

(China) Jiangsu-Czech joint R&D call for proposals 2021

webinar

(JSTD/TA CR)

13. 4. 2021

Mr. ZHAO Yangwei - Director of International Cooperation Division, Jiangsu Provincial Department of Science and Technology (JSTD)

Ms. LIU Xin - Deputy Director of Jiangsu Center of International Technology Transfer(JITTC)

Ms. Tana Halova Perglova - Director of Cross-cutting and International Activities Section, The Technology Agency of the Czech Republic (TA CR)

Ms. Eva Pentel - International Cooperation Coordinator, The Technology Agency of the Czech Republic (TA CR)

Agenda

- Welcome and introduction (5 min.)
- Presentation of specific requirements for joined call for proposals (20 min.)
- Presentation of matchmaking tools (5 min.)
- Showcase of a joint project funded by Czech - Jiangsu programme (10 min.)
- Roadshows by Czech and Jiangsu companies (appx. 80 min.)
- Questions & answers (10 min.)



Introduction to (China) Jiangsu - Czech Bilateral Co-funding R&D Program and Its Upcoming Call for Proposals

1

2015

A MOU on scientific and technological cooperation was signed to jointly promote applied research and development cooperation projects between Jiangsu Province and the Czech Republic.

2

2017

The two sides launched the first round of joint call for proposals for Jiangsu-Czech Bilateral Co-funding R&D Project.

3

2021

The 5th call for proposals is expected to launch soon.



Joint call for proposals



SCOPE



Scope

Joint R&D projects will be focused on specific outcomes in the field of applied research, i.e. they will lead to attaining new findings and skills for development of new or significantly improved products, processes or services, and new product, process or service. Beneficiaries are expected to develop applied results.



PROJECTS FEATURES

Projects Features

Novelty Creativity Uncertainty

Systematic nature

Transferability and/or reproducibility

The project should have obvious advantage and added value resulting from the cooperation



AREAS OF R&D PROJECTS

● Areas of R&D Projects JSTD - TA CR

All areas are mutually accepted.

TA CR does not support solely defense projects and medical research projects with a predominance of clinical studies activities.



PROGRAMME SCHEDULE



Programme Schedule - Call for Proposals

12 May
2021

The launch of the
call

13 May -
14 July
2021

Project submission
period

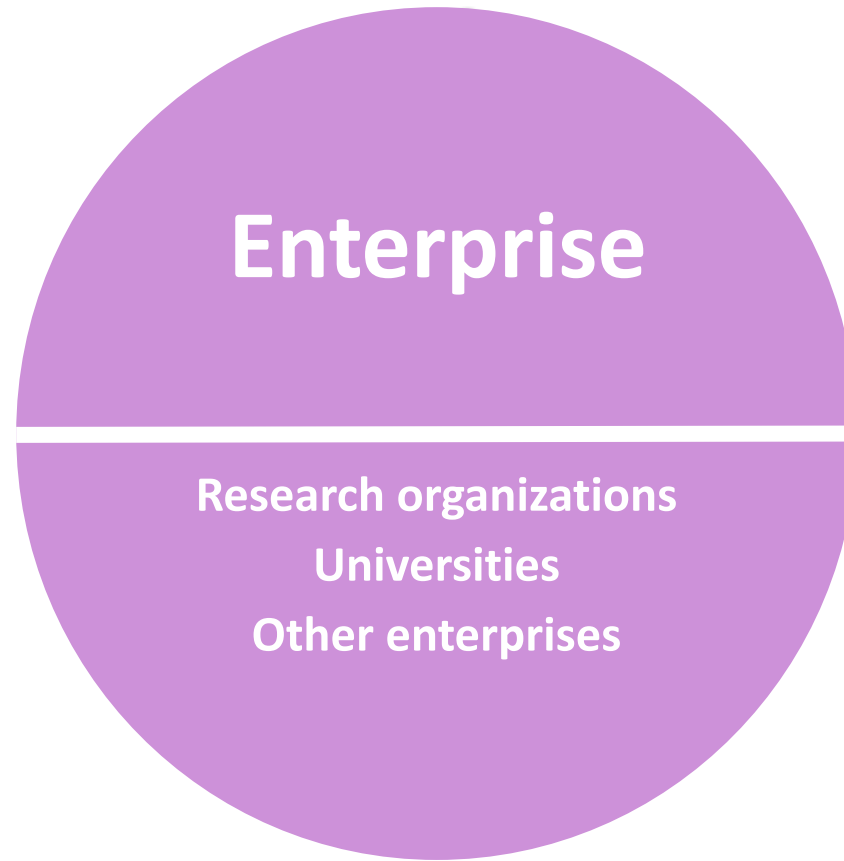
January-
March
2022

Project Kickoff &
Start of Funding



APPLICANT ELIGIBILITY

Applicants Eligibility JSTD - TA CR



Applicants shall take the form of consortiums consisting of R&D participants based in the Czech Republic making up one side of their partnership, and in Jiangsu province making up the other side.

The Specifics on Jiangsu Side

Applicant Eligibility

- **Main applicant**-----An enterprise which has technology and R&D capability and registered before *30 June 2020*.
- **Linked and partner enterprises**----- Are allowed to participate, but not to be principal applicant/lead organization.



APPLICATION & EVALUATION PROCESS

Submission process

JSTD

Submission of the project proposal
Via

<http://kjih.jspc.org.cn>

Compulsory annexes:

Cooperative agreements;
Common proposal, etc.

Printed proposal and annexes also
needed

Deadline: 14. 7. 2021

TA CR

Submission of the project
proposal via ISTA

www.ista.tacr.cz

(electronic system)

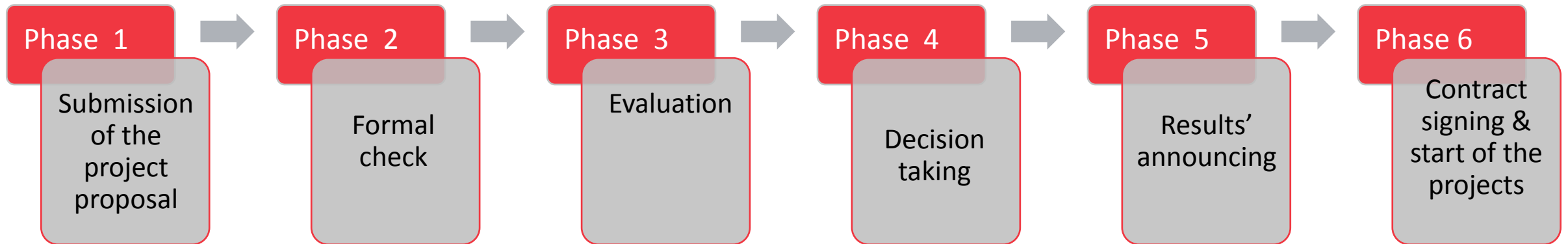
Compulsory annexes:

- Sworn statement of the applicant
 - Common proposal
- Annexes connected to project results

Deadline: 14. 7. 2021

The application must be approved both by JSTD and TA CR to receive funding!

Evaluation process - JSTD & TA CR

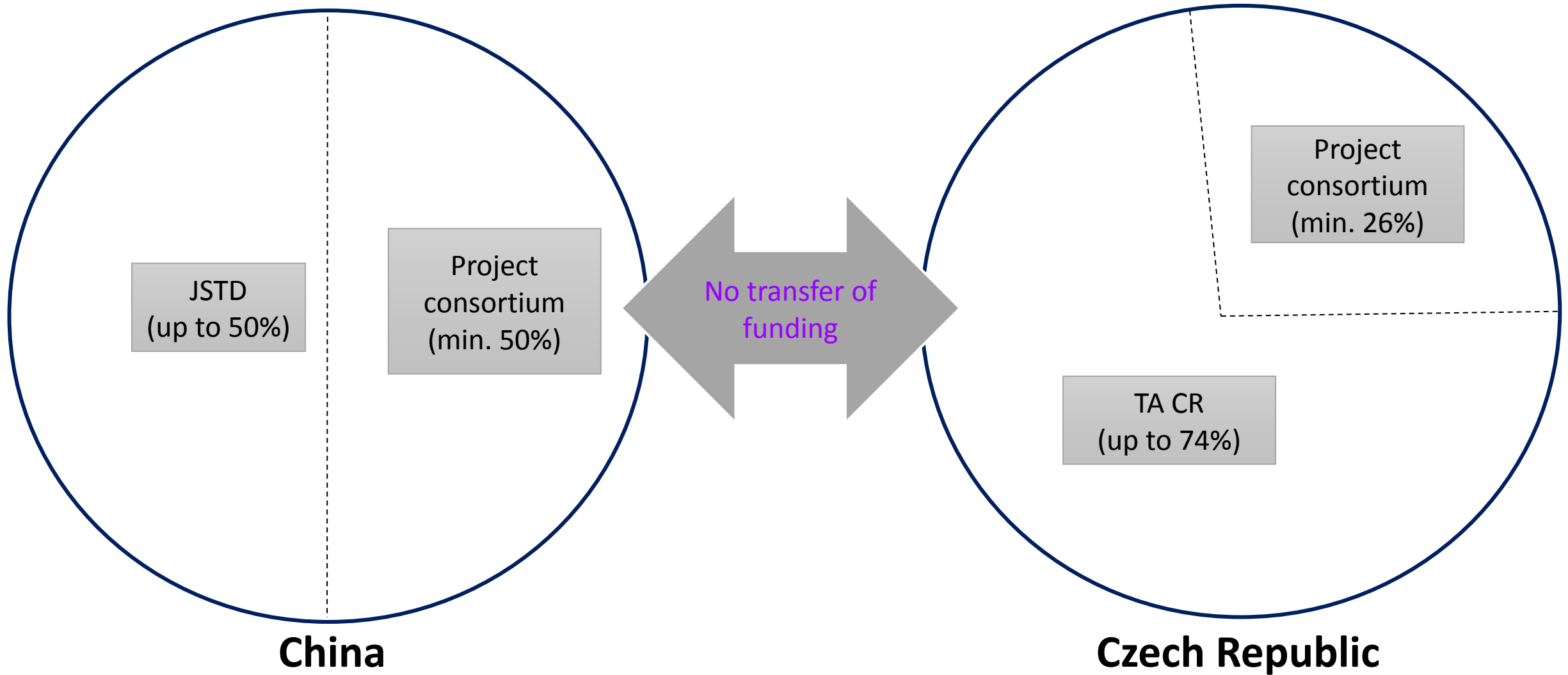


The application must be approved by both the TA CR and JSTD in order to receive funding!



FUNDING SCHEME

Funding scheme: JSTD - TACR



**JSTD & TA CR will fund the respective nationals in the selected consortia
in accordance with their national funding rules.**

The Specifics on Jiangsu Side

Project Funding

Not to exceed RMB 1million/project (appx USD *154,000 one time lump sum)

Max. funding intensity: 50 % of the project cost on Jiangsu side.

The Specifics on Jiangsu Side

Service Available

-  *Jiangsu Center of International Technology Transfer (JITTC)* will be responsible for partner search and matchmaking for Jiangsu companies and Czech lead organizations.

Contacts of Jiangsu Side

JSTD	JITTC
Mr. WU Sanmao E-mail: wusm_kj@js.gov.cn Tel.: +86-25-58708856 Fax: +86-25-57714182	Ms. LIU Xin E-mail: xinsliu1007@163.com Tel.: +86-25-85485883 Fax: +86-25-85413153



WELCOME & INTRODUCTION



Technology Agency of the Czech Republic (TA CR)

About TA CR

- We are an organisational unit of the state and the administrator of a budget chapter.
- We prepare and manage state funding programmes whose purpose is to stimulate the interconnection of organisations working on applied research with innovative activities in business and in the state administration.
- We develop new tools to support closer collaboration between academia, the business sector and the state administration both nationally and internationally.



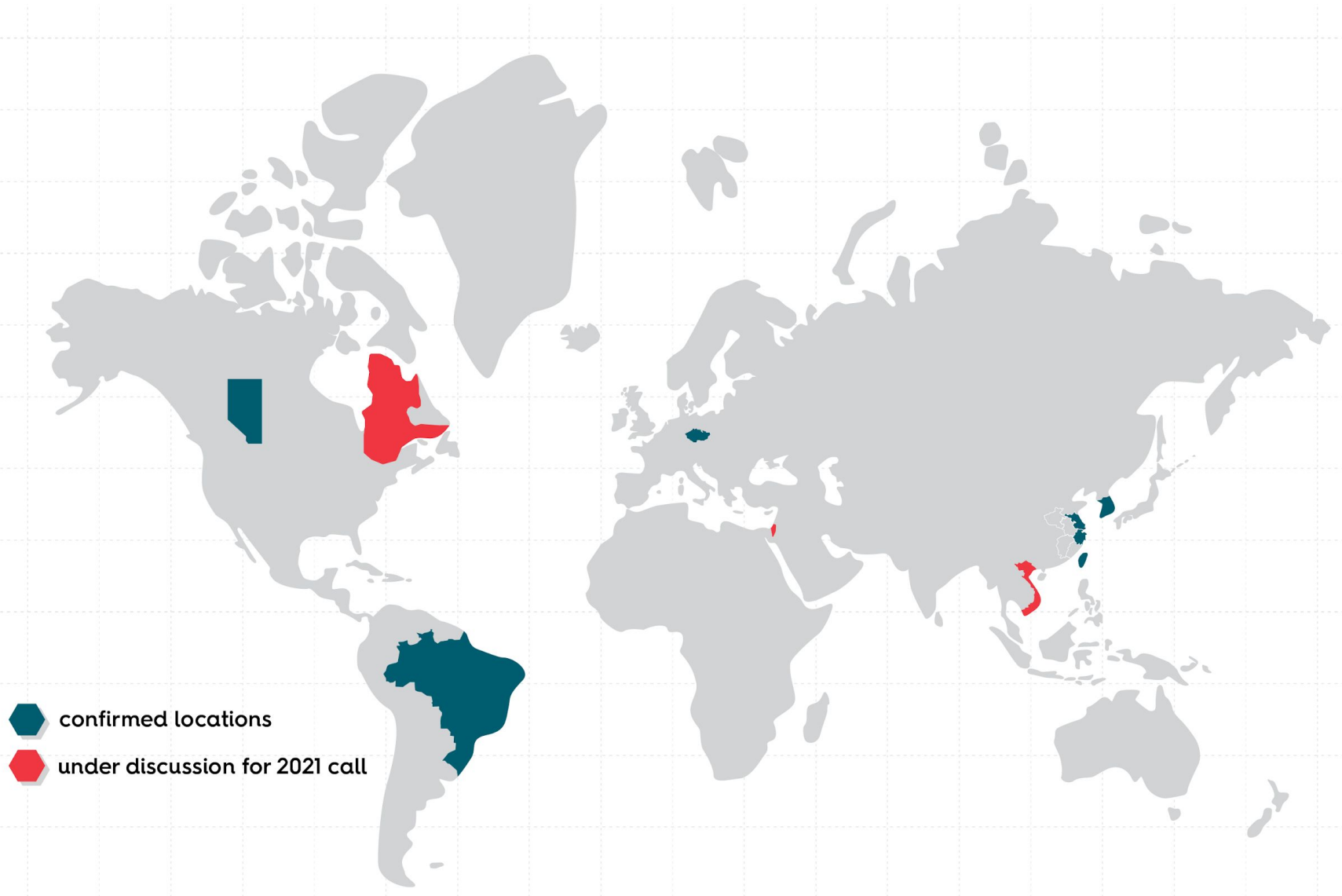


BILATERAL COOPERATION

DELTA 2, 3rd joined call



Bilateral cooperation in 2021





BASIC CRITERIA - TA CR





APPLICANT ELIGIBILITY



TA CR overview



Main applicant

An enterprise

Other participants

Enterprises

Research organizations or Universities

Linked and partner enterprises

Are allowed to participate

Project length

12 - 36 months



FUNDING SCHEME



Funding scheme - TA CR (DELTA 2 Programme)



- ▶ Total expenditure: 300 mil. CZK (approx. 13,4 mil USD)
- ▶ Funding intensity: up to 74%
- ▶ Maximum amount per project: not set

The TA CR and the JSTD will fund the respective nationals in the selected consortia in accordance with their national funding rules.

Funding scheme - TA CR (Delta 2 Programme)

	Industrial research		Experimental development	
Type of applicant	Max. allowable aid intensity	Max. allowable aid intensity with demonstrated effective collaboration with a research org.	Max. allowable aid intensity	Max. allowable aid intensity with demonstrated effective collaboration with a research org.
Small enterprises	70%	80%	45%	60%
Medium enterprises	60%	75%	35%	50%
Large enterprises	50%	65%	25%	40%
Research org.	100%	-	100%	-

The aid intensity (%) of a project is the ratio of funding amount to the total eligible project costs.

The aid intensity (%) of an applicant or project partner is the ratio of the amount of its funding to its total eligible costs.



APPLICATION PROCESS



Submission process



Submission of the project proposal via ISTA (an electronic system)

www.ista.tacr.cz

Compulsory annexes:



Sworn statement of the applicant;



Common proposal;



Annexes connected to project results;

Submission deadline: by 14. 7. 2021.

TA CR does not support defence and medical research.



HOW TO FIND YOUR MATCH?



Search for partners



- [TACR Partnering Tool](#) - Assistance from TA CR in order to find a partner.
- [TA CR STARFOS](#) - Full-text search engine for projects and results in the areas of research, experimental development and innovation that were supported by state funds from the Czech Republic. You can search for a Czech partner in the project consortium.
- **Partner search tool** of [EEN](#) (Enterprise Europe Network)

Partnering Tool



Partnering Tool - Find your project partner

If you are interested in finding a suitable foreign partner or you would like to offer your cooperation, use the buttons for registration.

[Post a Partner Request](#)

[Post a Partner Offer](#)

The Technology Agency of the Czech Republic helps Czech enterprises and research organizations to establish cooperation in the area of applied research and innovations.

TACR Partnering Tool



Database of partner offers/requests:

Offer

Request

Country



Type of organisation



Topic



Keywords



1 - 6 / 6



Directory

CEITEC, Brno University of Technology

Biology Centre CAS, SOWA-RI

Taeseok P&I Co.,Ltd

Farmtec

IAM Co., Ltd.

