge cycles at high temperature for 1600 hours. More importantly, MRP18 also works for 3.0 volt devices, greatly increasing the individual capacity of a device. MSP25 has high proportion of mesopores, where 30% of pores lies in the range of 2 – 5 nm. MSP25 was designed for the development of novel devices with high capacitance. The materials have been evaluated by well-known customers and experts. CZCD's demonstration product line has been running with a capacity of 80 tons per year. A new product line with a capacity of 300 tons per year is under ongoing construction and is expected to begin production in the fourth quarter of 2021. It is estimated that the revenue will exceed 75 million CNY/year.

Schematic diagram of super capacitor



Porous carbon and devices

Section 3

Information and Communication Technology

JITRI IC Application Technology Innovation Center builds a platform for the transfer and transformation of R&D achievements

Jiangsu Integrated Circuit Application Technology Innovation Center was officially established on August 5, 2020, with a total investment of 900 million CNY. It aims to build an independent integrated circuit (IC) innovation system and supply chain. The Center has explored a set of effective innovation mechanisms, produced a number of original landmark technologies, and incubated competitive local enterprises.

By the end of 2020, it had completed legal registration. The Phase I office space is 5,000 square meters, and the interior decoration has been completed. The investment in the first phase of the public technical service platform is around 15 million CNY. Equipment procurement will be completed before June 2021, and a laboratory with basic R&D capability for 30 technicians will be constructed for chip design and testing. The center has completed initial team building and has begun business operations. The innovation center consists of a general operations office, project department, technology and marketing department, analysis and testing department. 14 full-time employees and 3 senior experts have been hired through two rounds of recruitment. It has successfully completed a number of key consulting research projects, including “Integrated Circuit Industry Development Strategy of Jiangsu Province" and “Research on High-quality Development of Semiconductor Industry in Jiangsu Province”. Currently, the center is carrying out one research project, two key projects with JITRI's hybrid grant and investment model and two enterprise cooperation projects.

National "Xinhuo (Chip Fire)" Innovation Platform, a public service platform for integrated circuit design, gathers resources to promote industrial transformation and upgrading

Wuxi National "Xinhuo" Innovation Platform (Xinhuo Platform) is a newly established information technology service platform focusing on integrated circuits, which was established under the strategy of the National Integrated Circuit Industry Development Promotion Outline issued by the Ministry of Industry and Information Technology of China. Its main goal is to develop "chip-machine" applications, support domestic chip production, and form a "chip-software-machine-system-information" industry ecosystem. It aims to improve the regional core competitiveness of the IC industry and upgrade the supply chain.

Through comprehensive research on the current status and future trends of the IC industry, JITRI's Intelligent Integrated Circuit Design Technology Institute has gained a deep understanding of the IC industry in Jiangsu Province and across China. Experts from the Chinese Academy of Sciences, Tsinghua University, Peking University and Shanghai Jiaotong University have developed an Operations Plan for the "Xinhuo" platform, which focuses on addressing core issues related to the development of China's IC industry. In July 2020, the Institute successfully won the bidding of the "Xinhuo"

innovation base project conducted by the Ministry of Industry and Information Technology.

The Xinhuo Platform will provide technical support for companies in the IC industry (through public Electronic Design Automation, Multi Project Wafer taping, key technology research, IP reuse, equipment sharing, and rapid packaging and testing) and a value-added service system (chip-machine linkage testing, professional personnel training, technical exchanges and capacity building, innovation entrepreneurship competition, incubation, and industry investment funds). It aims to reduce R&D expenses and lower the start-up threshold for IC companies, gather technology, talent and capital, and promote the transformation and upgrading of the IC industry as a whole.

Successful upgrade of the "National Innovation Center of Manufacturing on Specific Process and Packaging & Testing of Integrated Circuit"

In April 2020, the National Center for Advanced Packaging (NCAP China) was approved by the Ministry of Industry and Information Technology to set up the "National Innovation Center of Manufacturing on Specific Process and Packaging & Testing of Integrated Circuit", which is the first national-level manufacturing innovation center in Wuxi and the first national innovation center in Jiangsu Province in the new generation of information technology industry.

In 2020, the major national special projects undertaken by the center successfully received formal acceptance from the “02 special project office”. The independently developed technology jointly developed with Huazhong University of Science and Technology won the first prize of the 2020 National Science and Technology Progress Award. It was successfully approved as the national Post-Doctoral Research Station, and the invention patent named "TSV exposure process" won the China Patent Silver Award. The center has mastered key technologies of manufacturing and packaging large-size FCBGA organic substrates, and established a research platform for verifying related new materials and new schemes. It aims to promote the important strategic deployment of China's semiconductor packaging and testing industry and value chain. The center signed a contract with Wuxi National High-tech Zone Management Committee to jointly build an advanced packaging materials verification laboratory, which will provide technical support to companies producing IC packaging materials.

In the future, the innovation center will cope with the challenges of the competitive environment of the information security industry, provide new momentum for the development of the electronic information industry, integrate industrial innovation resources, connect technological innovation with the industry, adapt to industrial needs, and deepen innovation cooperation.

To build a collaborative innovation center of third-generation semiconductors and a national innovation center

Institute of Third-Generation Semiconductor Technology Research has been actively taking the initiative on building the National Innovation Center for Advanced Semiconductor Technology. Following the guidance of the national strategy, the Institute will take advantage of the solid industrial foundation and scientific research capacity in Jiangsu Province. The Innovation Center was established to leverage various innovation platforms and form a cross-regional collaborative mechanism.

Preparations have been made, with strong support from the Science and Technology Department of Jiangsu Province, the Suzhou Municipal Government and Suzhou Industrial Park Government. In April 2020, a meeting was organized by the Ministry of Science and Technology to review the construction plan of the National Innovation Center for Advanced Semiconductor Technology. The Institute will soon be approved to lead the establishment of the Innovation Center.

The institute is committed to building an open and shared technology center, actively carrying out projects with other organizations and providing technical services for enterprises, universities and projects. Centered on key generic technologies in the advanced semiconductor industry, the Institute will carry out extensive cooperation and joint research projects in order to address key

technology bottlenecks in the field of advanced semiconductors and build a bridge between basic research and applications. In the future, the Institute will be able to undertake and lead major national scientific and technological projects.

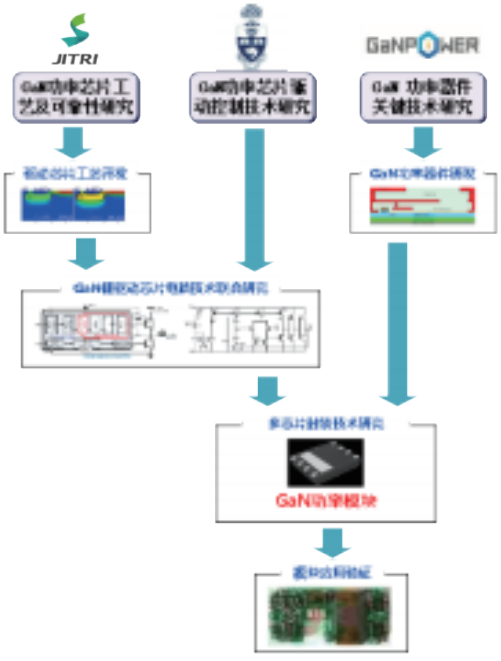
Through the National Innovation Center for Advanced Semiconductor Technology, the Institute will focus on major national strategic needs, target the development and application of leading technologies and key technologies in the industry and establish a system for technological innovation where enterprises play a leading role, the market is the guiding force, and enterprises, universities, research institutes and applications are deeply integrated. The institute aims to build a first-class collaborative innovation center for advanced semiconductors to enhance the capability of independent innovation in the field of China's advanced semiconductors and support the development of clusters of advanced semiconductor industry in China.

The Institute of Application Specific Integrated Circuits and the University of Toronto launched an international cooperative R&D project

The "Joint Research on Key Technologies of GaN Power Modules for High-Density Power System Applications" is a JITRI international cooperation project jointly implemented by the Institute of Application Specific Integrated Circuits, the University of Toronto in Canada, and Suzhou GaN Power Semiconductor Co., Ltd.

This project focuses on the R&D of GaN power device control technology, reliability improvement techniques, high and low voltage isolation techniques, low thermal resistance packaging technology, etc., which aims to improve the design and development of GaN power modules and high-density power supplies.

The key technologies in this project are world-class, and intellectual property will be generated. The project will help enhance the competitiveness of domestic GaN-based IC and reduce its manufacturing cost.



Institute of Intelligent Integrated Circuits Design and School of Microelectronics, University of Macau, to develop "RF analog-to-digital converter for base station communication"

RF direct-sampling analog-to-digital converters (ADCs) are widely used in 5G mobile communication systems. JITRI Intelligent Integrated Circuit Design Technology Research Institute and School of Microelectronics, University of Macau, have confirmed their intent to cooperate on the project "RF analog-to-digital converter applied to base station communication". The project leaders are Director Xiaohua FAN and Professor Minglei ZHANG from University of Macau. This project relies on the Institute's platform and the advanced technology of the State Key Laboratory of Analog and Hybrid Integrated Circuits of the University of Macau, and aims to develop high-speed and high-precision ADC applications. It developed ADC samples with 12 bit accuracy and a sampling rate of 1GHz. At present, both sides have carried out in-depth exchanges on the scope of work, and completed a preliminary market analysis and research. Both parties believe that the project can solve technical problems and has broad market prospects. The two sides communicated with each other on the specific scope of work and developed an implementation plan.