Institute of Thermochemistry, CAS

Name of Organisation/Institution/Company: CEITEC, Brno University of Technology
Type of Organisation : research organisation
Country: Czech Republic

Contact

Name:
Surname:
Email :
Phone Number :

Information

Keywords: Materials, Recycling, Materials in medicine, nanocomposites, modeling



Questions and answers



T A

C R

Technology
Agency of the
Czech Republic

www.tacr.cz/en

DELTA 2 PROGRAMME TEAM

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Coordinator

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Č R



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>

**SUCCESSFULL PROJECT
FUNDED BY CZECH - JIANGSU
PROGRAMMES**

>

>

Show case



▶ **Representative:**
Ing. Petr Dvorak

▶ **Organisation:**
RCE systems s.r.o.

▶ **Project name:**
Traffic management platform development for big social event using drone based on visual sensing techniques

▶ **Presentation:**
Available [here](#).





PITCH SESSIONS - CZECH PART



Pitch session

Description of your organisation

PrimeCell is the biotech company focusing on discovering and clinical testing of biological drugs and medicinal technologies, which are changing genes' and cells' parameters to support regeneration of human tissues and organs. A separate direction is the development of innovative methods, materials and procedures enabling preclinical and clinical testing of modern technologies.

Research areas

Biomaterials
Innovative medical technologies
Gene manipulation
Protein based research
Cell manipulations
Tissue based research

Specify your cooperation interest / Description of your partner of interest

Development & transfer of know-how
Translation of know-how toward product
Regulatory affairs support
Investment to IPR
Clinical research (academic/commercial clinical trials)

Keywords

Cell-based products, R&D, Translational research, Biomaterials, Biotechnology, Regulatory support

Contact info

- **PRIMECELL BIOSCIENCE, A.S.**
- The biotechnological company
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- Czech Republic, Ostrava
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4Medical Innovations

- GMP manufacturing
- in-house GMP laboratories
- in-house R&D
- in-house CRO and regulatory
- in-house Cell & Tissue bank

PRIMECELL BIOSCIENCE – Science that becomes medicine



M U N I
S C I

Current Research Projects and Future Direction

Department of Geography, Faculty of Science, Masaryk University



Research

Contacts

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Faculty of Science
Masaryk University
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E-mail:

kubicek[at]geogr.muni.cz

Time, rhythms and mobility



The work of the research group is focused on exploring the everyday space-time routine, especially in the area of cities and metropolitan areas. Through the themes of time, rhythm and mobility, classical disciplines of settlement geography, geography of the city, and geography of transport are integrated into a coherent framework. [More ...](#)

Climatology



Research is focused to the study of climate fluctuations (mainly temperature and precipitation) in the Czech Republic based on documentary evidence, dendroclimatic data, early instrumental measurements and regular meteorological observations during the last millennium. Another field of study is the reconstruction and the study of selected hydrological and meteorological extremes from the viewpoint of their frequency of occurrence, seasonality, intensity and impacts to nature and society. [More ...](#)

Laboratory on Geoinformatics and Cartography



Laboratory on Geoinformatics and Cartography was established in 1992. LGC acts as the guarantor of study programs Cartography, Geoinformatics and Remote Sensing at Masaryk University at all academic levels (bachelor, master and Ph.D. degrees). Team of LGC participates on many international and national research projects. [More ...](#)

Polar research



The tradition of polar area research at the Department of Geography dates back to the 1980s. At that time, the first scientific expeditions to Spitsbergen focused on climatology and geomorphology were carried out. Since 1994, the team of the Masaryk University has also been involved in Antarctic research. Initially, in the framework of international cooperation, stays were held at various Antarctic stations and since 2006 the scientific activities have moved to the island of James Ross, where a Czech station was built. [More ...](#)

Dynamic Geovisualization in Emergency Management (in the era of BigData)

2017-2019

Masaryk University

Laboratory on Geoinformatics and Cartography,
Department of Geography, Faculty of Science

M U N I

Nanjing Normal University

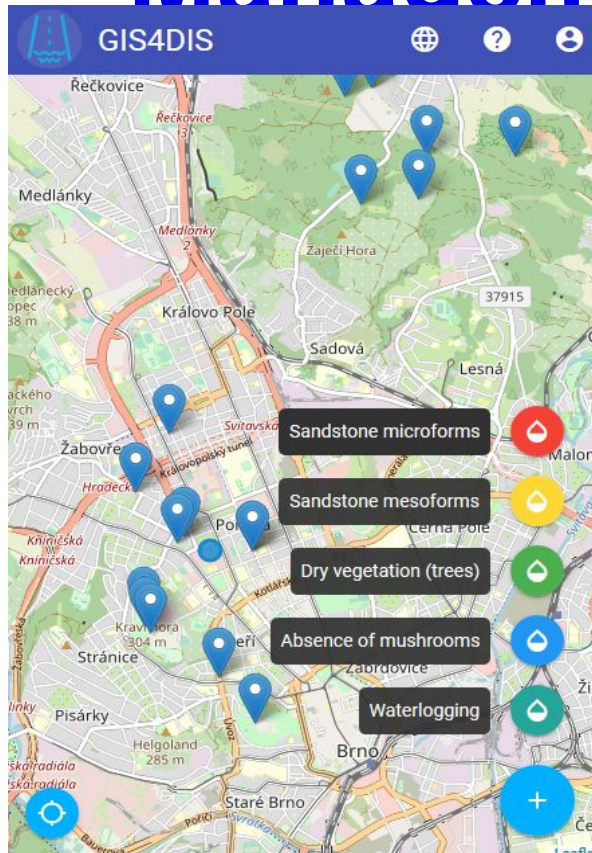
Key Laboratory of Virtual Geographic Environment,
School of Geography Science



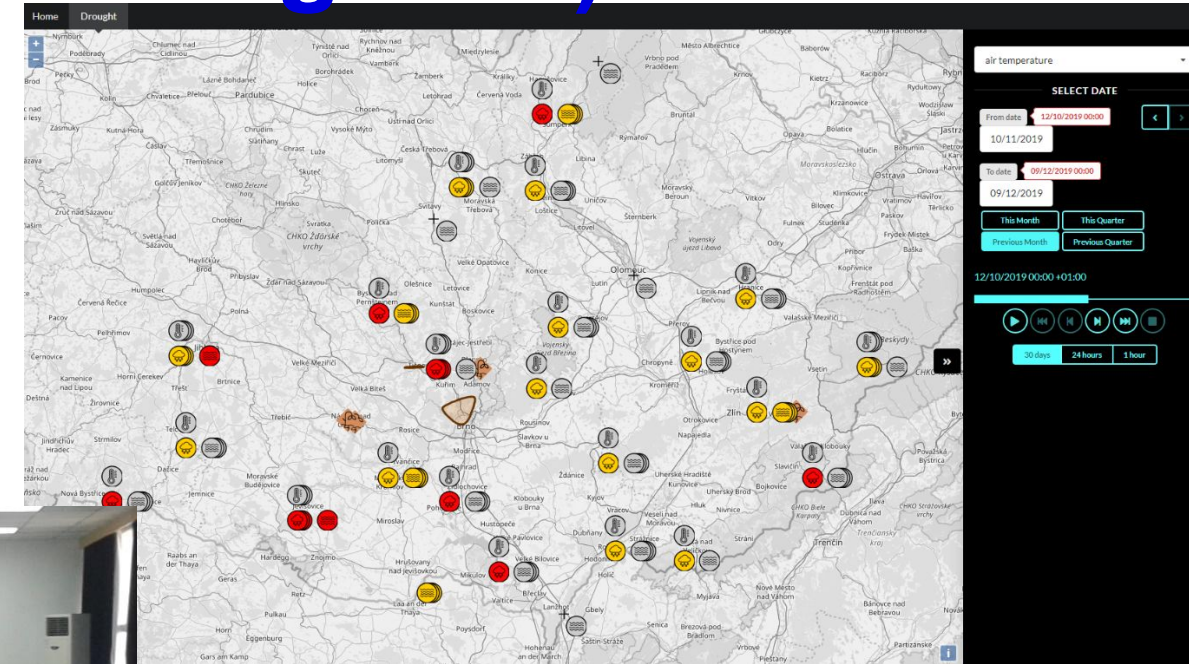
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S C I

Dynamic Geovisualization in Emergency Management (in the era of BigData)

Web app for collecting VGI data



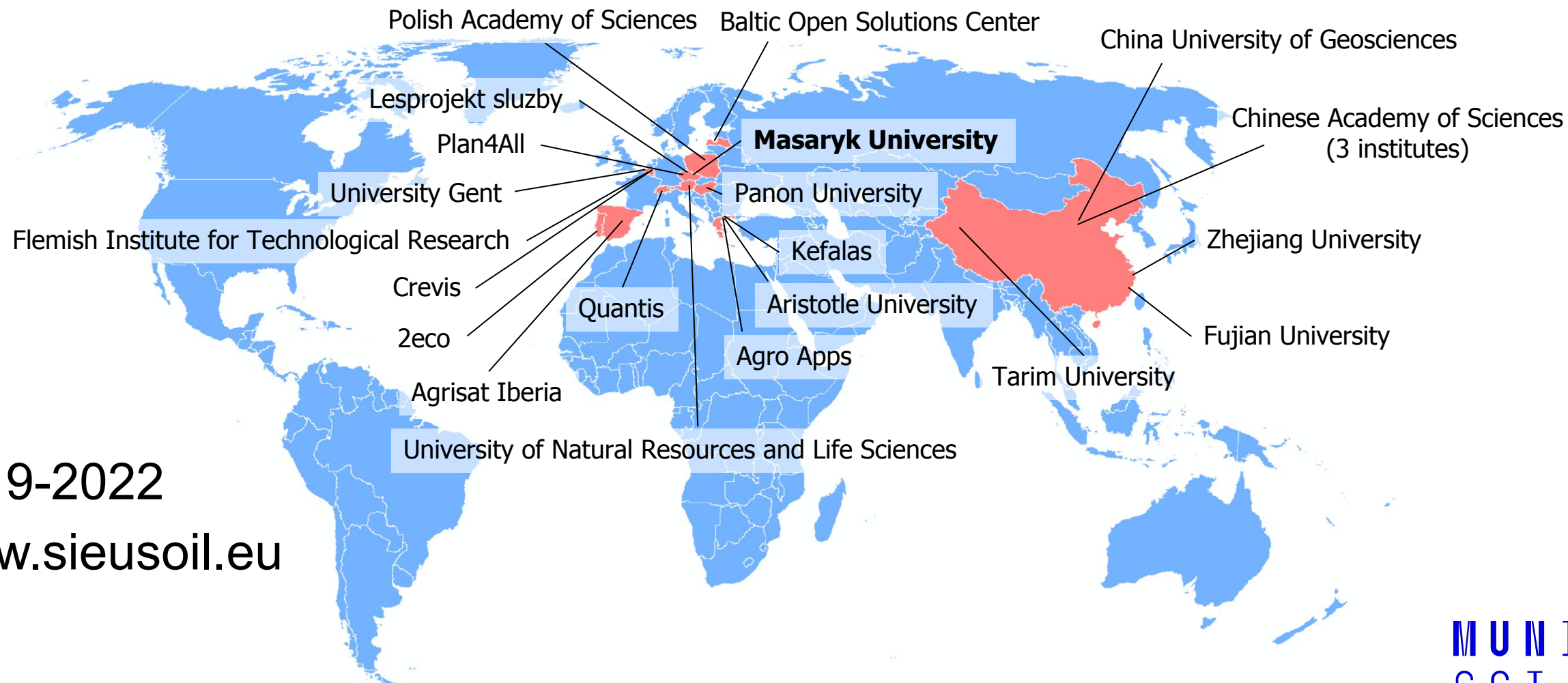
Cross cultural studies



Interactive map for disaster management



H2020 Sino-EU Soil Observatory for Intelligent Land use Management



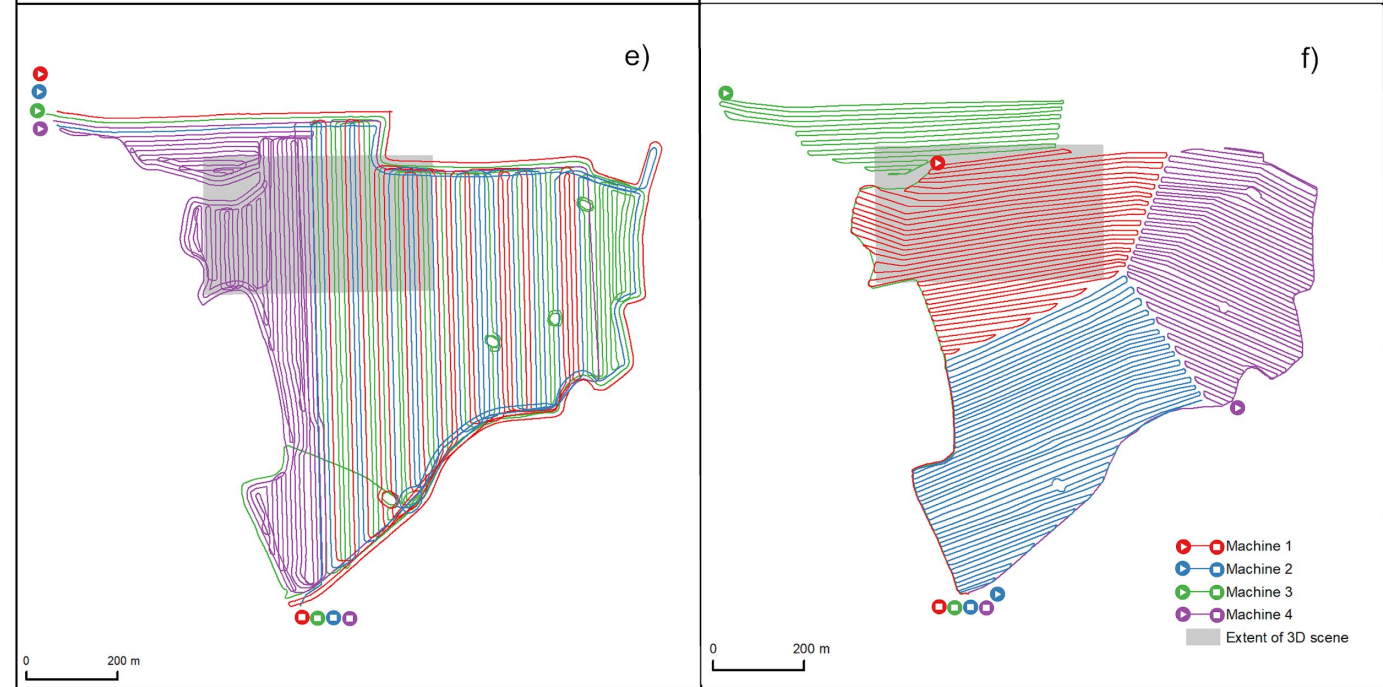
2019-2022

www.sieusoil.eu



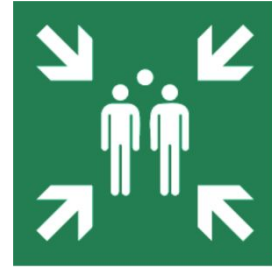
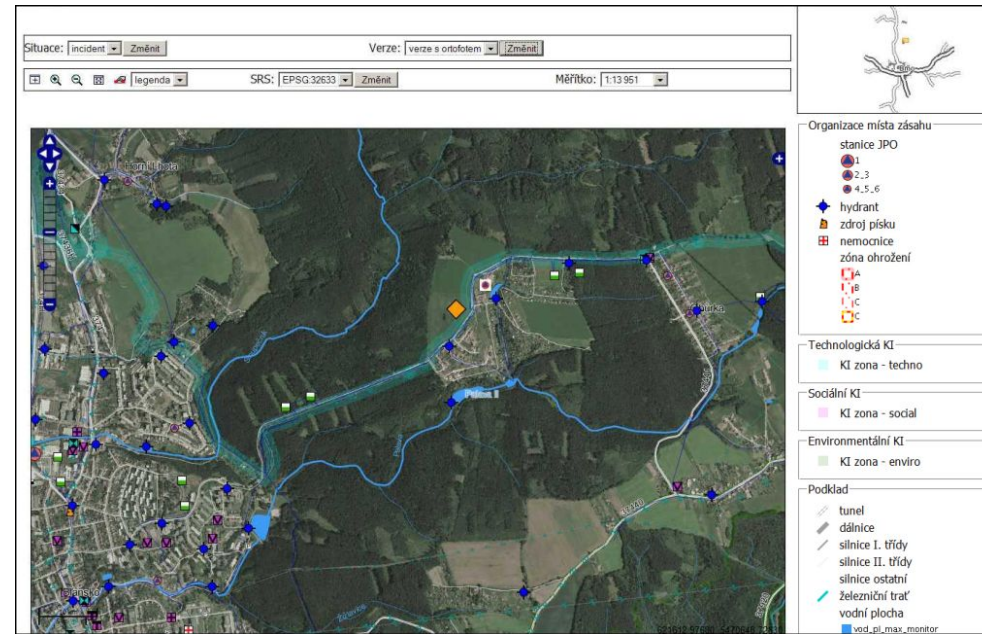
H2020 Sino-EU Soil Observatory for Intelligent Land use Management

- Addresses identical environmental challenges common in China and Europe
- China-EU Web Observatory platform**
 - provide Open Linked Data to monitor status and threats of soil
 - assist in decision making for sustainable support of agroecosystem functions
- Data model suitable for soil data around the world**
- Optimisation of farm machinery trajectories**



Emergency mapping

- ICA commission EWaCM
- Spatial cognition in the VGE
- Indoor mapping and navigation
 - Emergency evacuation
- Combination of sensor data sources
- Disaster surveying
- Contextual cartography



Adaptive (contextual) Approach to Web Cartographic Visualization

Map Client



CWMS Server



Description of a context

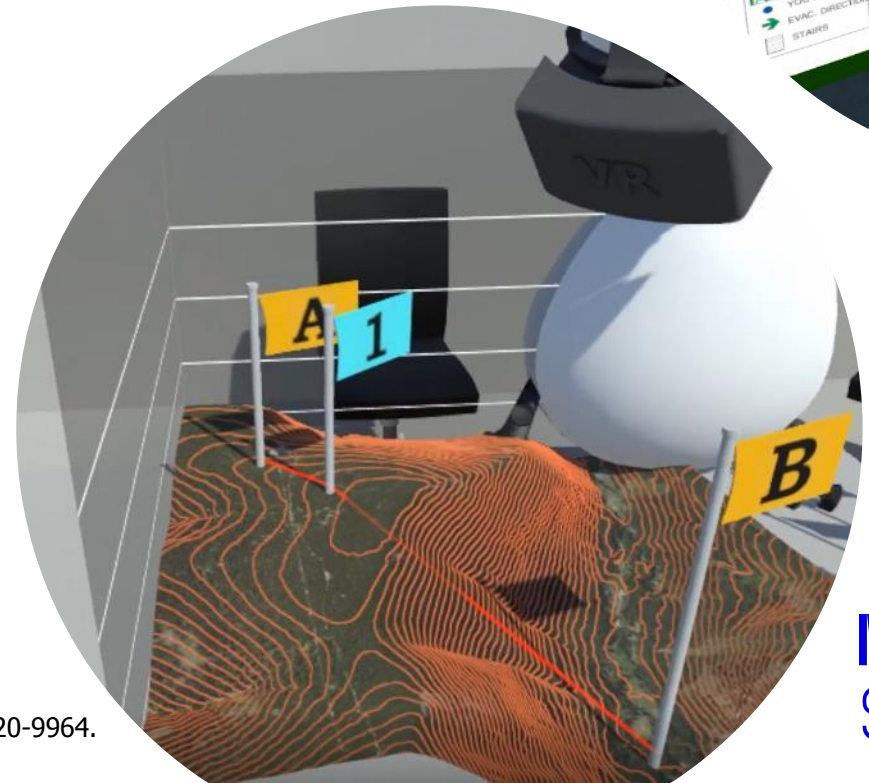
SITUATION = Leak of flammable liquid
ROLE = Firebrigade operator
DISPLAY DEVICE = Color LCD 22"
 ...



MUNI
SCI

environments

- ## — Simulations

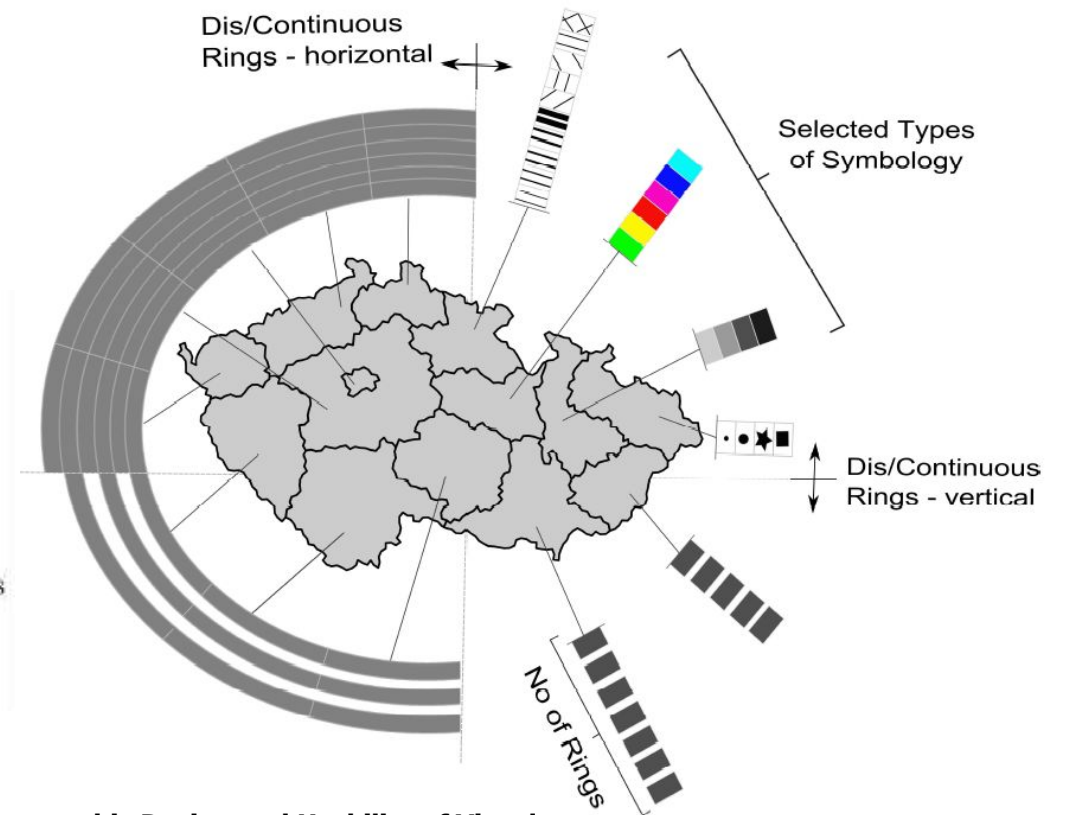


Cartographic support of decision making

- Perception and cognitive issues
- Experimental studies

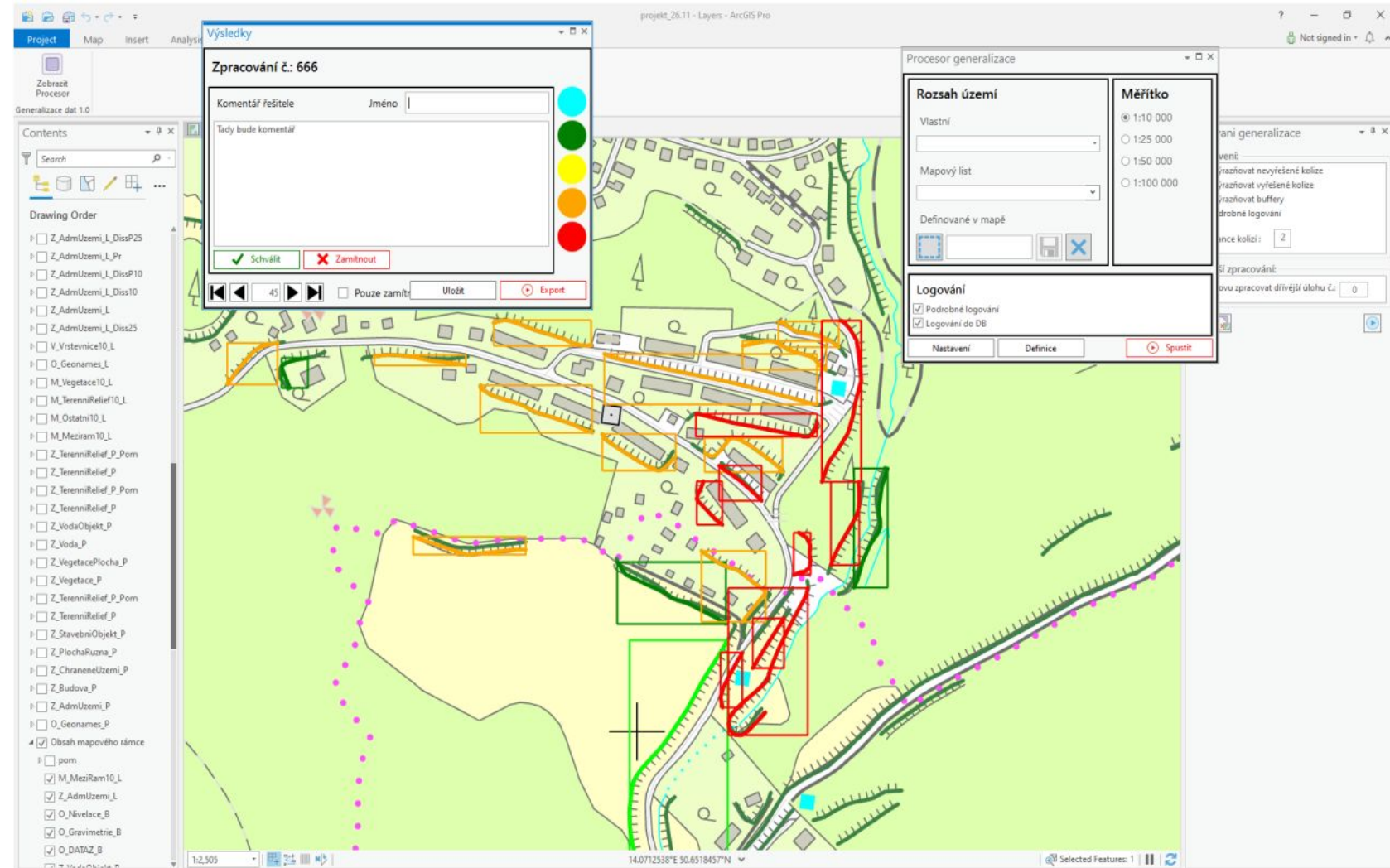


set A	set B	meaning of the symbol
		sewage treatment plant
		water bulge
		place with limited draining conditions
		anti-flood arrangement



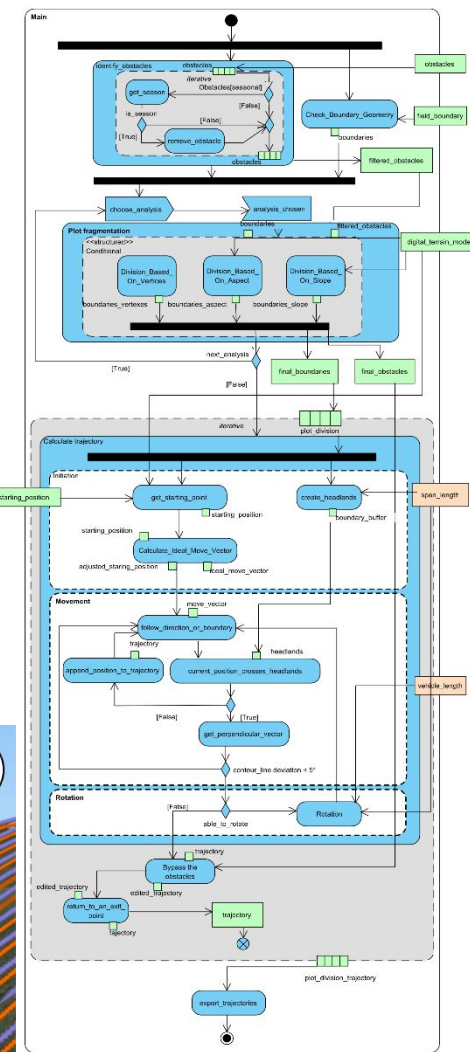
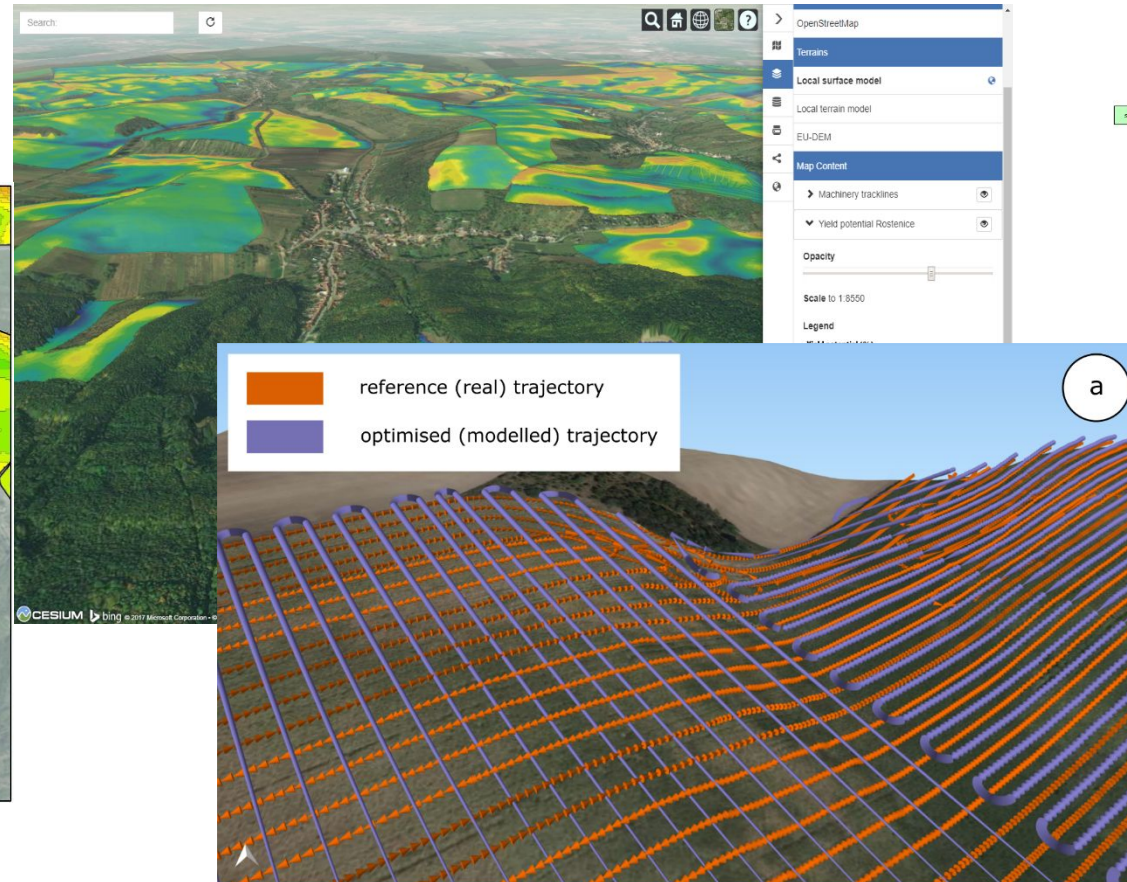
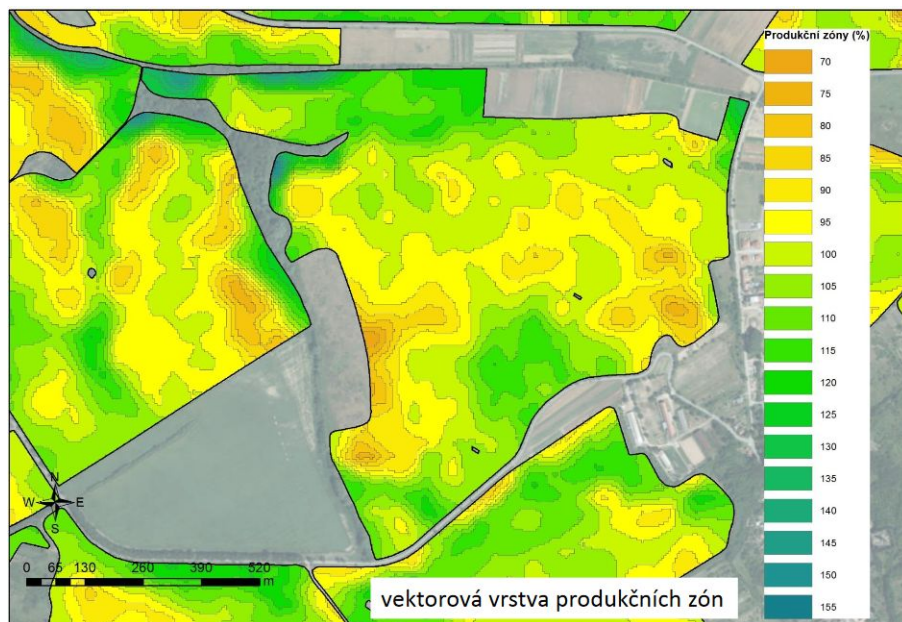
Automatized generalization in the production of medium and large-scale maps

- Design of the system for automatized generalization
- Cartometry based rules
- Implementation in various environments

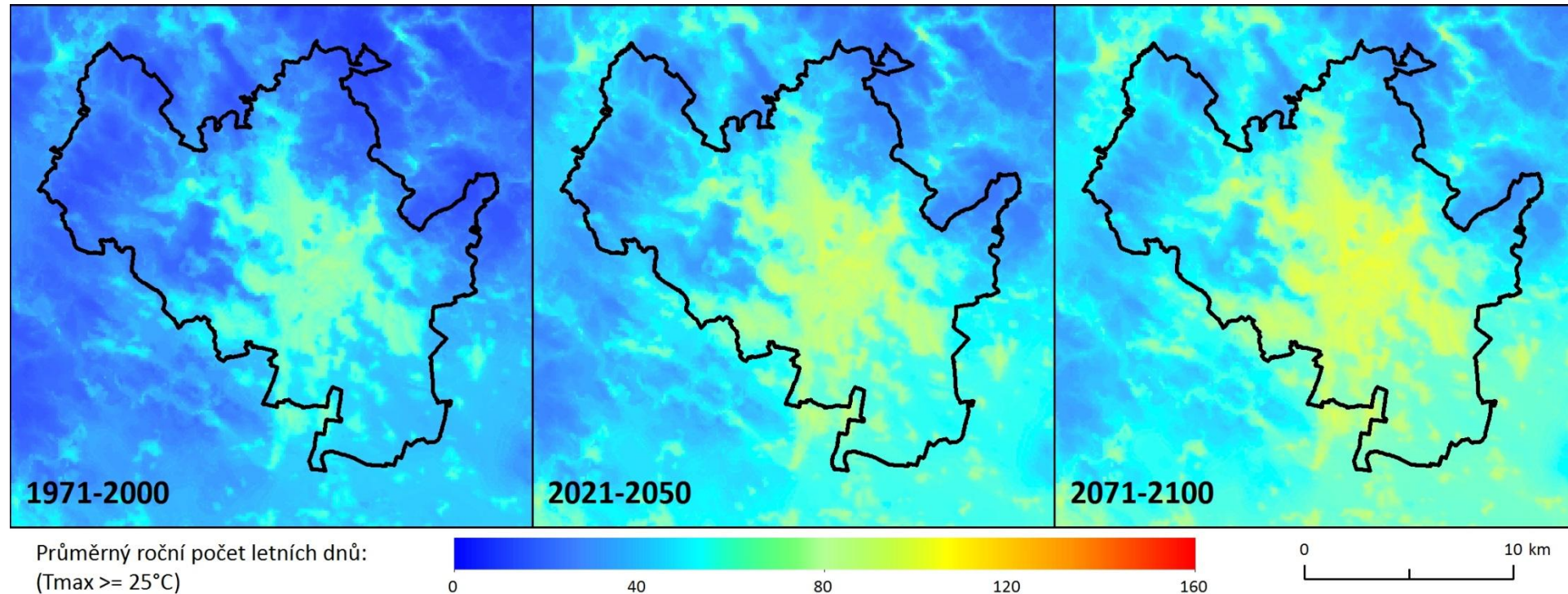


Precision agriculture

- 3D visualizations of yield predictions
- Optimisation of farm machinery trajectories
- Soil data models



Urban climatology - Urban heat island intensity modelling



Recent (1971–2000) and future changes in the mean number of summer days ($T_{max} \geq 25^{\circ}\text{C}$) in Brno area.

Future changes modelled according to RCP4.5 scenario.

Period	MIN	MAX	AVG
1971-2000	10,5	83,4	37,2 (100 %)
2021-2050	23,9	93,6	51,8 (140 %)
2071-2100	27,4	102,1	59,3 (160 %)

Interested in cooperation?