Driverless Epidemic Prevention Vehicle Goes on Duty

Through nearly a year of hard work, the Institute of High Throughput Computing has completed the R&D of the "Grus" multi-functional driverless vehicle. Key functions of the vehicle include epidemic prevention, security patrol, cargo transportation, cleaning and sanitation, and sightseeing.

In 2020, the Institute completed the construction of the production line and produced 50 driverless vehicles. The vehicles have already been used in Daqing Oilfield, Beijing Metro, and other places. During the pandemic, driverless vehicles played a key role in large-scale disinfection of public areas in the Yancheng High-tech Zone. In 2020, unmanned epidemic prevention and disinfection was in high demand. The Institute took full advantage of its scientific research and innovation capacity to support epidemic prevention and public safety. The Institute aims to build an influential domestic R&D and industrial center for vehicles connected with intelligent networks.

The JITRI-BMF Institute and Beijing University of Posts and Telecommunications have jointly developed a practical brain-computer interface system for assisted communication of paralyzed patients

In order to reduce the nursing burden of patients with severe paralysis, lower their nursing costs, and enhance paralyzed patients' communication ability, the JITRI Brain-Machine Fusion Institute (JITRI-BFM) and the EMC&EMB labs of the Beijing University of Posts and Telecommunications jointly developed a practical brain-computer interface system for patients with severe paralysis. It helps patients who have lost the ability to move their hands to enter text using a virtual keyboard, and to send alarms when nursing help is needed.

The research team of EMC&EMB Laboratory of Beijing University of Posts and telecommunications has many years of experience in biomedical engineering research and system development, and is responsible for the development of a Chinese asynchronous input system of steady-state visual evoked potential for amyotrophic lateral sclerosis (ALS) patients. Yijun WANG, the chief engineer of the JITRI-BMF Institute, proposed the TRCA brain-computer interface recognition algorithm, which completed the decoding of EEG signals with high speed and accuracy. He designed a complete emergency alarm scheme for patients, which effectively enables automatic calls for paralyzed patients without care. Through the joint research project, the design and development of the platform framework based on the multi-model real-time brain-computer interface system were completed. Two prototypes were successfully developed, including a SSVEP brain-computer interface text input system for paralyzed patients and an alarm and call system for paralyzed patients. This product will serve patients with severe paralysis and has a broad market potential.

Taclink has signed a $1.02 million R&D contract with the Institute of Deep Perception Technology (IDPT) for optical communication transmission systems

Wuxi Taclink Optoelectronics Technology Co., Ltd. (Taclink) has undertaken a series of optical communication transmission projects for the Xinjiang Power Grid UHV as well as other large power grid projects. Since nonlinear phenomena occur in ultra-long single-span optical communication transmission systems, it is important to study them comprehensively and master the principles and analysis methods. Potential research areas include comprehensive management and optimization of nonlinearity and dispersion, prolonging the single-span transmission distance, extending the service life of the optical communication transmission system, and reducing the costs of operation and maintenance.

The Institute is a leader in the optical communication transmission field, collaborates with the Nanjing University of Science and Technology, and has developed a pool of graduate students in the field. The two parties reached a cooperation agreement and signed a 1.02 million CNY R&D contract.

The collaboration between Taclink and the Institute will resolve technical problems encountered by Taclink. It aims to extend the single-span transmission distance to 200-400 km, extend the service life of the optical communication transmission system, and meet customized needs. It will also consolidate Taclink's leading position in the optical communication transmission industry, and further expand its technology and market advantages compared with foreign competitors.

The first national law enforcement scheme for traffic speed measurement in line with the new national standard by the Institute of Deep Perception Technology and Kedacom.

AI ultra low light level vehicle bayonet

AI ultra low light level electronic police

AI ultra low light level personnel bayonet

GB/T 21255-2019) was officially implemented on July 1st, 2020. The new national standard adds multi-target tachograph, and increases the demand for tachograph units and image acquisition units. Kedacom AI ultra-low light level (UIII) technology innovatively adopts a self-developed deep learning image enhancement algorithm, which can fully restore all kinds of details such as the color of the target under low illumination. It can also satisfy the demands of all-weather, high-fidelity image collection. The Institute's Huihai-1 multi-lane speed radar adopts the 24 GHZ band frequency-modulated continuous wave (FMCW) technology, which can cover 32 targets in 1-4 lanes, the capture efficiency is higher than 99%, and the velocity measurement accuracy is better than 2 km/h, with Intelligent Lane division, automatic calibration, retrograde detection and other functions. Kedacom and the Institute have taken advantage of their technical expertise in video and radar sensing through the Joint Enterprise Innovation Center, and jointly launched the new national standard under the Chinese first traffic speed enforcement program. The scheme aims at optimizing the design of two kinds of scenarios: traffic checkpoints and electronic policing, with strong performance indicators and extended functions. It effectively prevents illegal drivers from evading speed detection monitoring, and strengthens the supervision of key vehicles, so that the traffic speed detection can be truly legal and evidence-based.

High-quality external network of Industrial Internet promotes transformation and upgrading of intelligent manufacturing

The existing Internet framework has shown disadvantages when requirements demand reliability of timeliness and security in industrial settings. There are technical gaps in heterogeneous networking, protocol interoperability, real-time big data interaction, and automatic remote control in complex environments. As a result, manufacturing enterprises with strengths in IT have difficulties in transforming and upgrading into real intelligent manufacturing enterprises.

To target these difficulties, the Institute of Future Networks has made significant progress towards product development and demonstrated applications. Their high-quality network, based on SDN technology, is used in 27 provincial capitals and municipalities, they provide network support services for 13 cities in the Guangdong-Hong Kong-Macao Greater Bay Area, the Yangtze Delta integrated regional network, and 29 POP nodes all over the country.

Combined with technological solutions such as TSN-based industrial deterministic intranet and 5G-based edge computing, the Institute has provided pilot support for ZTE's Nanjing factory for 5G products, XCMG group, and other leading companies. The Institute has also implemented a "new infrastructure - Industrial Internet demonstration construction" project in Jiangning District, which has entered the implementation stage.

The Institute has established strategic partnerships with 144 enterprises in the industrial chain, four national cross-industry and cross-domain industrial Internet platforms, five provincial key platforms, and six major national science and technology infrastructures. The Institute is gradually building and improving the industrial Internet ecosystem, and boosting the transformation and upgrading of manufacturing enterprises towards intelligent manufacturing.

Relying on independent and controllable core technology, focusing on the R&D and manufacturing of 3rd-generation semiconductor equipment.

At present, the overall gap between China's third-generation semiconductor technology and the international leading level is not as large as that of traditional silicon semiconductors. An experienced JITRI project team led by Dr. Jianxin SHI has successfully established a leading semiconductor equipment company. With support from JITRI, it took a little over 7 months to land the project in Suzhou Industrial Park in September 2020. At present, the prototype design and the review of the second R&D milestone have been completed. The third phase of R&D and substantive business operations has started. In

2021, the prototype verification of third-generation silicon carbide epitaxial mass production equipment will be completed. It aims to seize the domestic market and provide various types of high quality equipment for the rapid development of the 3rd-generation semiconductor industry.

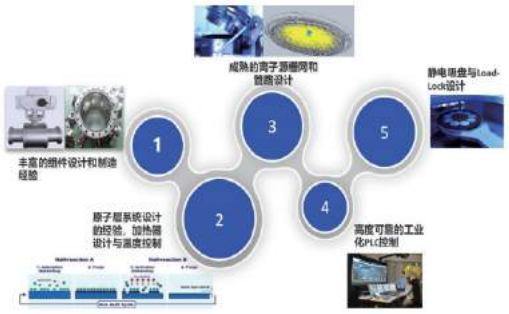
Top 3 in the world – RDMA/IP technology enables high-performance network and distributed systems.

Tolerant RDMA chips and NIC technology are vital for high-speed network information transmission They are also the core technology of future high-performance networks and distributed systems. Meanwhile, NIC is the firewall of network safety, it is therefore important to develop high-end NIC chips.

Based on this demand, JITRI engaged with a Canada-based team that has mastered tolerant RDMA chip and NIC technologies. The team's invention won the Industrial Distinguished Leader Award from APSIPA; it combined optical switching architecture and RDMA, and realized high reliability, low latency and scalability for broadcast network technology. This project settled in Suzhou Industrial Park in 2020 with support from JITRI, and became one of the first key projects following JITRI's hybrid grant and investment model. At present, the project has passed its second landmark evaluation, entering Phase 3 R&D and business operations. In 2021, it has been awarded a 25.5 million CNY framework purchase order from core customers. In 2022, sales revenue estimates should reach up to 50 million CNY. This project will promote the deployment of IP/RDMA, which has far-reaching strategic significance and marketing value, and may foster new business and technical models.