Contact us:

kubicek@geogr.muni.cz

konecny@geogr.muni.cz

Pitch session

Description of your organisation

The Department of Geography (Faculty of Science, Masaryk University) is the second largest university geographical institution in the Czech Republic.

Research areas

- Emergency mapping, Early warning and crisis management, Disaster surveying
- Virtual geographic environments, Spatial cognition in the VGE, Indoor mapping and navigation
- Perception and cognitive issues
- Precision agriculture, Soil data models
- Automatized generalization
- Urban climatology, Urban heat island intensity modelling

Specify your cooperation interest

Preparation and realisation of common research project in one of fields mentioned above.

Description of your partner of interest

Research institutes, Universities, Regional administration

Keywords

Cartography, Geoinformatics, Remote Sensing, GIS, Emergency Mapping, Perception and Cognition Studies

Contact info

Please, write information you would like to share

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- +420 549 495 135
- Department of
Geography,
Faculty of Science,
Masaryk University
- <http://geogr.muni.cz/research>
- Czech Republic

CODASIPAT A GLANCE



A PIONEER IN COMMERCIALIZING THE POTENTIAL OF RISC-V WITH A STRONG R&D WORKFORCE

HIGHLIGHTS



100+ Employees
In R&D 80%+

CURRENT INVESTORS



- Founded in 2014, with 4 offices across Czech Republic, Germany, China and France
- Founding member of the RISC-V Foundation and technology is based on 10 years of university research on processor design automation
- Redefining the RISC-V based processor design through revolutionary semiconductor core IP and electronic design automation (EDA) technology. The company is a pioneer in commercializing the potential of RISC-V, an open processor instruction set architecture (ISA), enabling customers to optimize designs to **meet exact computing requirements and to accelerate innovation**
- A privately owned company that is backed by renown venture capital investors, angel investors and corporate investors
- Provides off-the-shelf RISC-V processors, a unique EDA tool for customized RISC-V processor designs and SweRV support for Western Digital

BUSINESS OVERVIEW

KEY PRODUCTS & SERVICES

codasip
STUDIO

Automation toolset for easy processor design or modification

codasip
RISC-V PROCESSORS

Our off-the-shelf portfolio of RISC-V processors

codasip
SweRV CORE
SUPPORT PACKAGE

Everything needed to deploy Western Digital's SweRV Core

KEY DEVELOPMENT MILESTONES



Pitch session summary

Description of your organisation

Codasip was founded on a simple belief – that we could bring together the brilliance of microprocessor architects and software engineers and capture it in tools that made design simpler, faster, and less expensive.

Specify your cooperation interest

Codasip is looking for partners with knowledge of SoC (System on Chip) design as well partners with knowledge of vertical solution design based on RISC-V ecosystem (accelerators), for building the Platform as Service (PaaS)

Description of your partner's interest

Companies, which are looking for strong commercial partner with EDA microprocessor design methodology and commercial RISC-V IP

Research areas

Domain specific accelerators based on the RISC-V IP, for domains as AI, Security and Graphics

Keywords

EDA, RISC-V, SoC, AI, Security, Graphics, Semiconductor

Contact info



- Karel Masarik
- CEO and Founder
- masarik@codasip.com
- Codasip
- Privately owned company
- www.codasip.com
- Czech Republic/Germany



PITCH SESSIONS - JIANGSU PART



Pitch session

Description of your organisation

We are a high-tech company located in Nanjing, Jiangsu province China. We focus on IC design service business.

Specify your cooperation interest

We are looking for CPU cores with special acceleration vector instructions

Description of your partner of interest

Our partner should provide the CPU core with customized CPU instruction capabilities

Research areas

CPU

Keywords

CPU, ISA, Vector

Contact info

Please, write information you would like to share

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- davidg@emon-tech.com
- 86-21-13816761453
- Emon Technologies
- IC design service Company
- www.emon-tech.com
- China

Pitch session

Description of your organisation

China Construction Industrial and Energy Engineering Group Co., Ltd is the secondary company of China State Construction Engineering Group Co., Ltd.(CSCEC) which is 27th in Fortune Global 500 in the People's Republic of China

Research areas

- Fine chemical engineering
- Energy chemical industry
- Mechanical and electrical installation
- Water pollution prevention and control
- Reconstruction of old city
- New infrastructure construction

Specify your cooperation interest

Preparation and realisation of common research project in one of fields mentioned above.

Description of your partner of interest

Research institutes, Universities, Regional administration

Keywords

Fine chemical engineering, Energy chemical, Water pollution, Mechanical, Electrical

Contact info

Please, write information you would like to share

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- +86 021 56663440
- Engineering research institute of China Construction Industrial and Energy Engineering Group Co., Ltd
- <http://inco.cscec.com/>
- The People's Republic of China

Description of your organisation

Wuxi Fuyang Biological Technology Co., Ltd. (Wuxi Fuyang) is a high-tech biotechnology company which is invested by H-share listed company BBI Life (01035.HK) and focuses on antibody full-chain technical service. The company was awarded the "2013" Talents Training Program of Jiangsu Province (2013), Jiangsu Province PhD Project (2011), Wuxi "130" Talents Program (2010), Jiangsu Enterprise Technology Innovation Project (2012), Wuxi Social Development Project (2010, 2013), Jiangsu Province International Cooperation Project (2015), and China Institute of Food Science and Technology Innovation Award (2017), etc. Wuxi Fuyang has independently established a full-chain technical service flow, i.e. "Gene-Protein-Antibody-Rapid Test Product" and has successfully developed nearly 100 rapid test products, which possess a large portion of the market of biosafety and food safety in China.

Specify your cooperation interest

Develop mycotoxins detection and prevention technologies or products.

Description of your partner of interest

We are looking for a biological company or a chemical company to jointly develop mycotoxins detection and prevention technologies or products.

Research areas

Food Safety; Biosafety

Keywords

Mycotoxin; Detection; Prevention

Contact info

Please, write information you would like to share

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- 0086 15195980173
- Wuxi Fuyang Botechnology Co.,Ltd
- Company
- <http://www.fuyang-bio.cn/>
- China



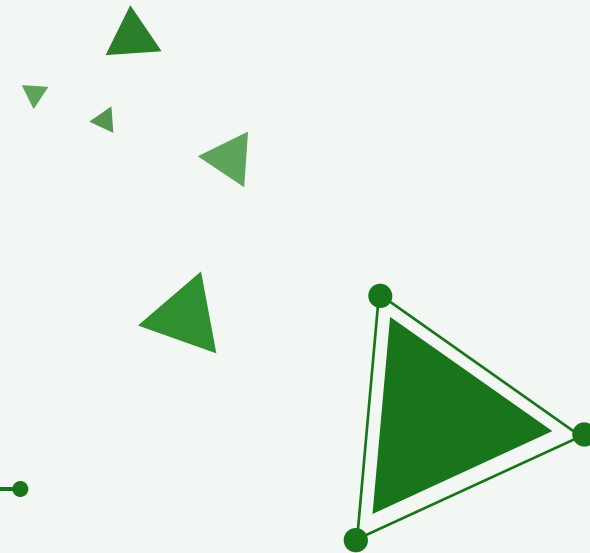
Wuxi Fuyang Biotech

**Testing Strip / ELISA Kit
Full-Chain Tech Service**

April, 2021

Wenda Wu, Ph.D, CSO

01 About Us





About Us



- Established in 2010
- Offices in Shanghai, Wuxi, Beijing, Nanjing, Hangzhou; Factory in Wuxi
- Over 70 staff, 85% are bachelors and masters, 5 doctors
- Envirologix's distributor in China
- Selling Area: China mainland, Taiwan, HK, India, Vietnam, EU countries
- Qualification: ISO9001, recommendation by Ministry of Agriculture, SGS, local QI centers, etc



Establish a close working relationship with...



**Envirologix
USA**



**BDS
The
Netherlands**



**Abraxis
USA**



**Agdia
UK**



**Adgen
UK**



**BioCheck
USA**

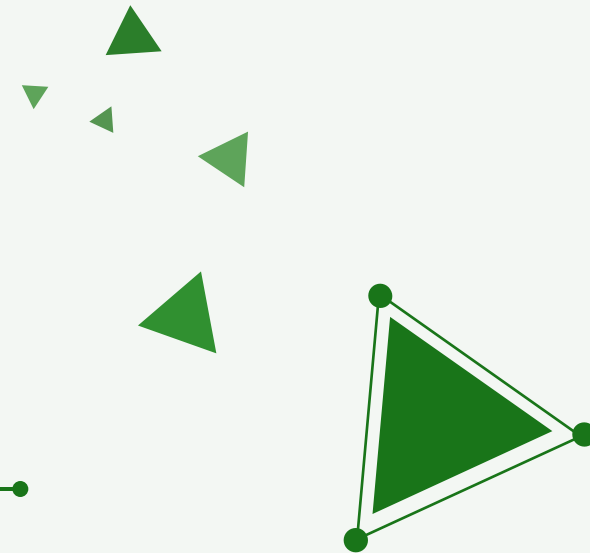


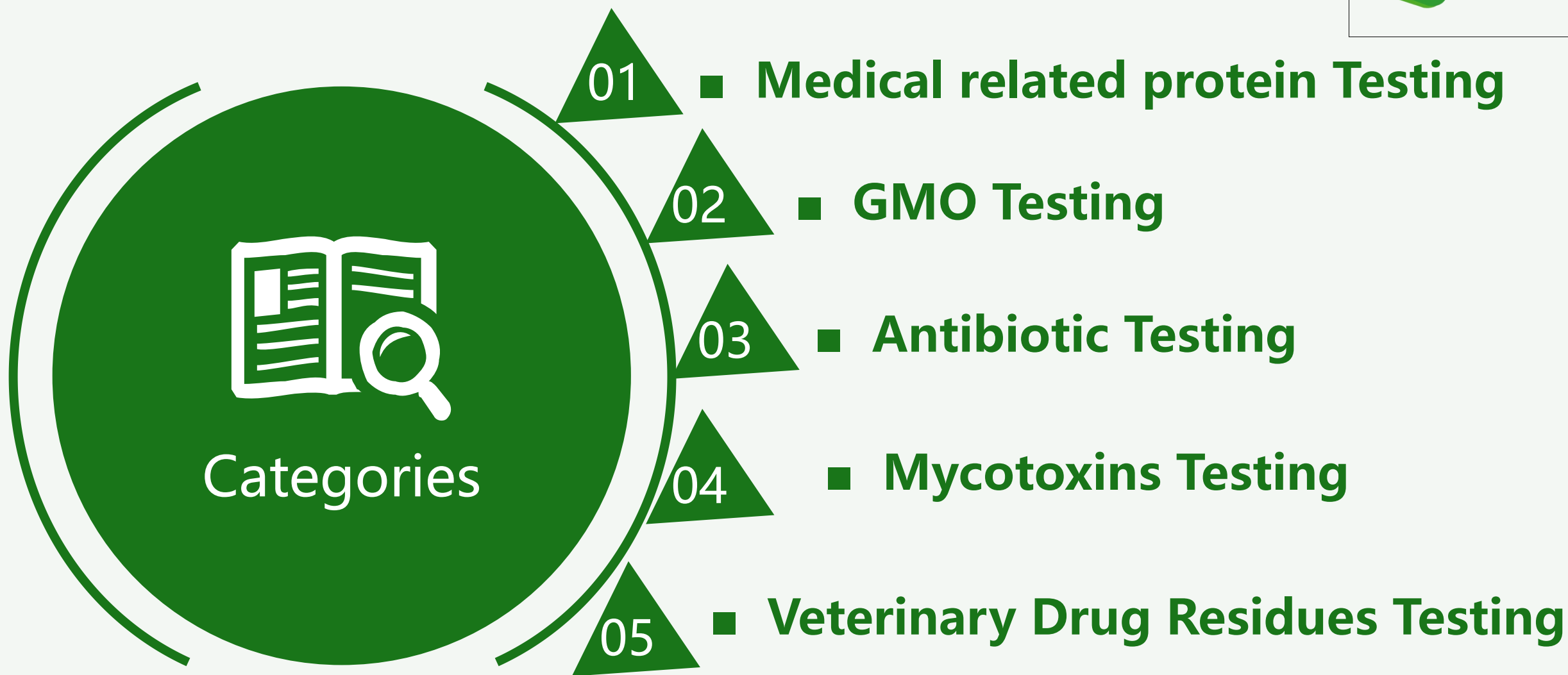
**BioFocus
Korea**



**Kaiwood
Taiwan**

02 Our Product







Introduction of Products



■ Medical related protein Testing

Lung disease related protein

Respiratory disease diagnostic biomarker

Reproductive infertility related protein

Virus related protein

PEDV(Porcine epidemic diarrhea virus) Test Card/ELISA Kit

PRSV(Papayaringspot virus) Test Card/ELISA Kit





Introduction of Products



GMO Testing

- Our featured products
- Occupy a certain proportion in the market.
- Cry1Ab/Ac strip recommended by Ministry of Agriculture.
- CP4 EPSPS strip: stability, time-saving, high sensitivity.





Introduction of Products



■ Antibiotic

Sulfonamide; Fluoroquinolones; Furan series; Tetracycline; Chloramphenicol

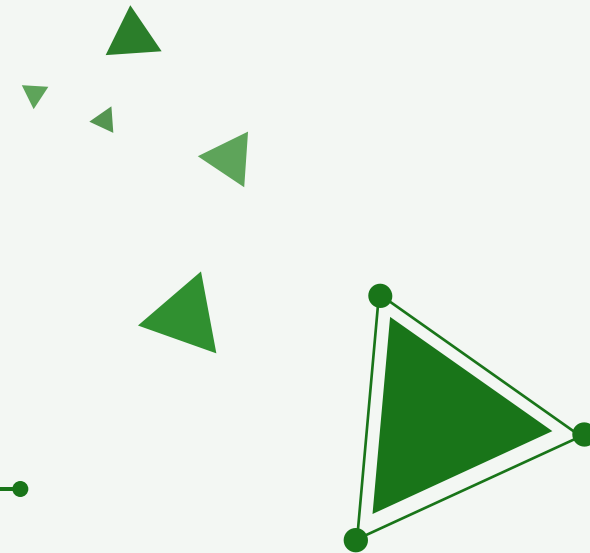
■ Mycotoxins

Aflatoxin; Deoxynivalenol; Zearalenone; OchratoxinA

■ Veterinary Drug Residues

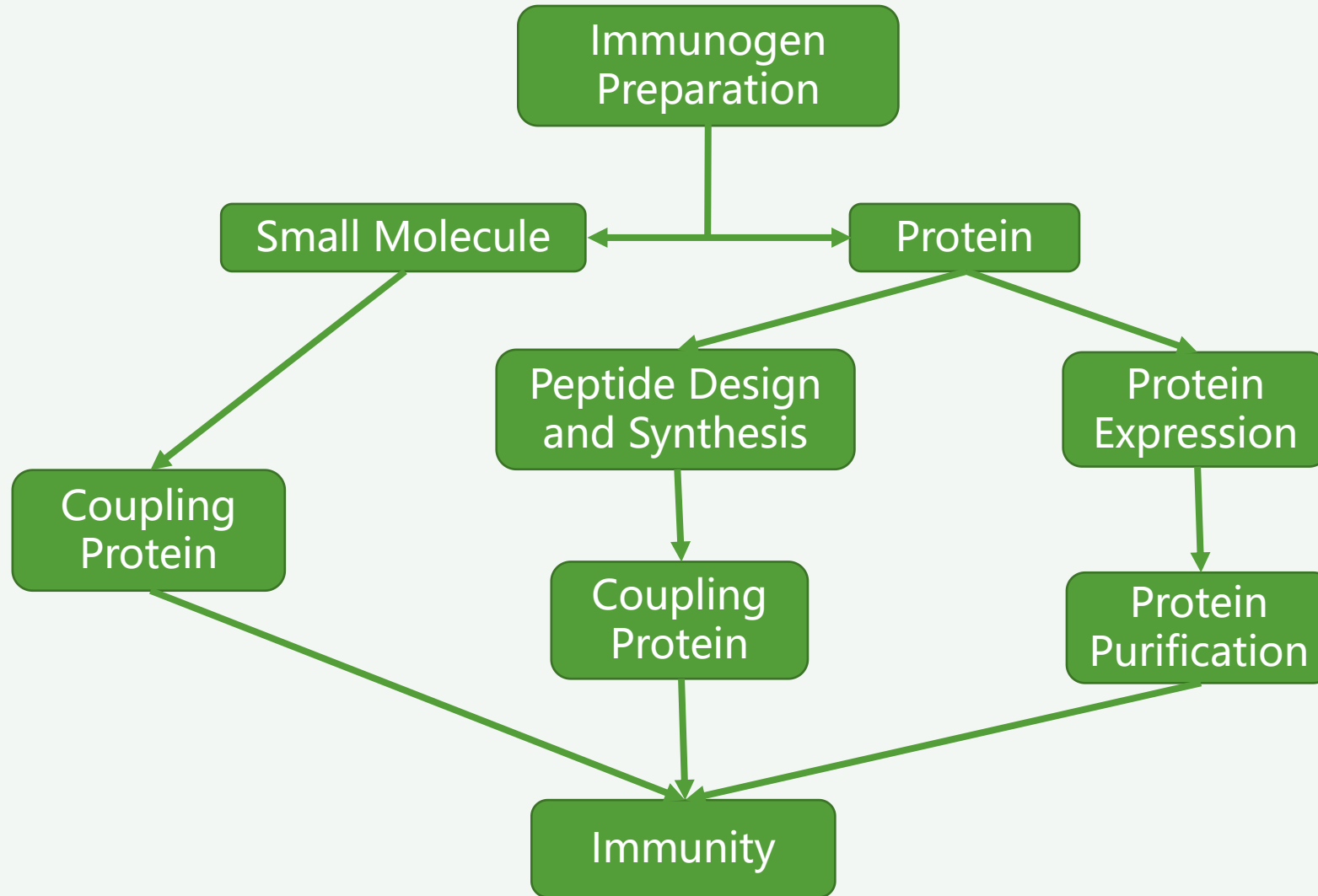
Clenbuterol; Ractopamine; Salbutamol

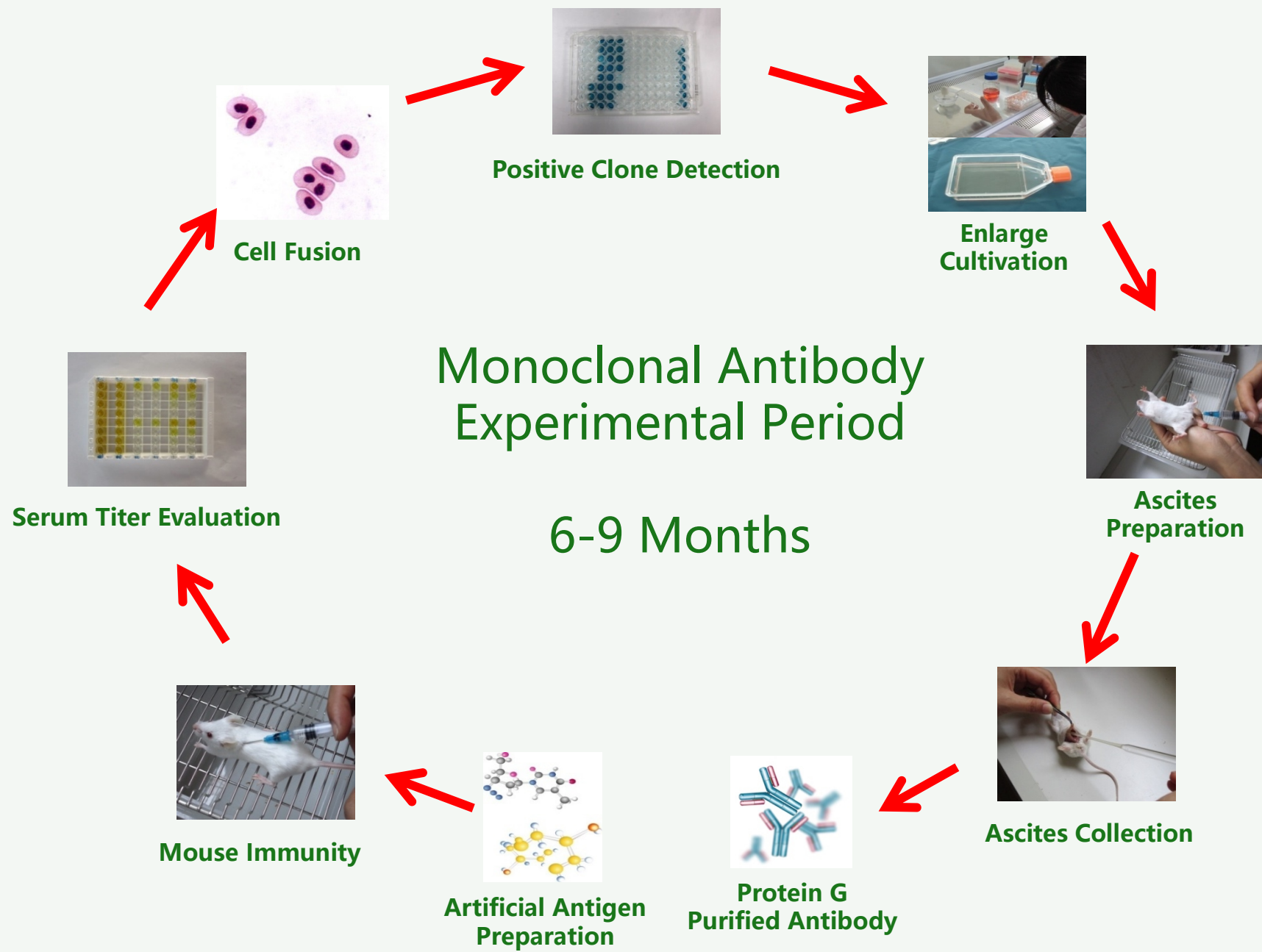
03 Our Service





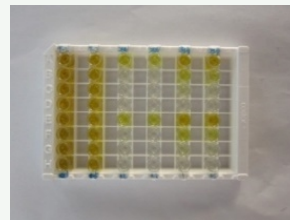
Preparation of Antibody







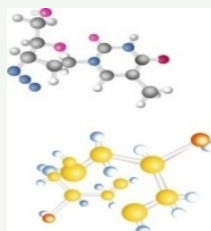
Rabbit Immunity



Serum Titer Evaluation



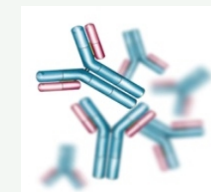
Take the blood



Artificial Antigen
Preparation

Polyclonal Antibody
Experimental Period

4 Months



Protein A
纯化抗体



Full-chain Antibody Technical Service

High Value-added Antibodies Full-chain Service



What is full-chain service?

Regular antibody service just includes producing the antibody you need, while full-chain service can meet all your needs, from the design to antibody pairs, and the kit development.

You will get...

- Gene ■ Protein ■ Antibody ■ Antibody pairs
- Patent/Article/Industrialization
- Rapid detection products(strips/kits)

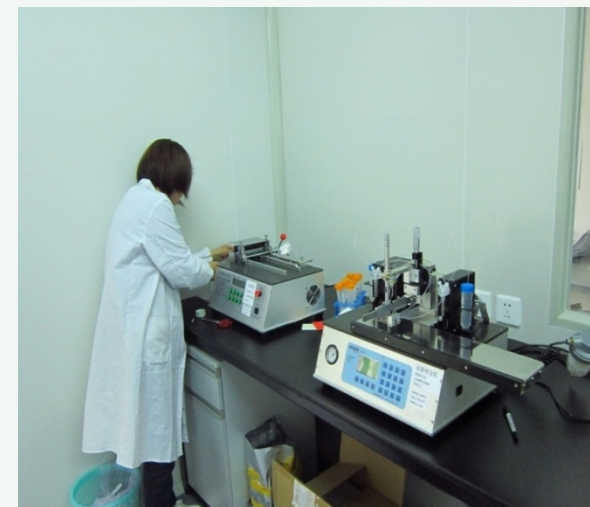


Our Certificates



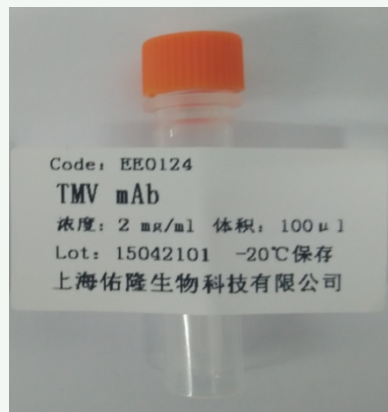


Our Factory

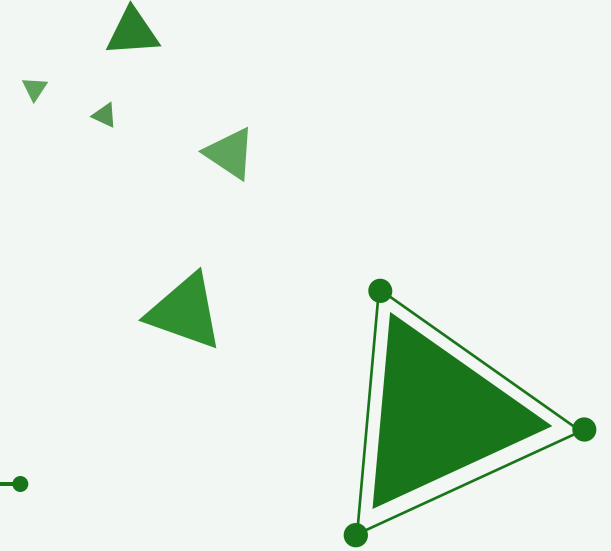




Product Picture



04 Our Plan





TA CR-JSTD Bilateral Co-funding R&D Project



Project Title: Joint development of synchronous rapid diagnostic strips for key markers of early diagnosis of lung cancer



CEO: Petr Koska, M.Sc., MBA

CSO: Serhiy Forostyak, MD., PhD



Current status of lung cancer in China



lung cancer



lung cancer

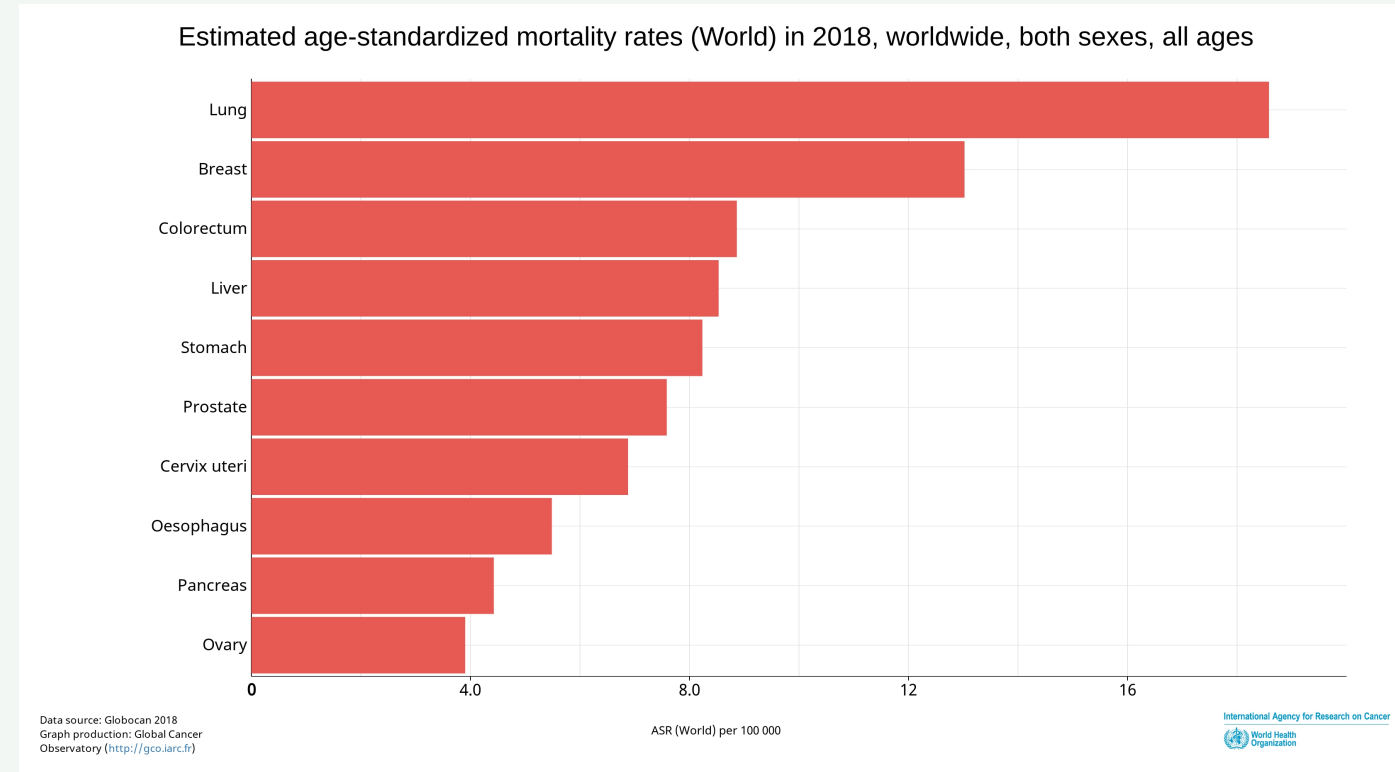
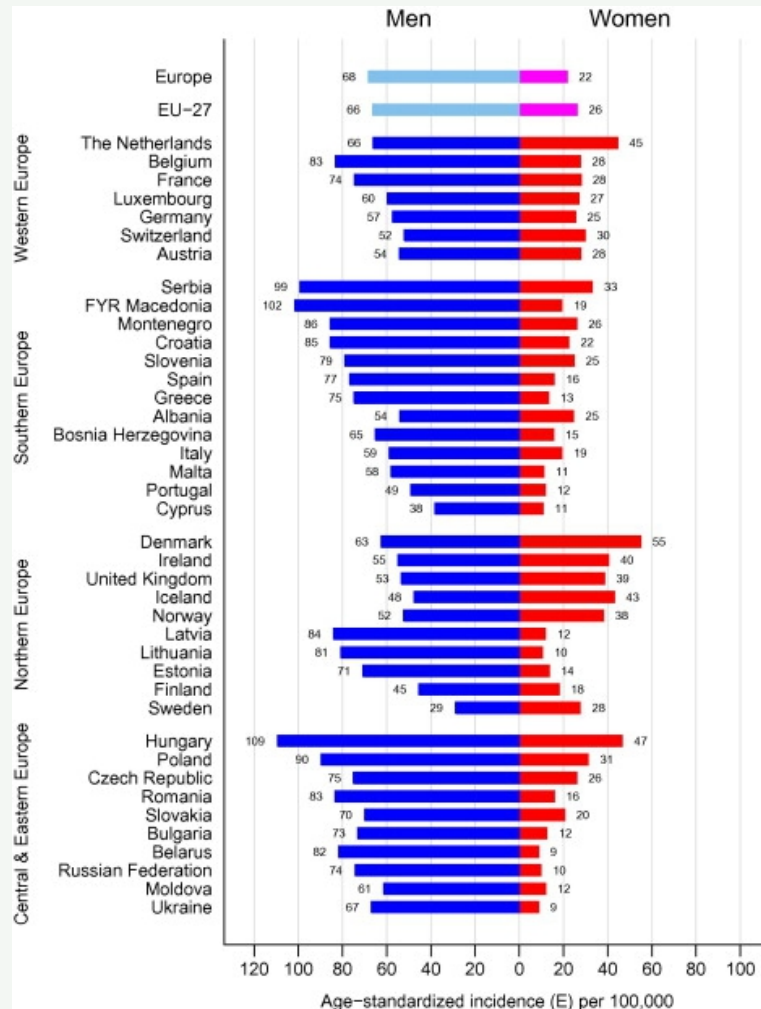
Male cancer incidence (Blue)

Female cancer incidence (Red)

China have 4 million new cancer cases and 3 million cancer deaths each year, with the highest incidence and mortality of lung cancer.



Current status of lung cancer in Europe

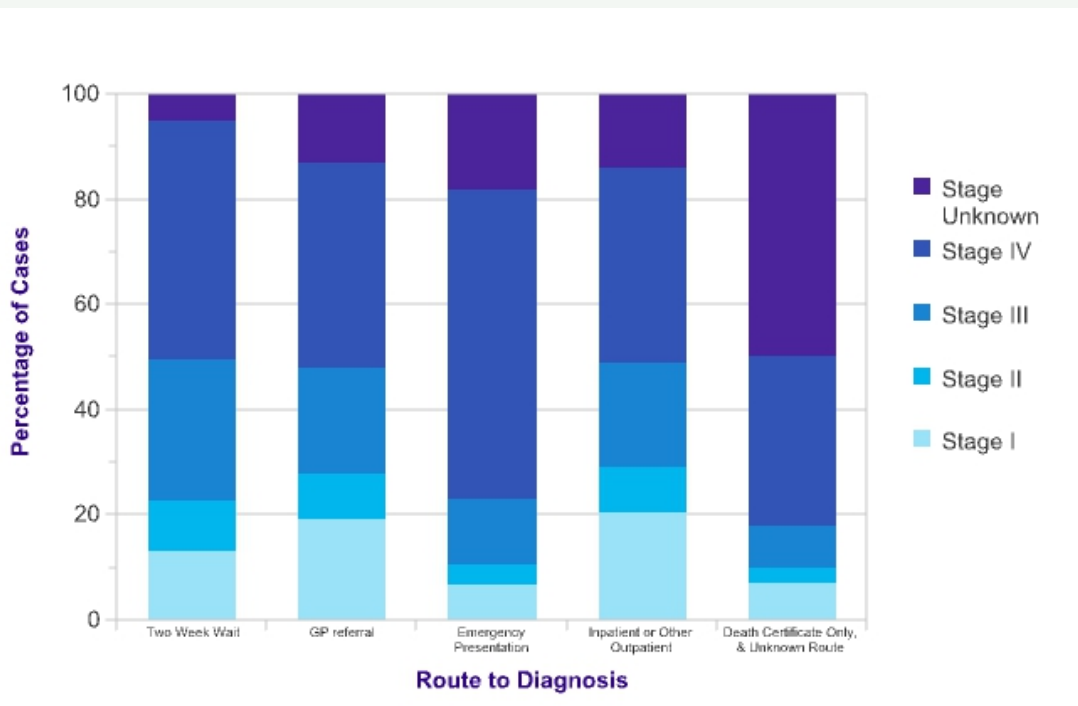


Lung cancer is the leading cause of cancer related death worldwide.

Lung cancer is more prevalent in males in Europe.



Early diagnosis of lung cancer is important



Percentage of Cases of lung cancer by Stage for each Route to Diagnosis, Adults Aged (15-99), England.

Most lung cancers are at advanced stage when first found. These cancers are very hard to cure.

Lung cancer is leading cause of cancer-related deaths in China, Czech Republic and worldwide.

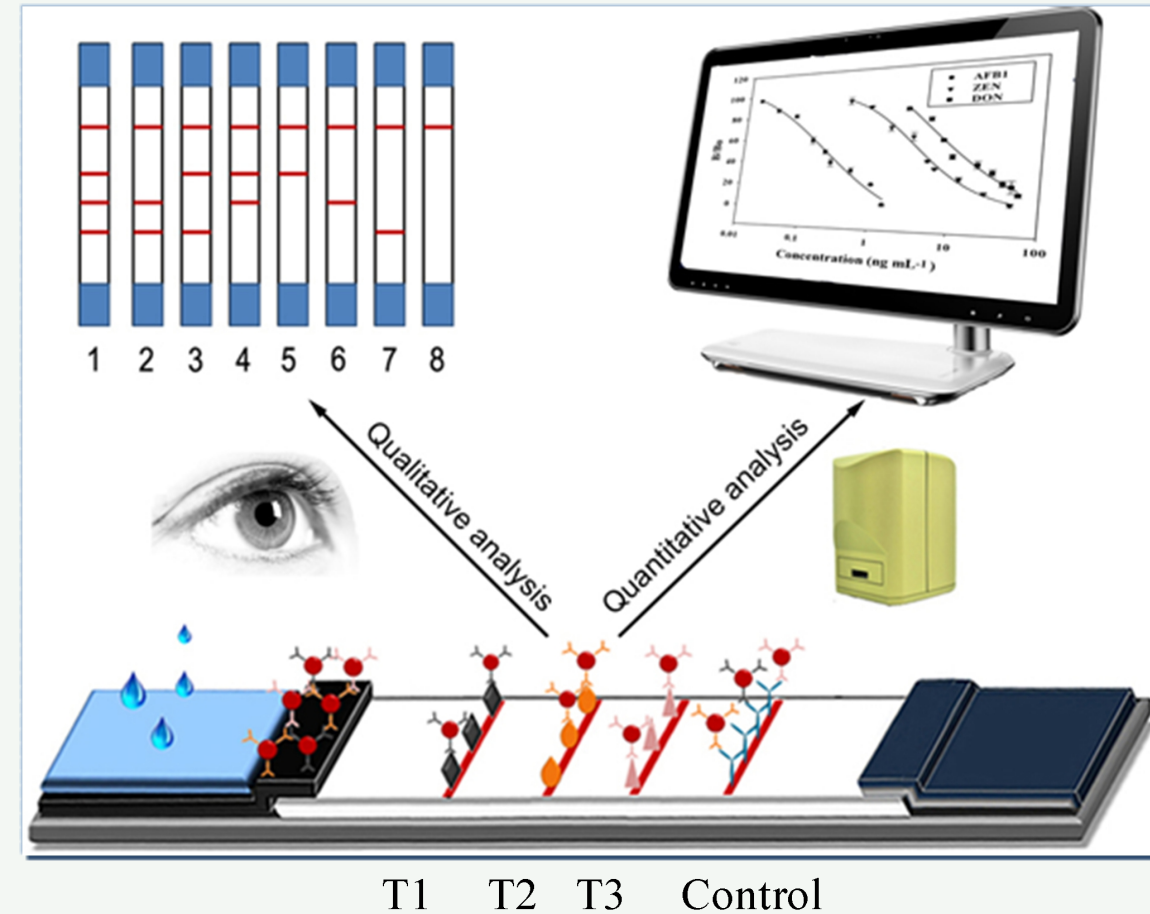
Up to date, no specific effective solution available for early diagnosis of lung cancer.