Focusing on key components of high-end semiconductor equipment and supporting domestic production.

Professor Hongguo ZHANG, who is in charge of the "Semiconductor Equipment Technology" project, was appointed as a JITRI project manager in 2018. The team made an in-depth investigation of the key components of semiconductor equipment in China, especially in Jiangsu Province, and submitted an industrial planning report and a business plan. The project team modified and improved the content of the project and focused it on key components of semiconductor equipment. By the end of 2020, the project founded a company in Nantong Central Innovation District to carry out R&D and commercialization. The company's main products



include ion sources, lithographic light sources, and atomic layer deposition/etching (ALD/ALE) systems and components. It strives to become a champion enterprise of China's semiconductor components industry within five years.

Expanding the brain-machine toy market through win-win cooperation

Hangzhou Entertech Co., Ltd. is a high-tech enterprise mainly engaged in the development of non-implantable EEG acquisition equipment. In recent years, the company began to independently develop all kinds of toys with EEG signal modules. However, the company faced many R&D challenges, such as developing core components of an EEG system on a chip (SoC).

In 2020, the company formed a partnership with the Institute of Brain-Computer Fusion Intelligent Technology. Leveraging its experience in the design and development of EEG chips, the Institute proposed chips that will greatly enhance the company's product competitiveness in the market of neuro-toys. The two parties decided to jointly establish a company in Suzhou to develop brain electrical signal modules for neuro-toys, enabled by the EEG SoC chips developed by the Institute. The marketing team has conducted in-depth communication with mainstream domestic toy manufacturers, toy IP parties, OEM and ODM manufacturers, and has reached a preliminary cooperation agreement. At the same time, the company has participated in a product design of a toy. According to different toy product forms, the company has designed a series of modular products, which incorporate attention collection algorithms, emotion recognition algorithms, healthy sleep algorithm, etc.

The cooperation can further promote the industrialization of brain-machine fusion, integrate brain-machine interface technology with the toy consumer market, extend the value chain, and benefit the domestic neuro-toy industry.

Section 4

Equipment and Manufacturing

The testing center of the JITRI Institute of New Energy Vehicle Technology strives to build the most comprehensive and professional evaluation institution in the field of new energy vehicles in China.

JITRI New Energy Vehicle Technology Research Institute (and its corporate entity, Jiangsu Alternative Energy Vehicle Research Institute Co., Ltd.) is mainly engaged in the design and development of hybrid, pure electric, extended range, electric drive systems and parts, as well as the research of automotive electronic intelligent systems, new fuel, new technology, new materials and other technologies. It has built 8000 square meters of R&D office space and 12,000 m2 of testing and research facilities.

Among them, the testing center was established in March 2019. The test site is planned to be 12,000 m2, and the total investment in equipment is estimated to be about 200 million CNY. Specializing in three main electrical components of new energy vehicle, battery, electric drive, and electronic control, EMC testing services can provide customers with one-stop testing solutions. At present, the center has more than 20 professional test engineers and technicians. Most of the engineers are from vehicle factories or parts factories, which can quickly respond to the needs of customers. At the same time, it can also provide diversified services such as technical consultation and R & D improvement related to automobiles. The center is equipped with more than 80 sets of testing equipment, the core equipment is from well-known international equipment suppliers, such as chroma, Arbin, AVL, ZF, reilhofer, BF, head, etc. Since the trial operation of the center in the second half of 2020, the service revenue has reached nearly one million CNY, and the center has successively provided services for Dongfeng Yueda Kia, Chinese express and other enterprises.

Institute of Precision and Microfabrication Technology focuses on advanced processing and manufacturing to help advance aerospace technology.

Leveraging the Jiangsu Province Key Laboratory of Precision and Micro-manufacturing Technology and relevant departments of the Nanjing University of Aeronautics and Astronautics, the Institute of Precision and Microfabrication Technology (and its corporate entity Nanjing Puhang Machinery Technology Development Co. Ltd.) carries out technology incubation and industrialization. Its scope covers aerospace manufacturing and equipment, shipbuilding and marine engineering manufacturing and equipment, rail transit manufacturing and equipment, and intelligent manufacturing and equipment industries. It provides technical support for the sustainable development of high-end manufacturing and equipment industries in Jiangsu Province and the country.

In 2020, the institute earned more than 33 million CNY of revenue from contract research. It participated in national major projects and achieved a number of landmark research results, including key breakthroughs in the performance of laser chips and photoelectric modules that were selected as a top ten innovative achievement in Nanjing. These advances have been applied to robot precision compensation and the high-speed control of the first domestic aircraft assembly drilling and milling equipment, playing a key supporting role in the development and batch production of key components of national aero-engine equipment.

Major breakthrough in advanced passenger vehicle hybrid technology system and detection platform

With the need for energy saving and emissions reduction, the demand for electric and hybrid fuel vehicles has increased, and the hybrid scheme has become the top priority of the future layout of major vehicle plants. JITRI Alternative Energy Vehicle Research Institute (and its corporate entity, Jiangsu Alternative Energy Vehicle Research Institute Co., Ltd.) has invested more than 20 million CNY in R&D, and has completed the development of the P1-3 hybrid system of hybrid and plug-in hybrid models in the field of passenger vehicles, and has realized fuel saving improvements of more than 30%, with power performance increased by more than 10% compared with traditional fuel vehicles. The

original product is also low cost. The Institute has carried out the future mass production supporting layout with a large-scale domestic host plant. It is estimated that annual sales of the P1-3 hybrid system will exceed 300 million CNY after mass production.

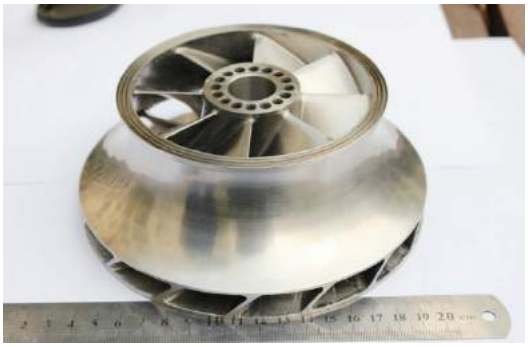
Intelligent scanning system of ultrasonic battery

As the most successful energy storage devices, lithium-ion batteries (LIBs) have been widely used in mobile electronics, electric vehicles, and large-scale energy storage stations. However, because of their sealed configuration, it is very difficult to see the real-time internal state of LIBs, which has become an obstacle hindering their large-scale development and application. The Ultrasonic Battery Scanning System developed by JITRI Digital Manufacturing Equipment and Technology Institute, is equipment to realize in-situ non-destructive testing of the electrolyte infiltration status and trace gas production in soft-pack batteries and prismatic batteries. It can quickly and sensitively detect electrolyte wettability, evaluate electrolyte stability, and detect solid

electrolyte interphase growth, to evaluate the health of the battery. The equipment can also be used to study aged cells and find evidence for electrolyte dry-out or ‘‘unwetting’’ without disassembling the cell. Exploring the battery failure mechanism and optimizing the battery assembly process will help realize the safety warning and early troubleshooting of lithium-ion batteries. The equipment has the advantages of low cost and convenient operation, and it provides an innovative technical method in the field of battery failure analysis.

Affordable manufacturing technology of aerospace closed integral components

In order to solve the machining problem of closed integral components, the Institute of Precision and Micro Manufacturing Technology proposed a new integrated manufacturing process which combines metal additive technology with high efficiency electrochemical machining, precision EDM, and abrasive flow finishing. The research institute has conducted long-term systematic and in-depth research into precision EDM technology for closed integral components. It has invested a total of more than nine million CNY in CNC precision EDM machine tools, conducted a large number of process tests, and achieved a series of research results. It has solved the problem of precision manufacturing of various types of closed integral components, and some products have reached high precision and high stability volume production. In order to further reduce the cost, improve the processing efficiency and ensure that the production process is completely autonomous and controllable, the Research Institute will invest in a series of supporting equipment such as metal fuse additive, dual robot cooperative additive impact strengthening, electrochemical machining, five axis CNC milling, abrasive flow finishing and precision detection equipment, as well as relevant R&D personnel and funds, of which the total value of supporting equipment is more than 26 million CNY. The research institute continues to promote the research and development of dual robot collaborative fabrication, precision electrochemical machining, abrasive flow finishing, etc. In terms of robot collaborative fabrication technology, it has carried out a large number of theoretical research and basic experiments on robot positioning compensation and task planning, breaking through the technical disadvantages of closed integral component blank precision casting and precision forging to realize the independent controllability of blank manufacturing. We have won 2 national science and technology awards, applied for 29 invention patents, and undertaken more than 20 national major scientific research projects.



Intelligent suspension system based on magnetorheological fluid

The performance of a suspension system directly affects the ride comfort, handling stability, driving safety and other important characteristics of vehicles. An intelligent suspension system based on magnetorheology has the advantages of fast response speed, simple mechanical structure, and wide range of adjustable damping, which can guarantee the stability of vehicles under extreme turbulence. The potential market size is about 15 billion CNY. High magnetorheological effect, low zero field viscosity, low sedimentation, high redispersion magnetorheological fluid configuration technology, high magnetic field utilization rate shock absorber spool structure design technology, etc. are key problems.