Goal of this project



This project will provide the solution for the early diagnosis of human lung cancer. The target proteins that are directly related to human lung cancer will be identified. By matching the antibodies, the rapid diagnostic strips for multiple protein markers will be developed and evaluated with actual samples from patients.

The cost of using test strips will significantly decrease to about RMB¥10 per indicator.

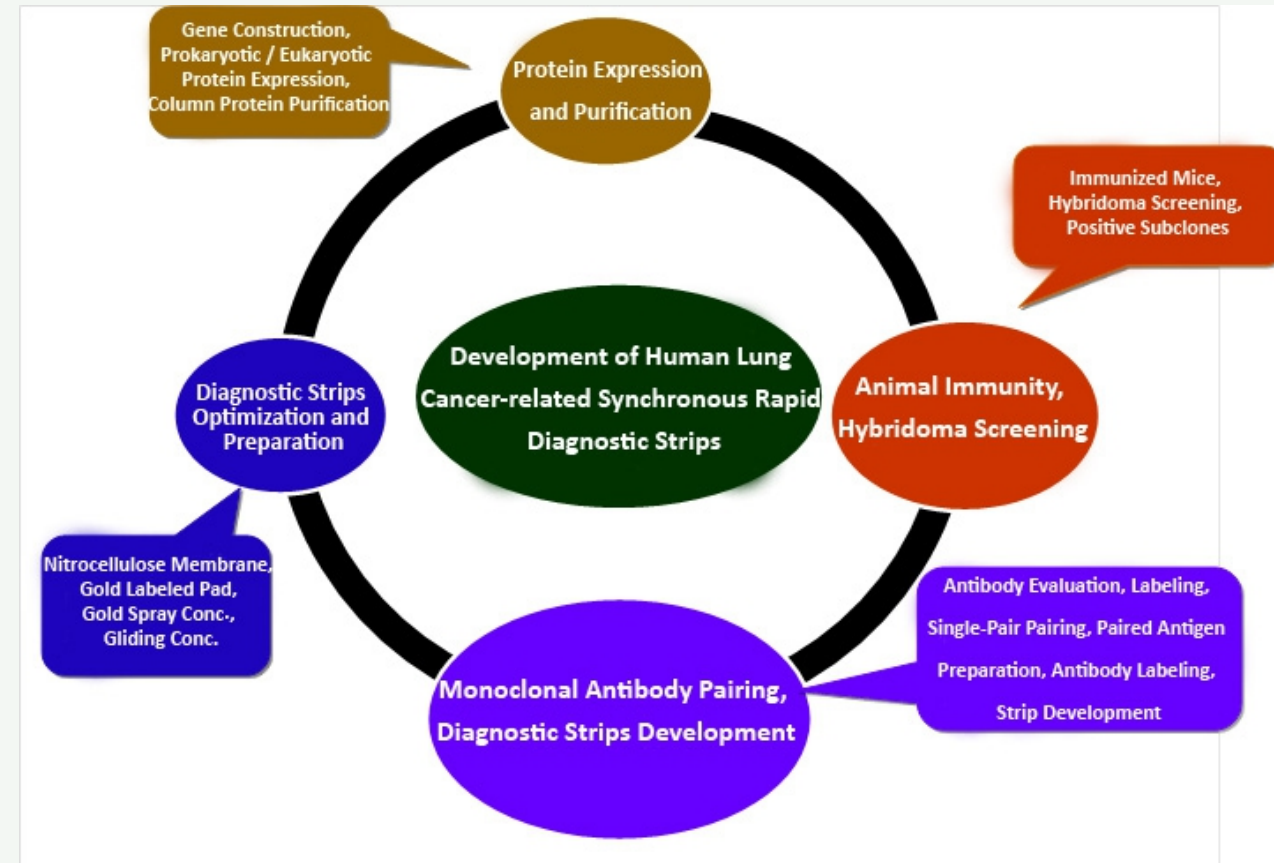


**Example of the main product
(3 in 1 rapid test strip)**

Implementation path



- (1) Identify not less than 3 target proteins directly related with human lung cancer, prepare not less than 50 mg of each identified protein.
- (2) Set up an information library of monoclonal antibodies against target proteins, match more than 5 pairs of antibodies for each identified target protein with the titer value over 10^{-5} .
- (3) Develop “3 in 1” and “2 in 1” synchronous rapid diagnostic strips products for target proteins, providing up to ng level of sensitivity per sample against the target proteins.
- (4) To collect at least 100 human blood samples (healthy volunteers and cancer patients) in Jiangsu (n=50) and Czech Republic (n=50) for testing specificity and sensitivity of diagnostic stripes.



Main work-flow of the project



Division of labor



Task no	Task Name	Description	Results	Organization
1	Target proteins screening; Function prediction	Identify lung cancer-related target protein through bioinformatics database	Amino Acid Sequences, Highly Purified Proteins	Wuxi Fuyang
2	Monoclonal Antibodies Preparation and Evaluation	Obtain paired antibodies as key raw materials through the classic monoclonal antibody preparation technology	Antibodies	PrimeCell
3	Develop synchronous rapid diagnostic strips products	"3 in 1" and "2 in 1" synchronous rapid diagnostic strips	Products	Wuxi Fuyang
4	Evaluation	Evaluated by using actual samples from patients	Technical evaluation report and regulatory support	Wuxi Fuyang PrimeCell
5	Patent application	IP protection on the protein sequence, antibody preparation, and diagnostic strips	Chinese patents Czech Republic patents	Wuxi Fuyang PrimeCell



5. Intellectual property rights



Amino acid sequences of the target proteins.

Rapid diagnostic strips development.

Register and commercialize developed strips in China.



Monoclonal antibodies.

Register and commercialize developed strips in Czech Republic and EU.



Cooperation ability



■ High Value-added Antibodies Full-chain Service

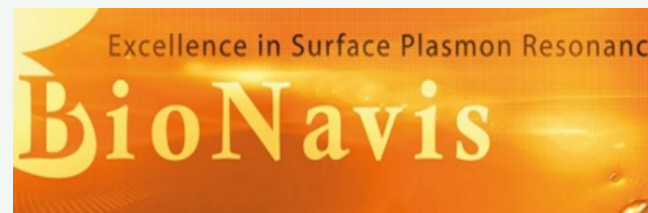
We have established the process of "Gene-Protein-Antibody-Rapid Test Product" and successfully developed nearly 100 rapid test products.

■ Hospital Partners

Shanghai Pulmonary Hospital, Shandong Yuhuangding Hospital, Southern Medical University, Tianjin Hengjia Medical Group, and so on.

■ International Cooperation Experience

In 2015, we cooperated with BioNavis and successfully got Jiangsu-Finland Project.





Wuxi Fuyang Biotech

THANK YOU FOR ATTENTION

April, 2021

Johnson.wu@fuyang-bio.com

Pitch session

Description of your organisation

Caidao does R&D , manufactures, sales and services in precision measuring, especially in pan-semiconductor industry.

Specify your cooperation interest

1. Nano-precision measuring and instruments.
2. Optical precision instrument and parts.
3. Pan-semiconductor industry measuring instrument.
4. Optical R&D cooperation.

Description of your partner of interest

1. Optics\measuring\display panel\semiconductor R&D organization.
2. Pan-semiconductor inspection instruments manufacture company.
3. Optical instruments and parts manufacture company.
4. Institute and company with optical technology and research results.

Research areas

precision mechanical design, motion control, precision optics, vision measuring software

Keywords

Precision measurement, display panel, semiconductor

Contact info

Please, write information you would like to share

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- +86-137-70915376
- Jiangsu CAIDAO precision instruments Co.,LTD
- Private enterprise
- www.caidaopi.com.cn
- China



INTAC
Optical instrument



CAIDAO PROFILE

CEO: Marx Ma

Jiangsu Caidao Precision Instrument Co., Ltd. was established in 2016 at country-level HDA of Kunshan, and Caidao has become a national high-tech enterprise in high-end optical image measurement and various inspection instruments, CMM, and AOI automatic testing equipment research and development, production and sales services. Its wholly-owned subsidiary, **INTAC Optical Instrument Co., Ltd.** has a wide and in-depth customer base in the display panel and semiconductor industry. The related products have been used in many well-known panel semiconductor companies in China and the world.

--Caidao has researched in optical precision measurement for many years and set up professional teams of precision mechanical design, motion control, precision optics, visual software etc. We always adhere to the "customer-centric, good products, good service" business philosophy.

--Up to now, the company has applied for more than 40 patents and software works, and has successively obtained the qualifications of Jiangsu private technology enterprises, Jiangsu sci.&tec.small and medium enterprises, Kunshan sci.&tec.R & D center, Shandong University industry-university-research cooperation tech. center, Shanghai sci.&tec. graduate workstation, National high-tech enterprises and so on.

--"The sixth generation AMOLED flexible screen laser repair detection microscope" won the pre selection of the first set of equipment in Jiangsu Province. "10.5G line super travel measurement microscope" won the entrepreneur Angel award of Kunshan sci.&tec. Bureau. Due to "High resolution and high efficiency automatic macro micro detection equipment" project, Caidao is the only shortlisted enterprise in Jiangsu which is held by the short board equipment of the Ministry of industry and information technology.

-- In the future, the company will set up nationwide sales&service centers in major industrial center cities. Caidao will focus on target industries, deeply cultivate technology, and aspire to become a leading manufacturer of testing equipment and solutions for panel display semiconductor industry in China and the world!



2017	Kunshan Entrepreneurial Angel award
	Listed in Shenzhen Qianhai equity trading center
2018	Private enterprise of science and technology in Jiangsu
2019	Shandong University industry-university-research cooperation tech. center
	The only shortlisted enterprise in Jiangsu which is holded by the short board equipment of the Ministry of industry and information technology.
	Champion of "professional optical company" selected by Xinwang media network
	Jiangsu sci.&tec.small and medium enterprises
	Laid up high tech enterprises
	Kunshan Zuchongzhi technology research project award
2020	Shanghai sci.&tec. graduate workstation
	Kunshan sci.&tec.R & D center
	High tech Enterprises

Products, precision microscope

才道精密



Microscope 4030



Microscope 500



Side compound microscope



Large metallographic microscope



Automatic large gantry microscope



Manual tool microscope



Manual large microscope



Large infrared microscope



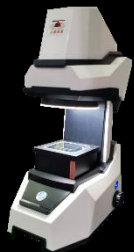
TFT Laser repair microscope



AMOLED Laser repair microscope

Products, vision measuring machine

才道精密



Plonk one-click
fast measuring
machine



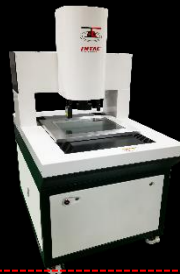
Plonk one-click
fast measuring
machine



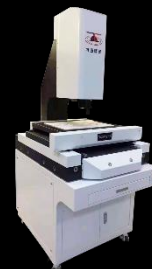
Nobel manual
vision measuring
machine



Newton automatic
cantilever 2.5D vision
measuring machine



NewtonH automatic
bridge vision
measuring machine



Aucoating film
thickness gauge



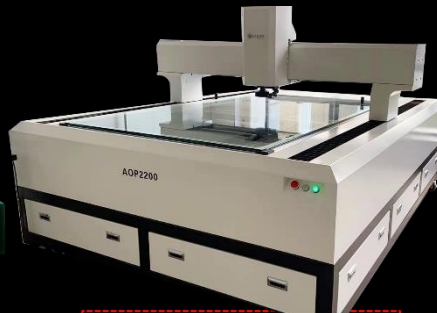
Plonk splicing
vision measuring
machine



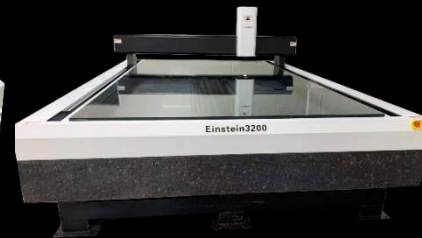
Newton 800 automatic screw
drive 2.5D vision measuring
machine



YTK automatic linear dual
drive 2.5D vision measuring
machine



APO automatic air floating
2.5D vision measuring
machine



Einstein 3200 linear single
drive 2.5D vision measuring
machine



Probe stage



8-axis 3-lens point-line laser scanning inspection machine



LCD automatic turnover machine



AMOLED tester



AOI automatic detector for atomic cap



AOI automatic testing machine for small motor



8-probe online comparator

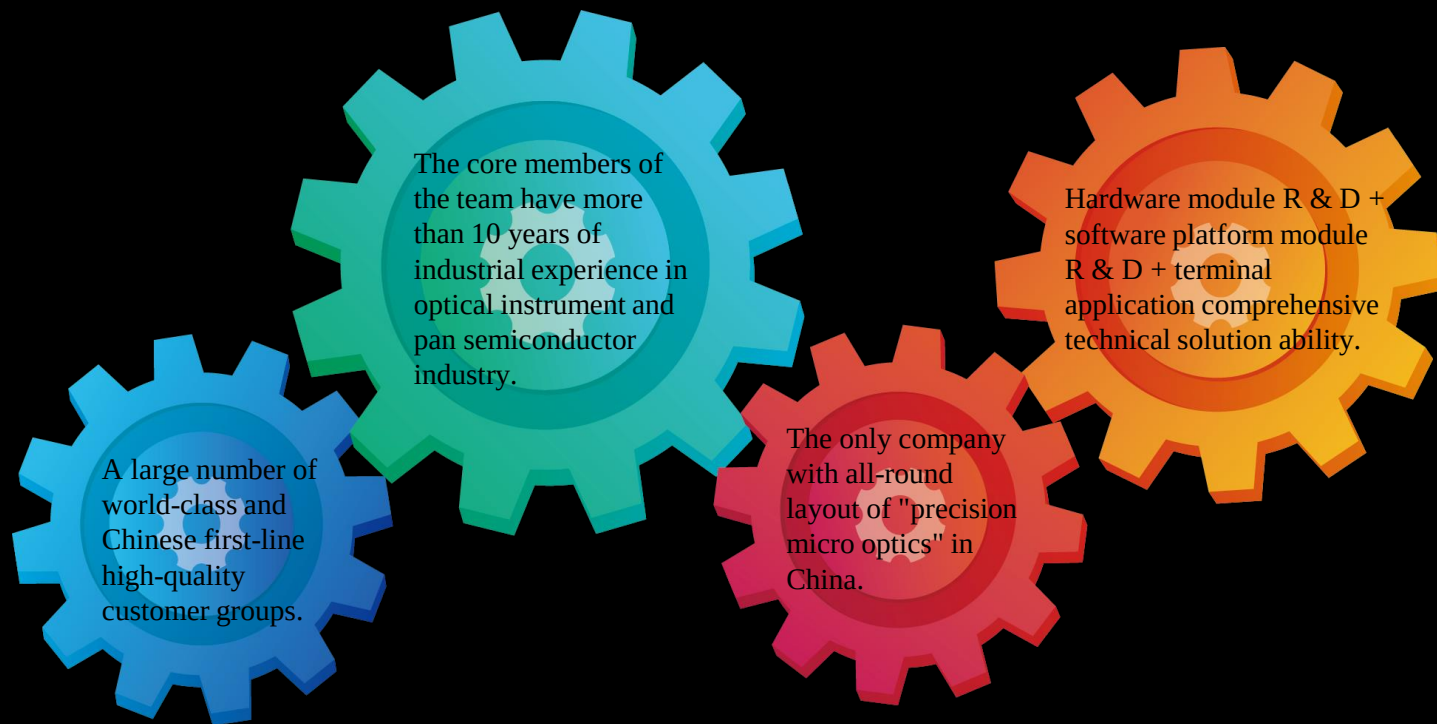


On line AOI inspection machine for optical film



Company competitiveness

才道精密





Company competitiveness

才道精密

Strong R & D and design ability of precision machinery

One of few domestic equipment companies which have the ability to design and manufacture a complete set of precision mechanisms including linear single or double drive, air floating drive, screw and belt drive.

One of few domestic companies that can manufacture high-precision with super large range mechanical structures of more than 130 inches.

With comprehensive optical application capabilities, we can simultaneously master machine vision application of camera lens optical combination, micro optics with microscope application such as gold image, infrared, fluorescence, and laser application of measurement and repair.

Compared with the competitors, one of few companies which have own intellectual property control system and self-developed chip algorithm, and which can cover most of the main products.



Software advantages

才道精密

The software uses C # + opencv + tensorflow mixed programming method to write the visual algorithm and tests it in various complex environments, so that it is 30% faster than the traditional algorithm.



速度快



操作简单

Drag and drop operation, free combination of algorithm tools, flexible business process framework, edit software interface according to personal preferences.

Support multithreading concurrent execution, CPU normal acceleration, some algorithms support GPU acceleration, speed up and support script editing, VP script, and C # script editing, easy to expand.

Powerful deep learning detection module supports image classification, image segmentation, and semantic recognition.



数据智能



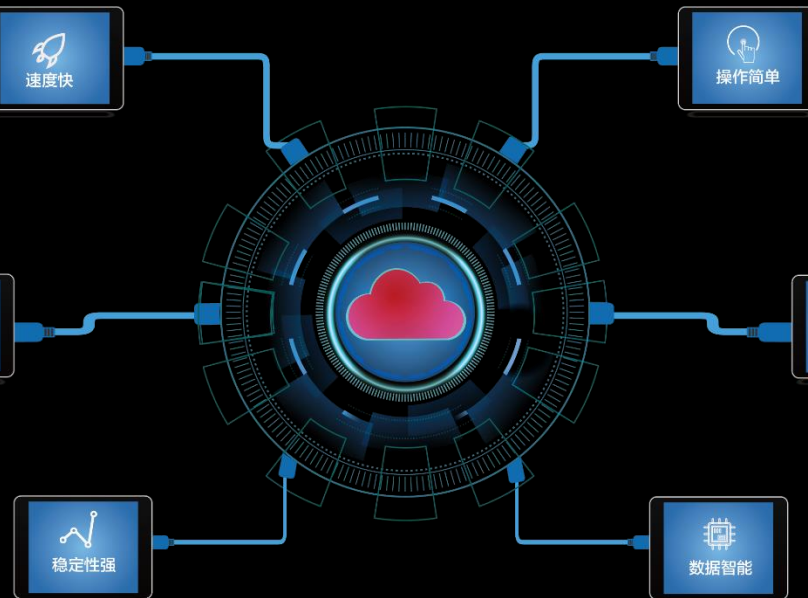
稳定性强



误检率低

The software adds mark positioning, image pre-determination, segmentation, classification and other strategies, sets the size of the regional position and limits the prior.

Testing the temperature and mechanical interference of the software respectively, the software can be used stably within the set range.





Customer list

才道精密

Panel display

SAMSUNG

HKC



PANDA
熊裕



SHARP

TRULY®

Visionox
维信诺

INNOLUX
群創光電

Semiconductor

Jiejie(Nantong)

Yangjie(Yangzhou)

Galaxy(Changzhou)

TDG(Jiaxing)

Kangqiang(Wuxi)

NCAP(Wuxi)

Everlight

WLCSP

Polarizer & optical diaphragm

Keystone(Nanjing)

Chimei(Kunshan)

Optimax(Taiwan)

Xiangteng(Nanjing)

YTD(Chengdu)

HIBR(Hefei)

Sanxin(Suzhou)

Ofilm(Hefei)

Others

Leili(Changzhou)

Chunqiu(Suzhou)

Chenguang(Shanghai)

Dafu electronic

FQNP

JT Mold



Customer profile

才道精密

Main customers

Customer	Caidao supplied	Industry status
BOE	large microscope, infrared microscope, repair microscope, fluorescence microscope, folding screen tester, 2.5D measuring	Leading enterprise in domestic PD industry
HKC	large microscope, infrared microscope, repair microscope, turnover machine, force saving arm, end measuring	First level enterprise in domestic PD industry
SHARP	large microscope, infrared microscope, repair microscope	Well-known enterprise in global PD industry
SUMNSUNG	large microscope, repair microscope	Leading enterprise in global PD industry
CSOT	on-line microscope inspection	First level enterprise in domestic PD industry
Yangjie, Jieli	microscope, Silicon wafer thickness gauge	Leading listed enterprise of domestic semiconductor discrete components
WLCSP	microscope, vision measuring machine	The first listed enterprise in China and the largest image sensor chip wafer packaging company in the world
JIEJIE	microscope, tool microscope, 2.5D measuring machine	A-share listed enterprise of semiconductor discrete components
Chimei	AOI, receiving machine, splitting machine, impact ball testing machine, film tearing machine	Well-known polarizer enterprise in the world will be listed soon
Xiangteng	AOI, 2.5D measuring machine, splitting machine, polarizer	Well-known polarizer cutting enterprise in China will be listed soon



Main models in the panel customer site

才道精密



HKC(Changsha) laser repair tester



Super large size 2.5D



Qunchuang(Ningbo)
module microscope



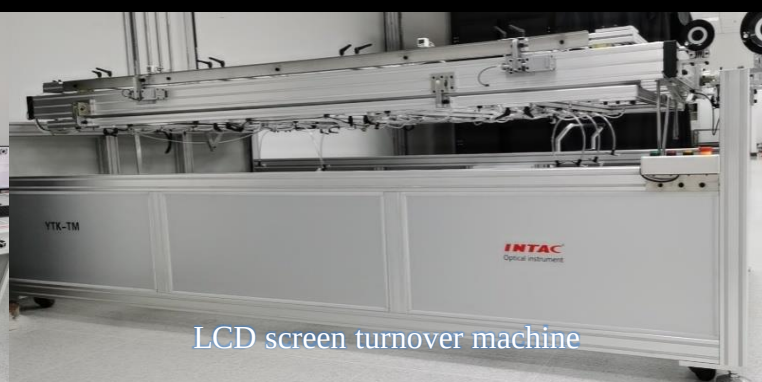
HKC Metalloscope



BOEVT(Hefei) OM



HKC Infrared
microscope

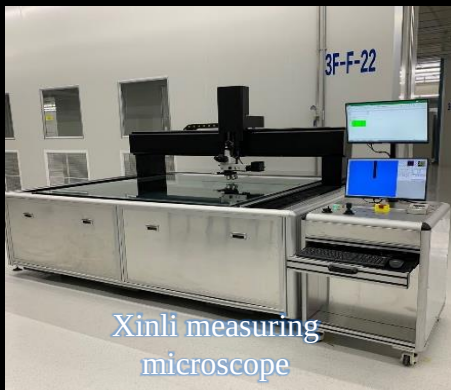


LCD screen turnover machine



Main models in the panel customer site

才道精密



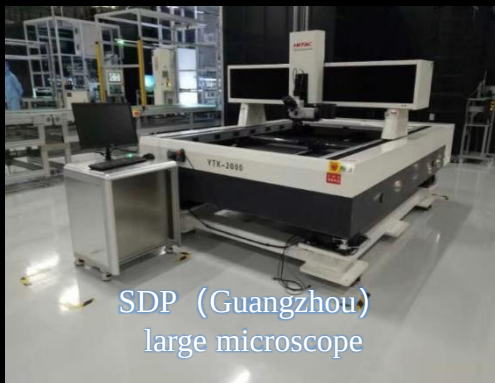
Xinli measuring
microscope



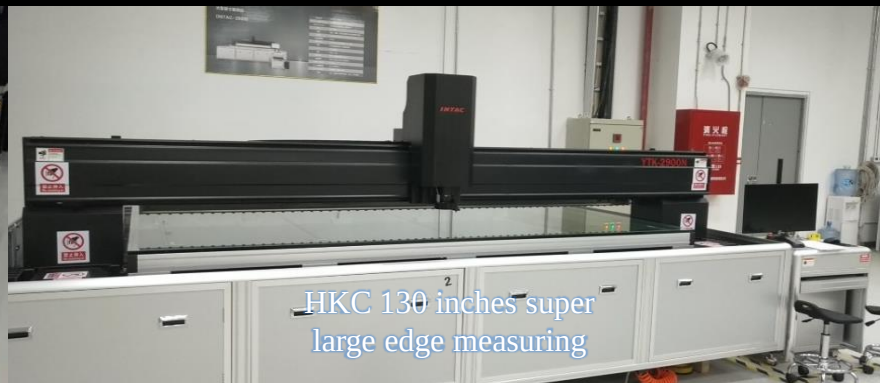
SUMSUNG(Huizhou)
large microscope



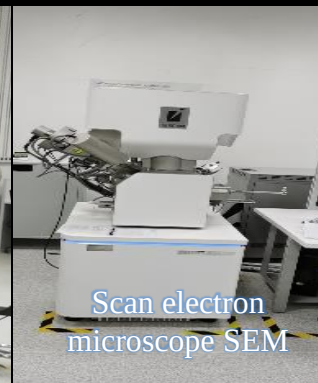
BOE(Mianyang) AMOLED laser
repair tester



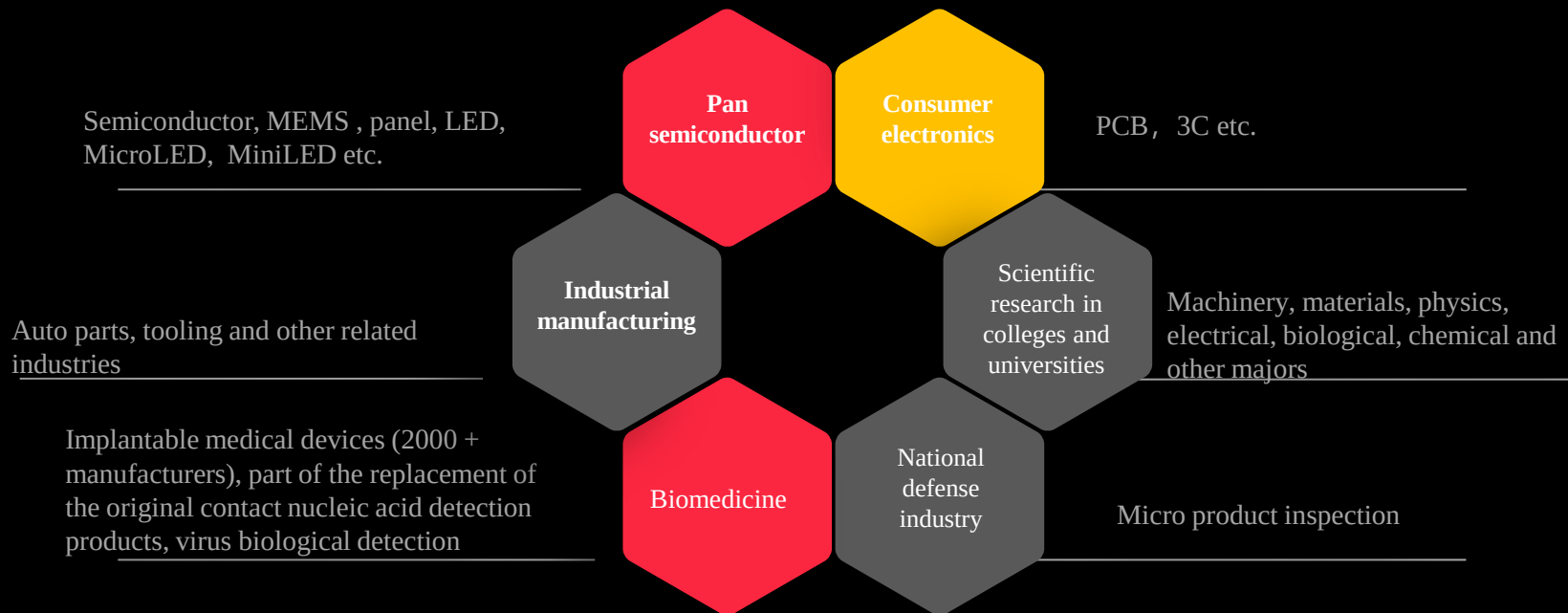
SDP (Guangzhou)
large microscope



HKC 130 inches super
large edge measuring



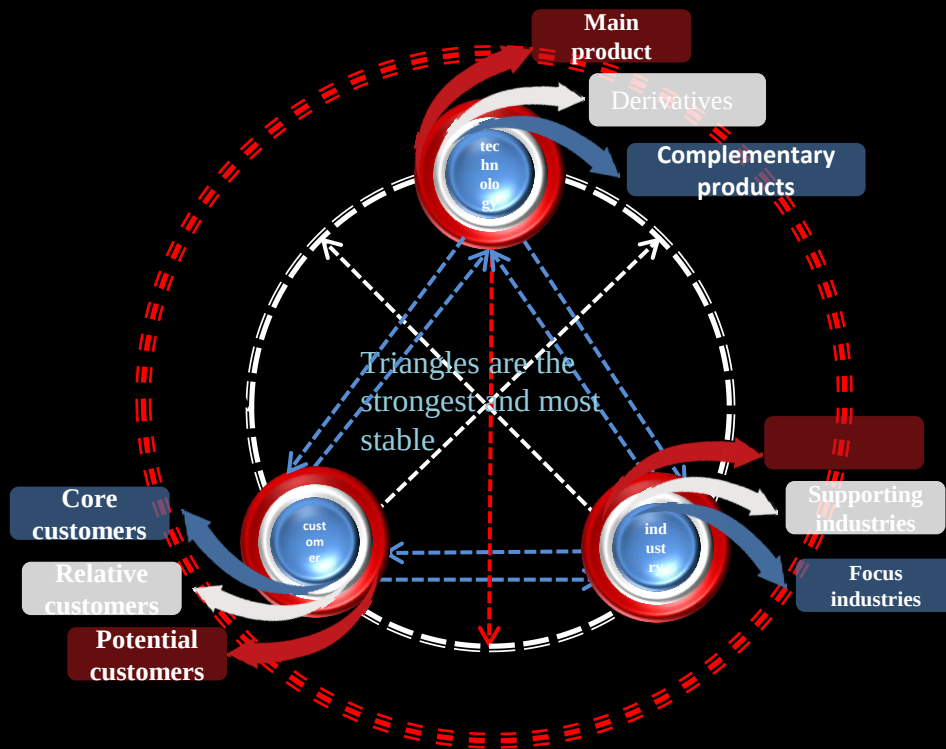
Scan electron
microscope SEM





"Trinity" framework system

才道精密



Trinity

- Focus on core technology of main products and quickly iterate derivative products
- Deeply cultivate the main industry, and gradually extend to the surrounding supporting and up-downstream industries
- Seize the hub customers and influence the downstream customers from the commanding height

Optical image measuring instrument, measuring microscope and related integrated manufacturing

Standard

- 2D, 2.5D standard inspection technology
- Focus PD industry

Micro nano on-line detection equipment, horizontal expansion of microscope series products, in-depth development of technology

Customize

- 2D,2.5D customized precision testing customized design of mechanism software and optical system, and complete solution
- Extend to pan semiconductor industry

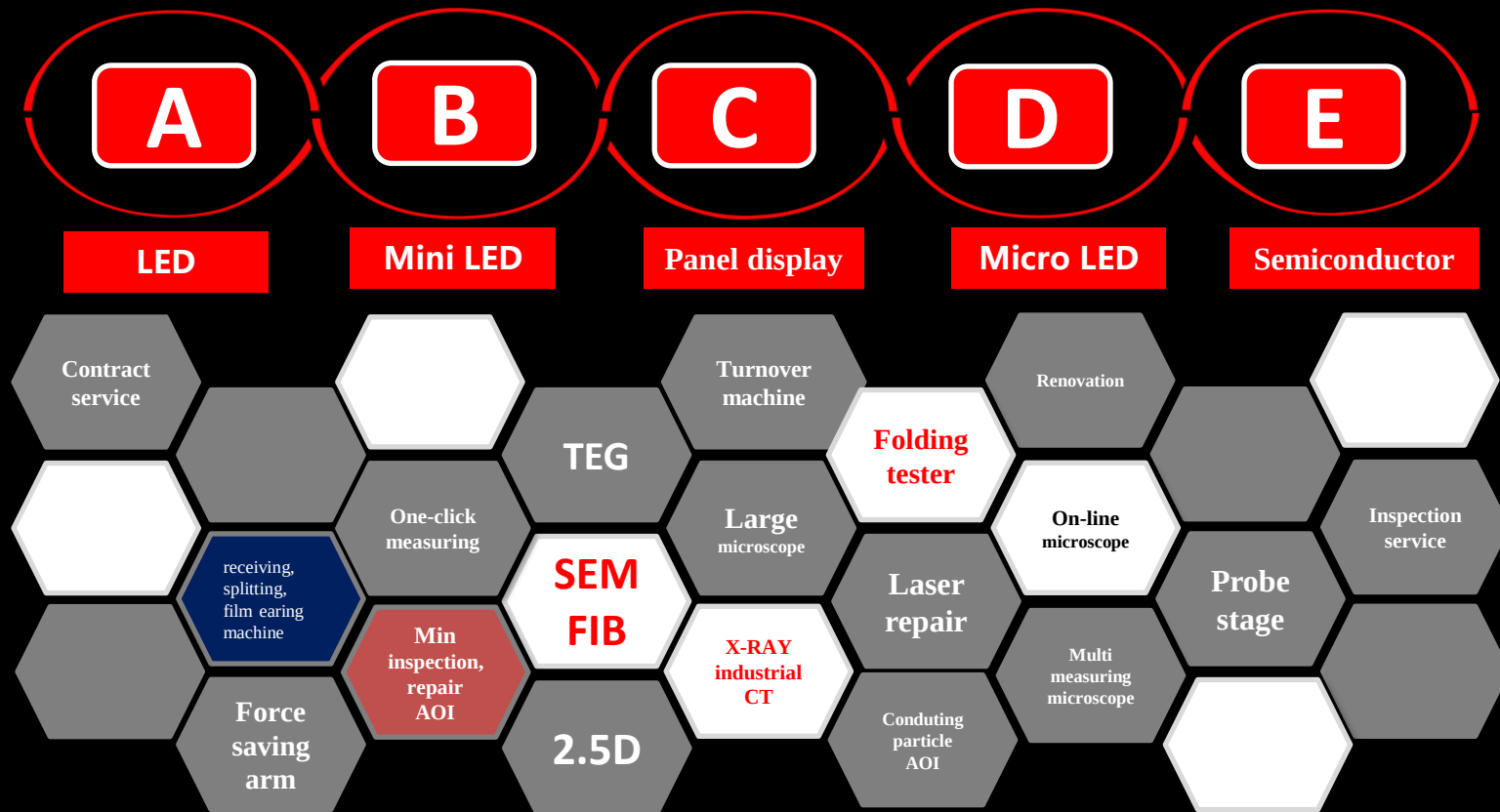
Inspection production line planning, system online solutions, precision control, microscope products substitute to import

Intelligent unmanned

- Optical detection + automation + precision control + breakthrough of key parts
- The microscope category achieve independent R & D and full import substitution, and extended to medical, automotive, aerospace and military industries
- Production line planning of automatic unmanned detection in semiconductor panel display industry

Product matrix of Pan semiconductor industry

才道精密





1. AOI + Solution for optical film production line of panel display peripheral industry

才道精密

Polarizer off-line
distribution process



Polarizer on-line sorting
process



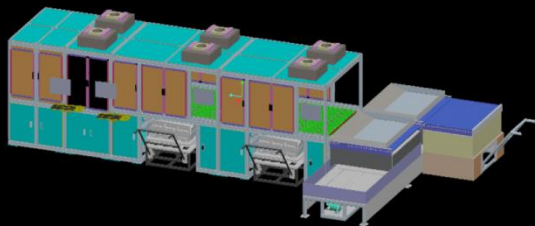
Middle-size light guide
plate process



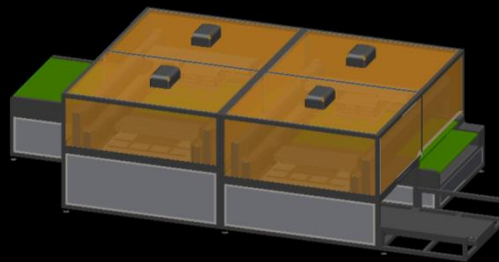
Note: the green part is our company's manufacturable equipment. This process mode is also applicable to prism film, reflective film and other products.