Yintao WEI, a professor Tsinghua University, set up a team of more than 20 researchers, covering materials, machinery, automobile and other fields. Based on the national support funds, they have initially completed the development of a magnetorheological fluid with low settlement and high reliability in Tsinghua University, the development of an intelligent safety control method of suspension, and the control of stiffness, damping and height.

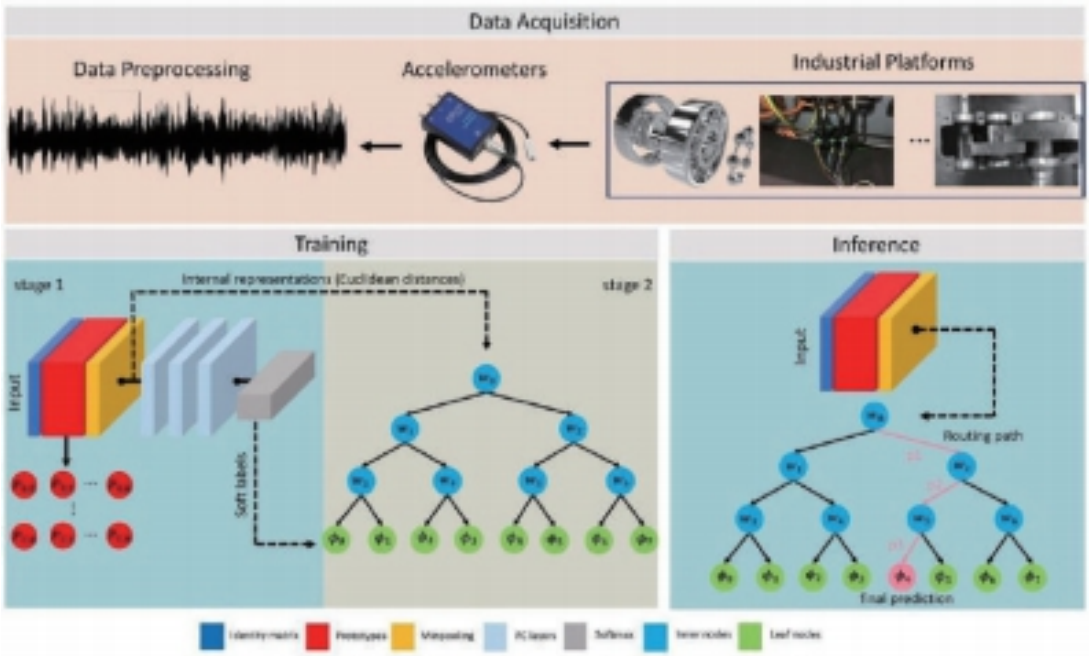
JITRI Advanced Vehicle Technology Institute has set up an R&D Center for this product. They have completed the development and industrial

transformation of magnetorheological fluid and intelligent suspension in just over one year. The formulation optimization of MR fluid was completed, which further improved the high & low temperature performance and redispersion performance of MR fluid, and solved the problems of mechanical structure optimization design, electronic control and vehicle matching.

At present, after 14 million tests, the performance of magnetorheological material is only reduced by less than 15%, and the consistency of small batch production is more than 95%. After 10 million fatigue tests, the performance of this shock absorber has almost no attenuation, and the system response time is less than 15ms, the price of this system is only 70% of similar products.

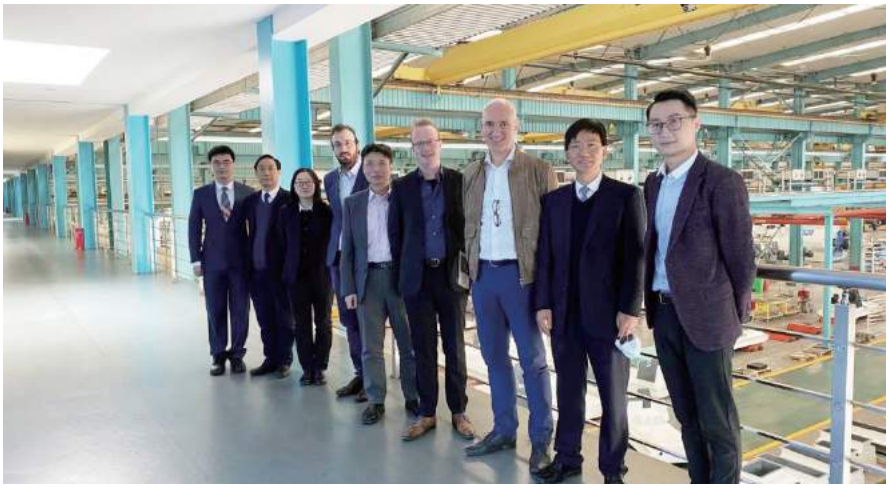
The cost of these technical achievements is 10.27 million CNY. Together with MiRide s.r.l., an industrial company is established to promote the commercial application and market promotion of MR intelligent suspension. Small batch supply was started in June 2020, and nearly 2000 sets have been exported.

Construction and application of an industrial artificial intelligence algorithm platform



The Institute of Digital Manufacturing Equipment and Technology has developed a towed machine learning platform for problems such as multi-source heterogeneous industrial big data, fuzzy production and processing mechanisms, and difficulty in performance detection of complex processes. The platform includes data cleaning, feature selection, training, prediction, and effect evaluation components, providing end-to-end platform services, providing enterprises with customized big data solutions, and solving common problems in large industries. At present, application verification has been completed in the fields of tool wear detection, prediction of tool wear status, high-precision bearing CNC machine tool equipment monitoring and health assessment, and full life cycle status monitoring of aero engine impeller blade processing production lines. In the field of life and health, the big data team analyzed and mined data from blood samples of 485 patients with Covid-19 in Wuhan, China, and established a diagnostic model to predict patient mortality. Based on the patient's blood samples, the model can predict the individual's death rate ten days in advance, with an accuracy rate of over 90%. In May 2020, "Nature Machine Intelligence" published the team's paper "An interpretable mortality prediction model for COVID-19 patients" online.

Technology empowers feed processing machinery and enhances company´s core competitiveness



Feed processing machinery, as a central pillar of the feed industry, is of great significance to large-scale farming, and has the potential to speed up the upgrading of the agricultural industry, drive the economy in rural areas, and increase the income of farmers.

Famsun Ltd. is a leader in agricultural and farming machinery in China. With its strong innovation ability, Famsun develops its global R&D centers. It is committed to being an integrated solution provider for the entire industry chain from field to table and to lead the development of the feed industry. In 2019, Famsun and JITRI jointly built the JITRI-Famsun Innovation Center which is the first joint innovation center built with a company in the agriculture and farming sector. Famsun commissioned the JITRI-Sioux Joint Innovation Center to develop an online Particle Detection System with a contract value of more than 1 million CNY. The Particle Detection System uses dynamic imaging technology to analyze the particle size distribution of crushed materials in real time.

When the PDS system detects large size particles in a pipeline, it will send a warning message to the central control server. After integrating the PDS within the milling machine system, the milling system can achieve real-time particle size (0.4mm-6mm) monitoring. Furthermore, we could adjust the grinding system to control the particle size distribution, which improves the particle size uniformity and hammer mill performance. It is expected that the annual sales revenue will increase by 50 million CNY, which will greatly enhance the competitiveness of the company.

Filling gaps in the domestic market, developing the industrial chain of core laser components

Digital Galvanometer is a core component of laser equipment, which is widely used in the fields of digital laser medical and digital high precision laser processing. According to statistics, the market size of high-end laser galvanometer was from 3 billion CNY to 5 billion CNY in 2019, which means the value of related laser equipment will exceed hundreds of billions. The lack of high-end galvanometer technology and products severely restricts the development of related intelligent manufacturing industries.

Sino-Galvo (Jiangsu) Technology Co., LTD (Sino-Galvo), a Chinese leading enterprise in the R&D and manufacturing of galvanometers has technology demands for digital motors and drivers (the core components of a digital galvanometer), which it could not resolve. In September 2020, JITRI and Sino-Galvo established the JITRI- JHC Joint Innovation Center. JITRI facilitated Sino-Galvo and JITRI-Sioux joint innovation center to sign a collaborative agreement worth 8 million CNY. Sioux was entrusted to develop a digital motor and driver for a digital galvanometer. This cooperation will integrate the development of supporting industries, facilitate the potential value of the industrial chain and promote the advanced development of the Chinese laser and related industries.

Promote the substitution of imported cutting tools by domestic options. Serve local industries.

The tool industry in Xixiashu Town, Changzhou City, started in the 1960s. After several decades of development, the town has gradually developed into a nationally famous "Chinese Tool Town". In the town, there are more than 1,000 tool-related enterprises, more than 150 high-quality material suppliers, both domestic and overseas, and more than 2,000 pieces of advanced imported equipment. The equipment investment exceeds 5 billion CNY. Focusing on the urgent upgrading need of the tool industry in Xixiashu Town, under the support of Changzhou City and the District Science and Technology Bureau, JITRI and a local leading tool company, Changzhou Haili Tools Co., Ltd., has jointly established the JITRI-Haili Tools Joint Innovation Center. The purpose is to promote in-depth cooperation between Haili Tools, Xixiashu Town, and Professor Ming CHEN, who is a leading expert in cutting tools from Shanghai Jiaotong University, to develop cutting tool design, tool manufacture & preparation, and tool application technology with high reliability, and to build quality and reliability evaluation indicators and standards thereby providing effective support for the design, manufacturing and application of high-end cutting tools.

In 2020, with the support of JITRI, the Joint Innovation Center has served more than ten local cutting tool companies throughout the year, improved the tool quality and extended service life for the key companies, and saved costs for downstream cutting tool application companies. Meanwhile, it serves the national precision processing industry, and has carried out in-depth cooperation with aerospace high-end equipment manufacturing enterprises such as the Shanghai Academy of Spaceflight Technology and Commercial Aircraft Corporation of China, Ltd. In the consumer electronics industry, it has reached a technical cooperation with Chengdu Jabil Technology, one of the three largest electronic contract manufacturing service providers in the world. In the future, under the guidance of the Yangtze Delta integration development strategy, the Joint Innovation Center will focus on integration and high quality. It will provide not only high-quality cutting tool products, but also high-level cutting tool design, production, processing, application technology and experience to support the national cutting tool industry.

Helping enterprises to improve their bearing production processes and collaborate to tackle common industry problems

Self-lubricating plain bearings have a simple structure, high load carrying capacity, small coefficient of friction, impact resistance, corrosion resistance, a wide range of operating temperature, and long life. They are, therefore, widely used in the fields of construction machinery, truck, aerospace, rail transportation, water facilities, military machinery, and so on. Research on self-lubricating plain bearings in China started late and basic research is weak. Comparing product quality and performance with similar foreign products reveals that there is great difference.

CCTY Bearing Company was established in 1996, it produces various types of special precision bearings, including a spherical plain bearing, maintenance-free bearing, precision angle contact bearing, forklift mast roller, rod end, and tie rod, which are all in a world-leading position. CCTY Bearing Company and JITRI co-established "JITRI-CCTY Joint Innovation Center". With the promotion of JITRI, CCTY Bearing Company and the Yangtze Delta Institute of Advanced Materials have reached long-term technical research and development cooperation. This cooperation is mainly aimed at solving various problems encountered by CCTY Bearing Company, including technology of the three-layer composite material (SPCC steel backing + bronze layer + PTFE layer), bushing forming simulation, research on self-lubricating bushing life calculation, research on bearing life calculation, and breaking technology bottlenecks in the industry.

High-speed railway induction normalizing welding machine

China's high-speed rail has become a business card of China. By the end of 2020, China's total length of high-speed rail has exceeded 38,000 km, accounting for more than two-thirds of the world's total. The main characteristics of China's high-speed rail include safety and smoothness, and a key technology is the welding and heat treatment of high-speed rail. Rail welding is a jewel in the crown of iron working areas. Induction welding is generally used, but rail has an irregular cross section, with a thick top, thin waist and rail foot. A special frequency induction heating process is required to guarantee a uniform temperature cross section, and thereby satisfy the requirements of high-speed rail welding quality. Most of the rail welding equipment in use is imported. Prices and technology have long been monopolized by Western manufacturers such as Ukraine and Switzerland.

Dr Yunxing HU's team from Peking University has developed and produced normalization equipment for many years. Through the development process from bench type to integrated type, from manual type to automatic type, from fixed type to mobile type, it has filled many domestic and even international gaps. Products have been used in most Railway Bureau welding bases, including the first Beijing Zhangjiakou intelligent high-speed railway which can realize 350 km of automatic driving. The team has applied for a number of intellectual property rights, and won the Grand Prize Railway Science and Technology Award of the China Railway Society, the First Prize of Science and Technology Progress of Beijing Railway Bureau, and the Grand Prize of Peking University Innovation Design Competition. In order to improve the efficiency, save labor cost and improve the quality of welding joints, the team currently focuses on research in induction welding and normalizing machine technology, which can complete the two processes of welding and normalizing in the same equipment, with one clamping and one process.

With the support of JITRI's project manager system and hybrid grant and investment, policy, a project operation company called Huanaco Innovation (Suzhou) Advanced Manufacturing Co., Ltd. settled in Suzhou High Tech Zone in December 2020, and is committed to developing rail welding and heat treatment processes and equipment with independent intellectual property rights in China. The team has rich experience in the development of high-speed rail equipment, has established close cooperation with Peking University, Tsinghua University, Academy of Railway Sciences and other relevant organizations, and is confident to develop automatic high-speed rail equipment such as high-speed rail induction welding and normalizing machinery to support the construction of an intelligent high-speed rail base in Suzhou. It hopes to become a leading enterprise in high-speed rail equipment manufacturing. With the further reform of China's railways, non-core businesses will be opened to social enterprises in the future, so the team will have the opportunity to undertake rail welding and heat treatment and other businesses, and relevant equipment and services can also be used in the subway, urban railway, and other markets. Therefore, it will have broad market prospects and great strategic significance.

Section 5

Biomedicine

The world´s leading genetic testing platform

This platform is jointly built by Baijiahui Precision Medicine, Xuzhuang Software Park and JITRI. It is a complete precision medicine solution platform dedicated to creating accurate, comprehensive, fast and accessible diagnoses of the major challenges to human health. By integrating a variety of leading molecular detection platforms and bioinformatics analysis capabilities, the platform can provide medical institutions with a decision-making basis for precision medicine in various treatment fields such as tumors, central nervous system, infection, pharmacogenomics, and autoimmune diseases. The testing platform has obtained a number of international and domestic genetic testing qualification certifications, has reached world-class quality, and is in a leading position in the international testing industry. The platform has established cooperation with many domestic universities and hospitals, and at the same time has developed strategic cooperation with internationally renowned companies such as Nanopore and Roche, and has achieved a series of results. The Asian breast cancer recurrence risk prediction product, developed in cooperation with Anzhi Biomedical, will be launched in 2020 and already won the 2020 "Top 20 Tumor Diagnosis and Treatment Innovative Technology Annual Award". This product is currently the only polygene that can guide postoperative exemption of local radiotherapy. In addition, the platform has also been recognized by the capital market. In 2020, the platform will receive about 350 million CNY in financing for the whole year.

The GMP pilot batch facility

A GMP pilot batch facility covering 11,000m2 is being built by Institute of Advanced Drug Delivery Technology, which is important for self-developed products and external CDMO business. Based on the current GMP standards, we have introduced WHO, EU, FDA, ICH, ISPE and other standards in order to undertake CMO/CDMO business. The facility provides small test, pilot test, and batch production services for transdermal, topical, solid control release (chemotherapy), solid dosage (traditional Chinese medicine), suspension, soft capsule, complex injection, comprehensive blowing and sealing, and biological drug delivery. The GMP pilot batch facility has state of the art equipment, with total value of

about 100 million CNY. It will meet the demand of advanced drug delivery production and research in the coming decades, and will enable the structural transformation and upgrading of the advanced drug delivery system. IADDT has short, medium and long-term R&D projects, has established cooperative relations with many large domestic pharmaceutical enterprises and has signed R & D cooperation agreements worth tens of millions of CNY.

The first international scientific and technological innovation platform for the elderly in China.

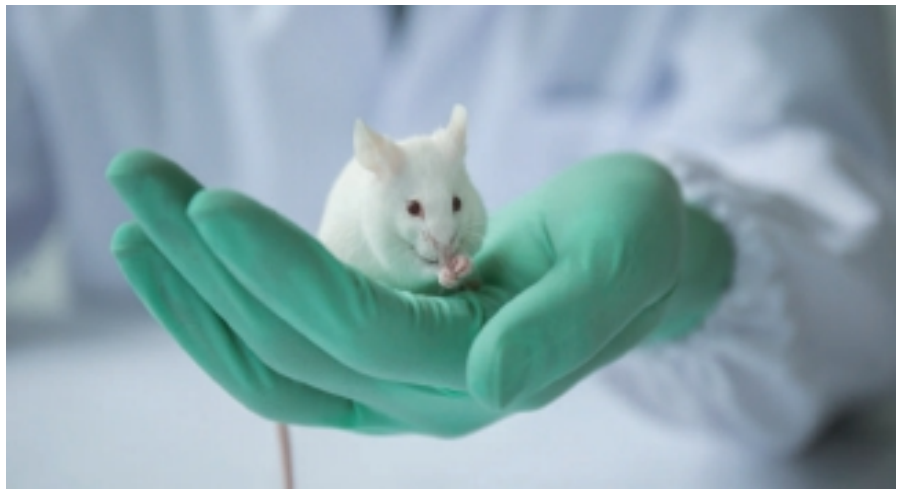
Leveraging core resources from Harvard University and JITRI, the "Global Science and Technology Research and Innovation Center for the Elderly Society" and the JITRI Science and Technology Innovation Center for the Elderly were established at Harvard University and in Lishui District, Nanjing, respectively. The Center gathers global research and innovation resources that focus on ageing, and jointly explores, researches and practices system-level solutions for an aging society. The center adopts interdisciplinary and inter-academic cooperation methods and brings together social science, engineering technology, medical technology and other fields to focus on technology that is suitable for the elderly. It will address the needs of an aging society and will form a cluster of innovation and industrial development to support Lishui to achieve a leading position in the health industry. The center has signed strategic cooperation agreements with the Public Health Research Center of Tsinghua University, the Institute of Anthropology of Fudan University, the Insurance Institute of Zhejiang University, Jiangsu Aging Industry Association, Haier, and other well-known universities, industry associations and leading enterprises to implement an open innovation model, and build a technology demonstration platform suitable for the elderly.

Safe and efficient green ‘desktop factory’ — the research and development platform of microchemical technology and equipment

This platform is being built by the Institute of Industrial Biotechnology to provide technology to optimize chemical processes, supporting equipment, and new bio-based products, and to develop new chemical processes. It is committed to strengthening the safety and sustainability of fine chemical processes, in order to provide technical support for the transformation and upgrading of industries such as biochemical materials.

The platform has experimental equipment with a total value of more than 40 million CNY. The site includes synthesis laboratories, analytical testing areas, material performance testing areas, pilot test verification areas, equipment development areas, and storage areas, and includes a complete microfluidic field reaction technology and engineering application development platform for new products using bio-based materials. Compared with traditional chemical technology, microfluidic reaction technology can reduce a reaction vessel of more than 100 tons to one thousandth of its original volume through the micro-scale effect, and can realize a traditional large-scale chemical production process in the mode of a "desktop factory," increasing the reaction rate by thousands of times. Micro-scale technology greatly increases the contact area of the reactants, shortening the reaction time, and improving the reaction efficiency while reducing energy consumption and emissions. Production safety and product quality are also fundamentally improved. The technology can greatly increase the selectivity of chemical reactions, reducing pollution emissions by more than 50%, and energy consumption by more than 40%.

Knock-Out All Project (KOAP) – leading a new era of productization of cKO /KO mouse models



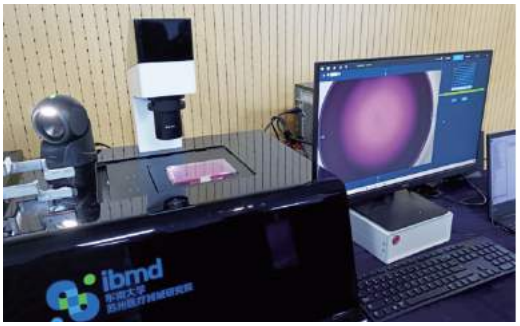
Knockout mouse models are the core basic resources for gene function research and drug development and have been widely used in the field of biomedicine. Knockout mouse models with low prices and short lead times have always been in high demand. Large-scale mouse model preparation and a spot mouse product resource database are the best ways to achieve this goal.

With years of experience, the CMI has explored technical routes to large-scale mouse model making with advantages in terms of stability and cost control, and launched the mouse full-coding protein genome CKO /KO project -- "Knock-Out All Project" based on this project. The goal of KOAP is to build a full-gene CKO / KO mouse model center by editing all the protein-coding genes and non-coding genes in the mouse genome, which transforms the production mode of genetically engineered mouse models from customization to mass production. This project plans to cover approximately 22,000 coding genes in the mouse genome within 5 years. Currently, the CMI is able to create more than 6000 strains of cKO/KO each year. The CMI has become a global leading provider with a large collection of 15,000+ mouse models, covering tumor, metabolism, immunity, development, DNA and guaranteed modification as well as other research fields. The KOAP can help clients improve the efficiency of their research and reduce its cost, significantly enhancing the competitiveness of China in the life sciences.

Using technology to assist the detection of new coronavirus neutralizing antibodies

Since the outbreak of the COVID-19 epidemic, the research and development needs of COVID-19 vaccines have been urgent, and the detection of neutralizing antibodies is an important indicator for judging whether a vaccine is effective. The Jiangsu Provincial Center for Disease Control and Prevention is one of the main domestic new coronavirus neutralizing antibody testing institutions, and a large number of test samples are waiting to be tested in the P3 laboratory. One of the most difficult tasks is to analyze under the microscope whether cells injected with serum from the new coronavirus and the vaccinated immune response have developed disease. The traditional manual microscopy method is complicated, time-consuming and labor-intensive, which is challenging for workers wearing heavy protective suits.

According to the needs of the Jiangsu Provincial Center for Disease Control and Prevention, the Institute of Biomedicine working with Southeast University has successfully developed a new coronavirus neutralizing antibody fully automatic intelligent detection system based on the patented product "3D tumor



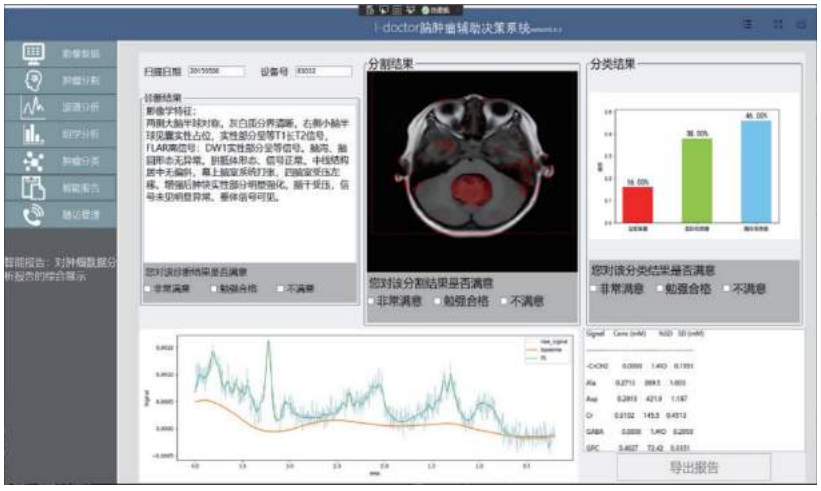
organ chip high-content imaging analysis system" independently developed by the institute. With the traditional method, it takes at least ten minutes for the staff to inspect, manually observe, take pictures, and record a 96-well cell plate under a microscope, while the new system only takes around 2 minutes. At the same time, the system realizes automatic grabbing of multi-well plates, auto-focusing, and real-time image transmission. Images are collected in the P3 laboratory, and the staff can see data on a large screen outside the laboratory. The effectiveness of antibodies can therefore be judged. The system greatly reduces the risk of staff infection and improves work efficiency.

Virtual Reality Technology (VR) Brings Good News to Autistic Children

At present, hospitals and rehabilitation institutions mainly use one-on-one rehabilitation training for autistic children, which requires a lot of manpower and material resources, creating a heavy burden on the family economy of autistic children.

In response to this major clinical need, JITRI coordinated the Institute of Biomedical Engineering and Technology, City University of Hong Kong and Changzhou Qianjing Rehabilitation Ltd. to jointly tackle key issues. They formed an integrated innovation system for production, learning, research and application. The project uses VR technology to treat autistic children in social adaptation and emotional expression, aiming to provide a realistic, immersive, situational, safe and controllable educational and teaching environment. Through training, children can master the rules of social behavior in a complex environment, emotion management skills of self-intervention and self-relaxation, emotion expression and emotion recognition skills, so as to deal with different social situations, avoid unnecessary embarrassment, and obtain a better quality of life. At present, the project has successfully built a "Five-plane Projection Cave Virtual Reality Display System," and completed software development and upgrading for a VR rehabilitation and treatment system for children with autism. In the process of demonstration and promotion of the project, the project team and Ren'ai school of Suzhou Industrial Park established the "Rehabilitation Demonstration Application and Education Base for Autistic Children", which provided necessary conditions for further clinical verification.

Artificial Intelligent Clinical Decision Support System Provides Strong Assistance in Brain Tumor Diagnosis



Brain tumors are increasingly prevalent worldwide. The key to their treatment and care is accurate & timely diagnosis and grading assessment. Magnetic Resonance Imaging (MRI) is the best way to diagnose brain tumors due to its non-invasive nature. With more and more information generated from multiple MRI modalities to be used in diagnostic and therapeutic studies of brain tumors, it is difficult for clinicians to process the massive amounts of information obtained in real time without additional decision support systems.

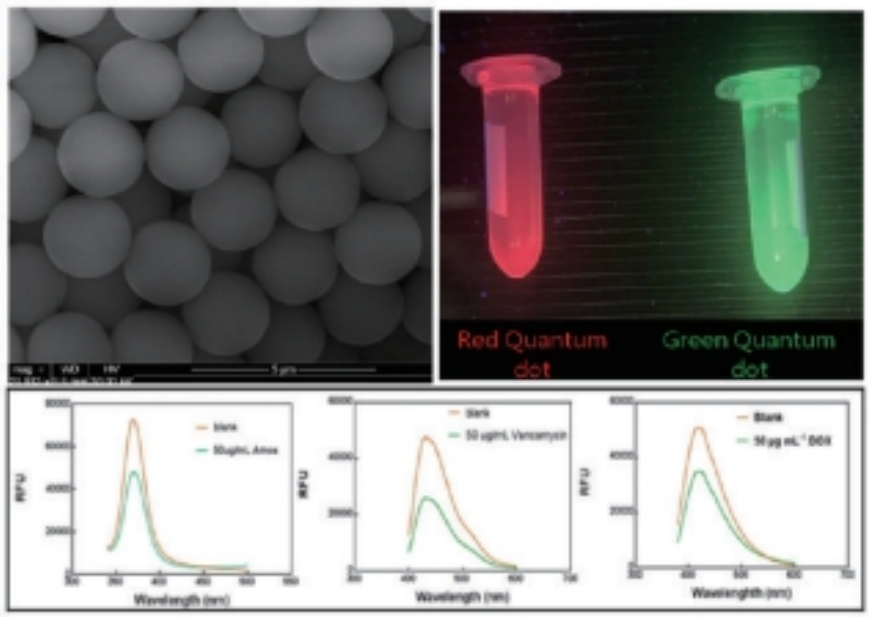
In response to this difficulty in brain tumor diagnosis, JITRI supported joint research by the Institute of Medical Devices (Suzhou) of Southeast University and Prof. Andrew PEET's team from the University of Birmingham to develop an intelligent clinical decision support system for brain tumors. The system combines comprehensive data from the patient with image processing technology and machine learning methods to extract a large amount of information hidden in the images, providing clinicians with diagnostic suggestions and improving their work efficiency. The system is of great significance in both clinical and scientific research, and is an important direction for the future development of intelligent medicine.

At present, the project has made several achievements: the collection, screening and sorting of image data; the modification and optimization of machine learning and deep learning algorithms; the successful design and application of a more complete image data analysis and decision support process; the development of a graphical user-friendly interface with step-by-step guidance, intermediate result visualization, and intelligent reports. A beta version of the brain tumor AI clinical decision support system was completed.

Multiple Fluorescence Detection Technology Benefits Food Safety and Clinical Diagnosis

Professor Yi SUN and her team at the Technical University of Denmark have developed a multi-fluorescence detection technology based on a new multi-functional nanocomposite that can detect a wide range of chemical and biological substances with great sensitivity. The team assembled magnetic nanoparticles, quantum dots and biomimetic molecular imprint polymers to produce a novel multifunctional nanocomposite. The combination of these three functions can make molecular detection more efficiently, simply and rapidly.

The JITRI Medical Engineering Institute found that the preparation of this nanocomposite is simple and cheap. It can detect both small molecules such as drug residues and large molecules such as biomarkers, and has broad potential applications in food safety, clinical diagnosis, environmental monitoring and other fields. Supported by JITRI's overseas funding pool, the Institute of Biomedical Engineering and Technology and Professor Yi SUN's team have developed testing products around the technology in terms of food safety and clinical diagnosis, to realize the domestic production and sales in the future. Presently, the project has successfully achieved quantitative testing of antibiotics (amoxicillin, doxycycline and vancomycin) through quantum dot fluorescence quenching, with high technical maturity and high prospects for industrialization. Meanwhile, a prototype for multiple fluorescence detection was developed. In the future, testing projects based on the existing platform technology will be expanded, the testing indicators will be improved, and a series of food safety, medical-health and environmental monitoring testing products will be formed.

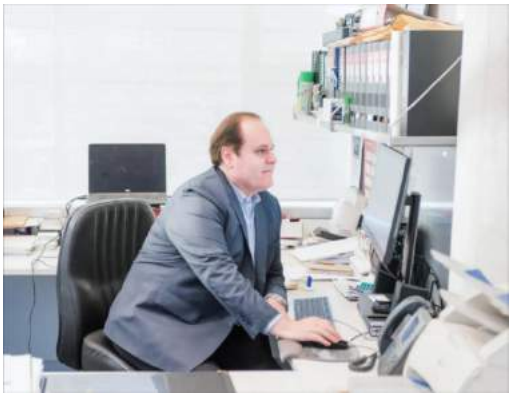


多重荧光检测技术助力食品安全与临床诊断

Apon medical and the university of Sydney focus on "pain relationship research" to jointly develop a lightweight closed-loop anesthesia analgesic device

Apon Medical is a leading high-tech enterprise in China in the field of pain management, specializing in the R&D, production and sales of medical devices. Apon Medical cooperates with top international universities and research institutes to carry out research on the relationship between human physiology and pain. It has cooperated with Boston University in the United States, but the project was suspended due to the unstable international environment.

JITRI and Apon Medical jointly established the JITRI-Apon Medical Joint Innovation Center on March 27, 2020. Apon Medical proposed five technical needs which included "Research on the Relationship between Pain and Physical Signs", and JITRI's Biomedicine department collaborated with JITRI Overseas Cooperation Department to discover the team of Professor Zomaya from the School of Computer Science at the University of Sydney. The team has mastered key technologies such as edge computing and interpretable machine learning, and also has project experience in the field of pain research. The Biomedicine department immediately launched a three-party exchange and docking. After 5 months of



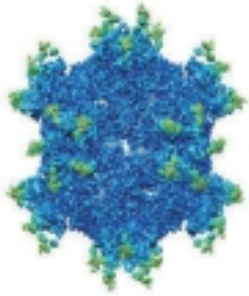
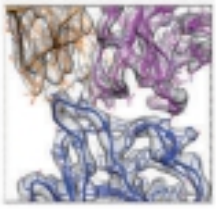
negotiation, Apon Medical and the University of Sydney have confirmed a R&D contract for "Machine Learning/Deep Learning-based Joint Research and Development of Analgesic Equipment," with a contract value of 400,000 AUD. JITRI promised to fund 200,000 AUD from its international cooperation funding pool program. The goal of the project is to develop an evaluation system and high-accuracy lightweight self-controlled closed-loop pain equipment which will be applied to clinical postoperative analgesia. The application of this equipment also filled a domestic gap in the automatic pain recognition system by offering better pain management and providing effective early intervention for pain.

Successfully set up a bridge connected with Dalian University of Technology to solve the key technical problems of Zilong Pharmaceutical Co., Ltd.

Jiangsu Zilong Pharmaceutical Ltd. is a wholly-owned subsidiary of Yangtze River Pharmaceutical Group. Its products cover various medical fields such as anti-allergy, anti-infection, and anti-hypertension drugs, as well as medical devices. It is a leading domestic manufacturer of rhinitis and anti-allergy drugs. Since the establishment of the JITRI-Zilong Pharmaceutical Joint Innovation Center in April 2020, Zilong Pharmaceutical Ltd. has proposed needs for technology and project introductions in multiple fields.

In response to the technical needs raised by Zilong Pharmaceutical Ltd., JITRI organized matchmaking negotiations between the JITRI Institute of Advanced Drug Delivery Technology, the Pharmaceutical Research Institute of Nanjing University of Technology, and Nanjing Gritpharma Ltd, an R&D enterprise. JITRI also released the demands through the cloud docking group of domestic universities (in the field of biomedicine), and conducted an in-depth investigation of project experience and platform support status at several universities, such as Dalian University of Technology, Southern University of Technology, and Southern Normal University. The team of Dalian University of Technology met the R&D needs of Zilong Pharmaceutical Ltd. and reached a cooperation project contract.

Promoted first Project Cooperation in Protein Structure Analysis between Joint Innovation Center and Provincial R & D Enterprise


Jiangsu Wanbang Pharmaceutical Technology Co., Ltd. (hereinafter referred to as "Jiangsu Wanbang") focuses on treatment of endocrine and cardiovascular fields, has the largest insulin production base in China, and has the top three products in the domestic market, such as insulin, wansupin and Xinxian'an. In January 2020, Jiangsu Wanbang proposed a technical need for crystal structure analysis of insulin glargine. Because of its complex structure, it is difficult to find a testing company to undertake such analysis due to technical constraints and the lack of CNNS qualification. In April 2020, JITRI conducted an in-depth investigation on the BIORTUS Company with the support of the Jiangyin Science and Technology Bureau, and learned that the protein structure analysis ability of the enterprise is at the forefront level in China. Jiangsu Wanbang and BIORTUS successfully signed a cooperation agreement, the first successful case between a Joint Innovation Center and a Provincial R&D enterprise. JITRI has incorporated Provincial R&D enterprises into its technology resource database, built communication channels for the supply end and demand end of technology, and thereby expanded and improved the JITRI innovation resource system.

Cross Field Cooperation Case: Promote Qianhong Bio-pharma to establish SCADA system

Changzhou Qianhong Biopharma Co.,Ltd. (Qianhong Bio-pharma) is a leading manufacturer of polysaccharide and protease drugs in the domestic biochemical pharmaceutical industry. Its main products are heparin sodium injection, pancreatic kininogenase and its preparations, and asparaginase and its preparations. The production process and quality level have reached international and domestic advanced standards. In December 2019, Qianhong Bio-pharma proposed the construction of a heparin sodium injection preparation factory, capable of monitoring the large amount of data generated in the process of drug production, breaking through the data barriers between production equipment to achieve data integrity.

The interconnection of production equipment for Heparin sodium injection is complex, including a control bottle line, pre-filled needle line, and factory water and air conditioning system, with up to 50 large-scale machines to be interconnected. There are many brands of factory equipment from different countries, so it is very difficult to build a compatible SCADA system.

Qianhong Bio-pharma and Shinva Medical Instrument Ltd. cooperated on a project to realize comprehensive coverage of data monitoring in all key processes of drug production, enabling the various elements of production equipment to communicate, and improving the level of networking, digitization and intelligence in manufacturing to move towards intelligent manufacturing.

Active tissue targeting via anchored click chemistry (ATTACK) developed the technology to satisfy the clinical needs in cancer therapy

Surio Therapeutics is a preclinical stage company founded in 2019 to develop innovative active cell labeling and cancer-targeting therapeutics. Surio's team is led by Prof. Jianjun CHENG from the University of Illinois at Urbana-Champaign, who is a top material scientist. Surio's founders and consulting team has extensive working experience in drug development, commercialization, and global collaboration. Surio is dedicated to the development of global exclusive cancer therapeutics technology based on the ATTACK (Active Tissue Target via Anchored Click chemistry) platform.

Surio Therapeutics received early stage project funding for 5 million CNY from JITRI. At present, the establishment and evaluation of a number of pipeline drugs have been completed, and a large number of pharmacological and pharmacodynamic research results have been obtained, further verifying the high-efficiency and low-toxicity characteristics of ATTACK technology. In the past two years, the company has further expanded the potential of the ATTACK technology platform and developed multiple pipelines with clinical value. The company plans to submit its first IND application to the Food and Drug Administration in 2022, and plans to develop 3-4 pre-clinical pipeline drug candidates. ATTACK is a brand-new active tumor tissue labeling and targeting technology. It uses the specific enzyme activity and high glycoprotein expression characteristics of cancer cells to achieve high expression of unnatural sugars on the surface of cancer cells, which are then targeted for highly specific tumor therapy. Through ATTACK's active tumor tissue labeling, many cancer methods that do not have their own surface-specific receptor sites can be effectively targeted for treatment. ATTACK technology maintains the core advantages of reducing off-target side effects and optimizing the anti-cancer effects of current cancer antibody targeted therapy, but does not require the presence of identifiable endogenous antigen targets in the tumor. Currently, there is no other similar technology on the market that can achieve the combination of active tumor markers and cancer targeted therapies.

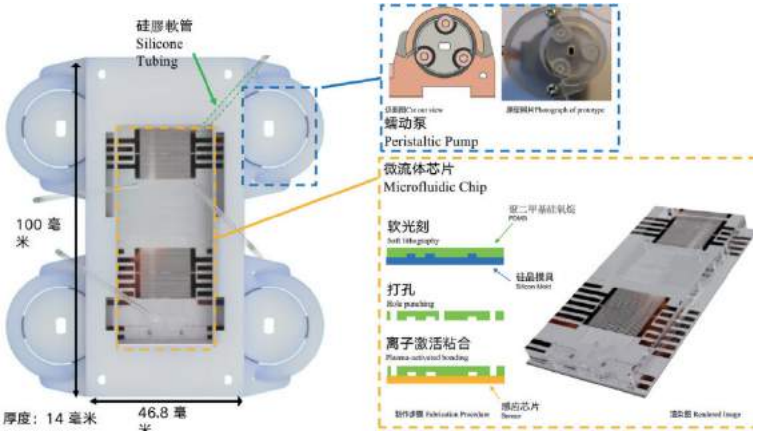
Angalbio creates new center of expertise in targeted drug R&D

In 2019, Angal Biotechnology Co., Ltd. was jointly established by JLP health GmbH Europe, JITRI, and Suzhou New District Hi-Tech Industrial Co., Ltd in Suzhou Hi-Tech Zone, aiming to bring in the world-leading technologies of JLP Health from Europe to meet China's market demand in the field of new drug development, especially in the field of natural compound drug development, to establish an international-level drug target analysis and drug screening base in Jiangsu and to create a new, world-leading drug R&D platform.

One drug target creates one industry. Based on the world's cutting-edge unique haploid forward genetic screening technology platform, Angalbio can accurately identify drug target and off-target structures, reveal the interactions between drugs and targets, and solve several bottlenecks that limit drug development, such as the lack of drug targets, side effects, low efficiency and high waste in the early development of new drugs. The advanced technology from Angalbio can provide key information for drug design, reduce R&D costs, find new drug targets, accelerate new drug R&D, and enhance international competitiveness in the field of new drug development.

In 2020, with the completion of Angalbio's new lab building and the return of a scientist who completed training in JLP Health, the company has rapidly carried out technology transfer and platform construction, including five research platforms of target screening, cell engineering, virus research, natural drug chemicals, and bio-information, which together establish a unique drug discovery pipeline. Angalbio has several ongoing projects. They communicate with the JLP Health team in Europe regularly to discuss progress. The projects have shown initial progress by using new targets to screen for natural products to treat metabolic diseases and antiviral drugs, and more achievements are expected in the future.

Aiming at the demand of rapid clinical testing with handheld rapid molecular diagnostic systems



Due to the features of large size, high cost, complex operation, and long detection cycle of the instruments, existing gene detection technology cannot realize the goal of real-time detection. Aiming at this pain point of the industry, Professor Patrick Kwan, from Monash University, successfully developed a rapid detection technology known as LAMP-IDE and applied it to the HLA genotyping of epilepsy treatment. The research results were published in Biosensors & Bioelectronics.

JITRI sees a broad application potential for LAMP-IDE rapid detection technology in the field of gene detection, and invited Prof. Kwan to return to China to start a business to integrate LAMP-IDE rapid detection with microfluidic chip technology and to thereby develop a handheld rapid molecular diagnosis system. Compared with the existing technology, the system does not need DNA extraction, a tag or DNA staining after amplification. Rather, it directly uses a crude blood sample, a disposable test paper (test chip) and a handheld portable testing instrument, so that rapid genetic testing can be finished in an hour. It has lower costs, a shorter testing time, and can be transported easily to use in rapid testing. In September 2020, Changzhou Trendi Medical Technology Ltd, led by Prof. Kwan, was established in Changzhou Science and Education Park. At present, the first phase of the rapid gene screening system for epilepsy medication has completed laboratory prototype verification, and successfully developed a reagent for epilepsy medication. The company plans to complete the development of a prototype instrument for epilepsy medication by the end of 2021, and complete clinical trials in 2022 to prepare for NPMA application. The successful development of the system can theoretically solve the pain point of the long detection cycle of the current mainstream gene detection technology, and help doctors quickly obtain diagnosis results and give treatment plans. It will be widely used in clinical detection and food safety.

Suzhou Cure Genetics Biotechnology strives to build a benchmark in the field of global gene therapy

Suzhou Cure Genetics Biotechnology Ltd. (Cure Genetics) was established in 2016, located in Suzhou Biomedical Industrial Park. It is a gene diagnosis and treatment company co-founded by the co-inventors of CRISPR gene editing technology. Cure Genetics focuses on the original application and development of CRISPR technology in new medicines, and is committed to solve the clinical needs of incurable tumors and complex genetic diseases, establishing a gene editing technology platform with independent intellectual property rights and creating a global benchmark in the field of gene therapy.

In 2020, JITRI, Suzhou Industrial Technology Research Institute, and Suzhou Biomedical Industrial Park jointly provided R&D funds to support Cure Genetics' development of the unique screening platform for global gene therapy's pain points: low specificity of carrier tissue and insufficient production capacity, aiming to develop a unique screening platform and process. This project focuses on developing gene therapy products for congenital spinal muscular atrophy (SMA). With the support of the Cure Genetics' virus serum screening system, this project benchmarks Novartis' Zolgensma's product to quickly search for neurological tissues with high specificity, low immunogenicity and strong infection efficiency for nervous system tissues. It has increased the production capacity of viral vectors and achieved substantial cost reduction, which laid the foundation for the product to become a gene therapy drug in the field of SMA disease. At present, the company will cooperate with Boehringer Ingelheim (BI), the world's largest family multinational pharmaceutical company in Adeno-Associated Virus AAV screening production process. The cooperation between the two parties is mainly based on Cure Genetics' exclusive AAV serotype screening system and the world's top AAV large-scale production capacity, with the AAV serotype that specifically infects liver cells as the target, to jointly build a universal gene therapy technology platform. At the same time, Cure Genetics will provide BI with continuous GMP-level AAV virus production to support BI's global gene therapy layout.

JITRI Overseas Cooperation Modes

1. Post graduate student joint training program with overseas well-known universities, and research institutes, based on the needs from affiliated enterprises from Jiangsu

2. Set up international cooperation funding pool to support Jiangsu industries to carry out joint R&D projects with overseas research institutes, and JITRI institutes

3. Establish overseas R&D innovation vehicle, engage the source of innovation: establishment of offshore incubator

4. Engage the overseas R&D companies / enterprises to land in Jiangsu in the form of joint venture

5. Participate in the international organizations and facilitate localization of the innovation resources and channels

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