Optical film production line for panel display peripheral industries

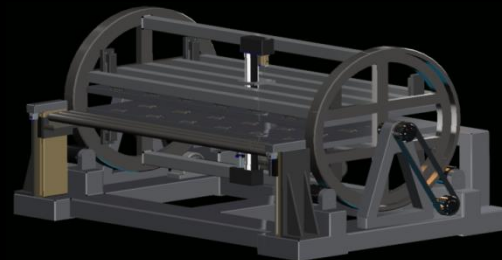
才道精密



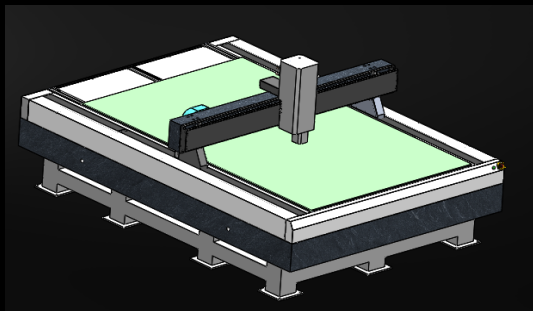
Polarizer AOI+ distributor +
sorting



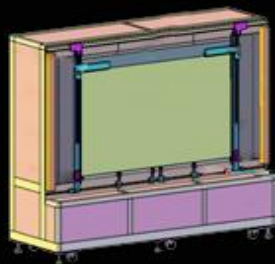
Polarizer AOI+ receiving +
sorting



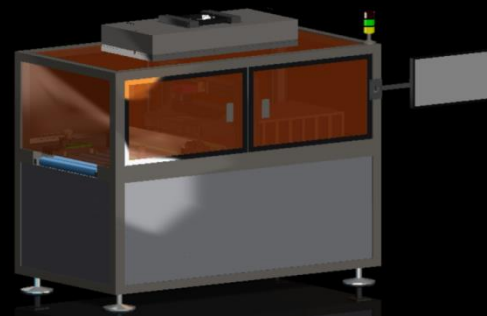
Polarizer turnover
machine



Large range 2.5D vision
measuring machine



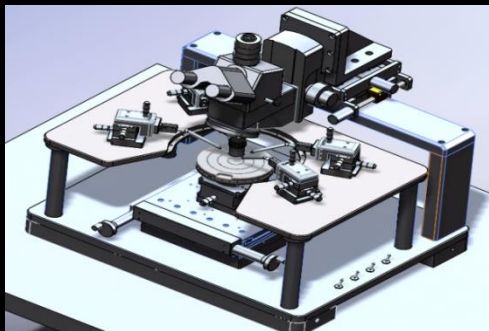
Polarizer LED lighting macro
inspection



LGP AOI Sorting

2. Product layout in semiconductor and biomedical fields

才道精密



Semiconductor
probe stage



Semiconductor
probe stage



Panel probe stage
TEG



CA04 project



PCR Nucleic acid
detector

*Photos are for reference only.

Pitch session

Description of your organisation

Nanjing Panuote solar Co.,Ltd was founded by Dr. Wang Jun(Professor in southeast university & Chairman of Jiangsu Renewable Energy Association) on May 2012 in Nanjing. It is a high-tech research company for the development, production and sales of solar energy related products.

Specify your cooperation interest

We are interested in the following areas of cooperation: solar energy, Thermal Storage and Fuel Cell.

Description of your partner of interest

We prefer to cooperate with universities and companies in Czech for research work. In particular, we will cooperate on research related to solar energy, energy storage and fuel cells.

Research areas

Solar energy ; Thermal Storage ; Fuel Cell

Contact

Company: Nanjing Panuote solar Co.,Ltd

Name: WANG JUN

Tel number: 13913007302

86-25-83790975

Contact info

Please, write information you would like to share

- name
- e-mail address
- phone number
- name of organisation/institution/company
- type of organisation
- website
- country

南京帕倬特太阳能有限公司

Nanjing Panuote solar Co.,Ltd



The company was founded by Dr. Wang Jun(Professor in southeast university) on May 2012 in Nanjin. It is a high-tech company for the development, production and sales of solar energy related products.

The products developed and produced are consistent with the current policies of energy conservation and emission reduction, low carbon economy and new energy, and belong to the products encouraged by the state.

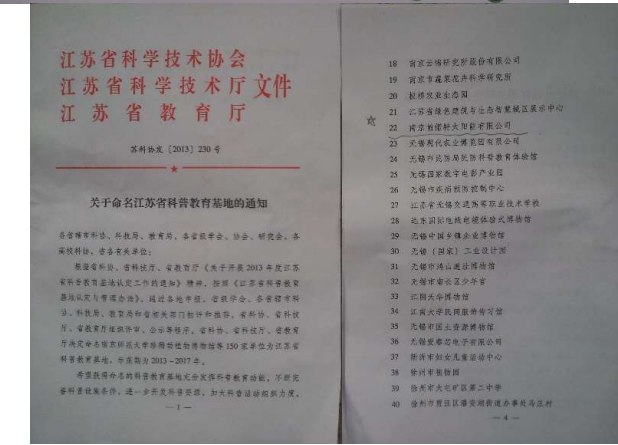
The company is a technology-oriented company, among the 20 employees, 80% have a bachelor's degree or above, which is consistent with the current national policy of transforming from labor-intensive to intensive. In 2020, the company will achieve an output value of 8.2 million yuan and another contract amount of 2.08 million yuan.

Several professors have been hired as corporate consultants and overseas experts and the products produced by the company are international advanced technology.



generation system;
China-EU Innovation
Integration of Photovolt
Jiangsu Provincial Sup
energy:

- Support Project; Solar



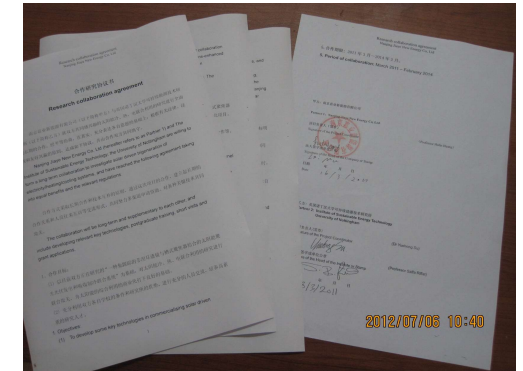
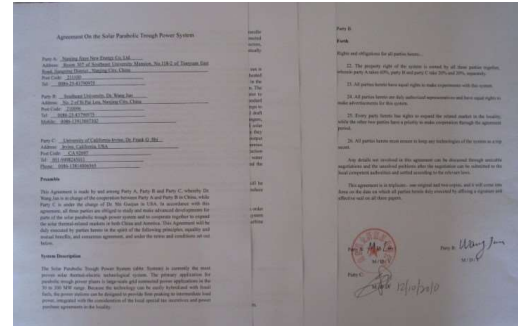
Eight patents have been applied and six have been granted



Forming ecooperation with domestic and international



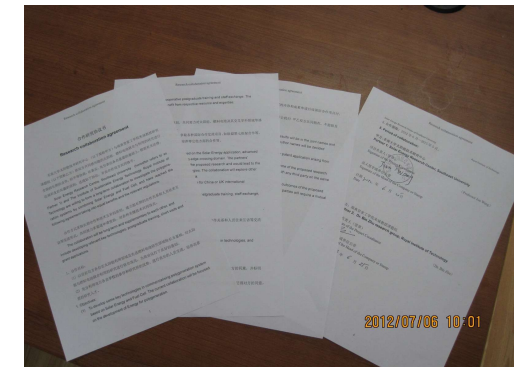
Professor Peter Lund
Academician of the Finnish Academy of Sciences



www.islide.cc

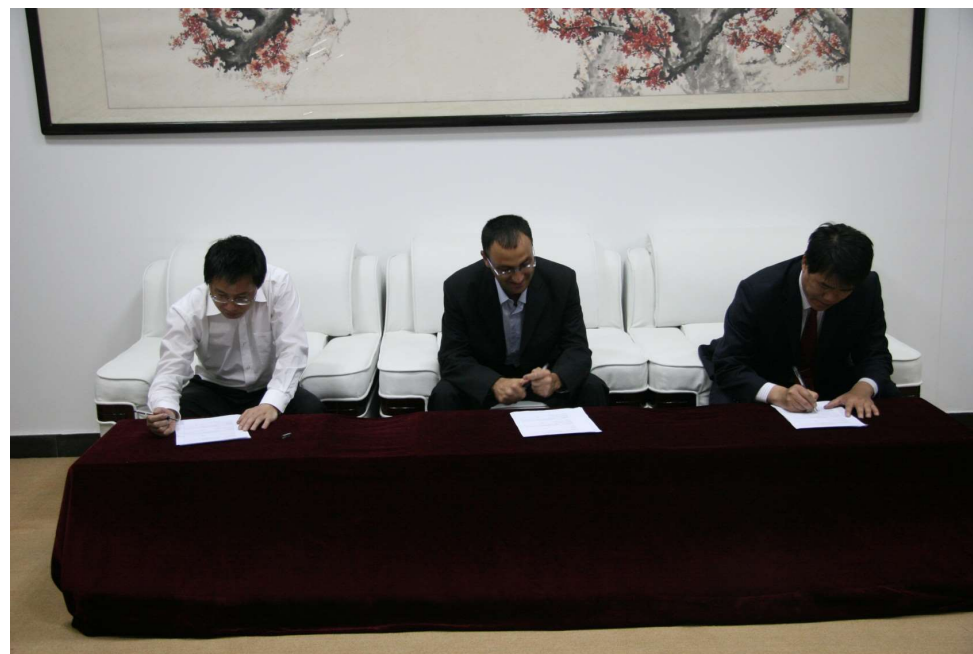
Professor Bin Zhu

- The Royal Swedish Institute of Technology is an internationally renowned fuel cell expert, Principal member of the fuel cell project at Aalto University, Finland, Global expert with high citation frequency since 2014
- Published more than 300 papers in top international journals such as materials and energy, with more than 7500 citations





In collaboration with University of California, Irvine



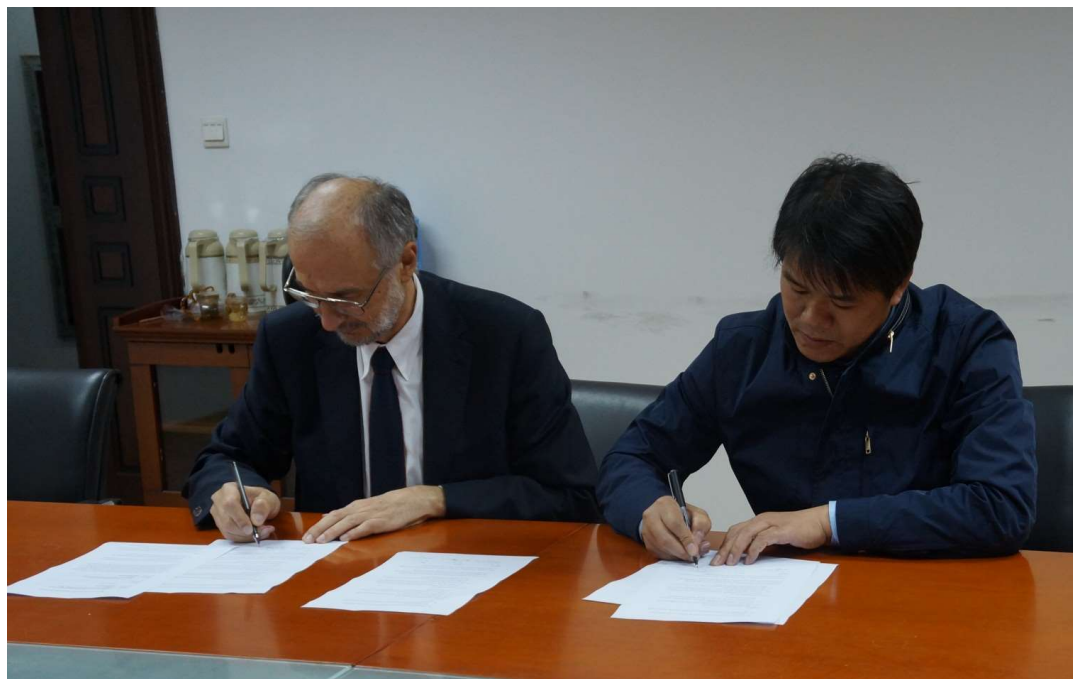
Cooperate with Israeli Clic



Employ Professor Peter as a guest professor of Southeast University



In collaboration with the Weizmann Institute in Israel



In cooperation with CIC Research Institute in Spain



Chairman Wang Jun delivered a speech in Finland



Presided over six international conferences

江苏省太阳能技术重点实验室 *SKey Laboratory*

东南大学太阳能技术研究中心成立于2007年，2014年成功申报“江苏省太阳能技术重点实验室”，在由宣益民院士为主任的学术委员会指导下，依托能源与环境学院，开展太阳能：集热技术、聚光技术、储能技术、光伏光热综合利用技术等研究。拥有2个占地60亩的试验基地，承担了国家、省、市的各类科研项目50多项，培养博士后、博士、硕士55名，发表论文100多篇，申请专利近百项，聘请外部人才6名。

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Lead the establishment of Jiangsu Provincial Key Laboratory of Solar Energy Technology

Conntnets

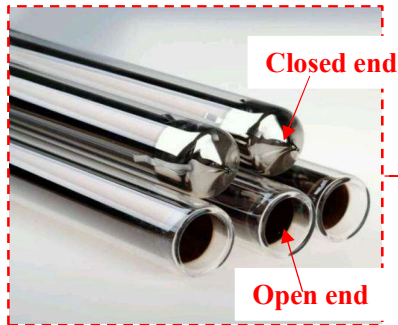


- 1 Development of vacuum collector tubes
- 2 Straight through glass vacuum collector tube
- 3 Glass heat pipe type vacuum collector tube
- 4 New V-type CPC composite surface vacuum collector tube
- 5 Medium temperature straight-through vacuum collector tube



Products developed by our company

The original vacuum collector tube is composed of two layers of glass bushing, one end is closed, the other end is open, and the outer wall of the inner tube is coated with selective heat absorption coating. On this basis, **two development paths of straight-through type and heat pipe type are formed**, from low temperature to high temperature.



Original vacuum collector tube



Common heat pipe type collector pipe



glass heat pipe type collector pipe



With CPC glass heat pipe type collector pipe



Low temperature straight-through collector pipe



High temperature vacuum collector tube



High temperature vacuum collector tube with reflective plate

A vacuum collector tube with one end open and one end closed

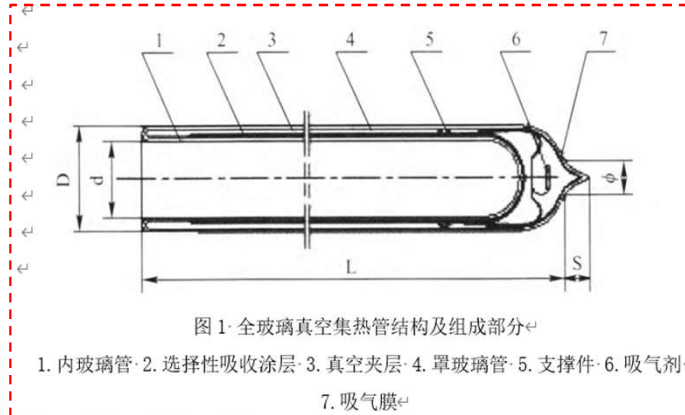
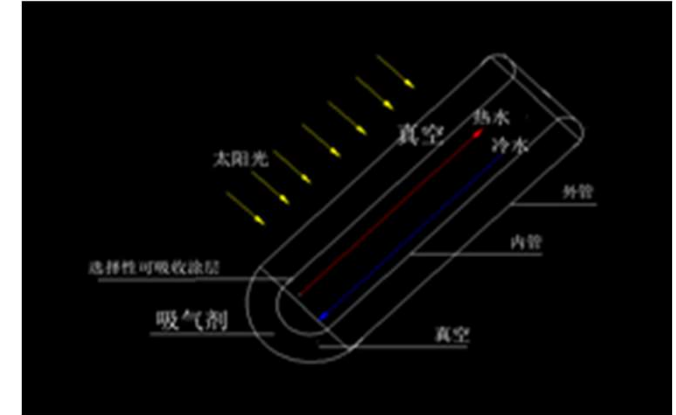
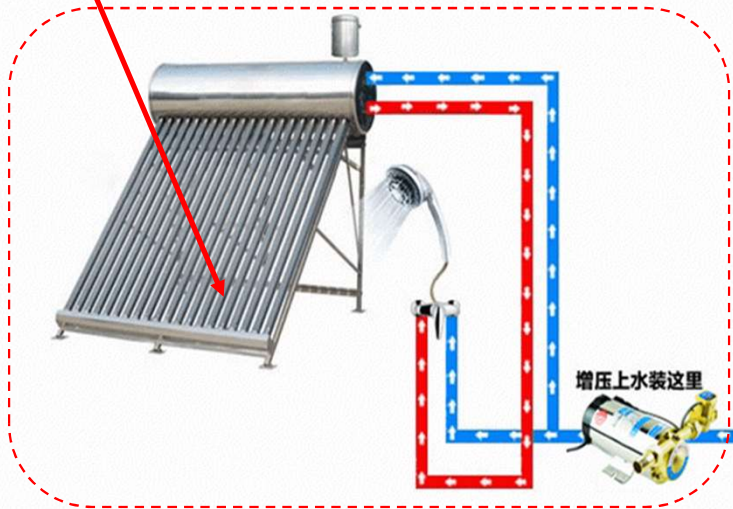


图1-全玻璃真空集热管结构及组成部分

1. 内玻璃管·2. 选择性吸收涂层·3. 真空夹层·4. 罩玻璃管·5. 支撑件·6. 吸气剂·
7. 吸气膜



Schematic diagram



Structural representation

● Disadvantages:

1. easy scale, hinder the heat conduction of the pipe and affect the quality of water;
2. One pipe is damaged and the whole equipment stops working;
3. natural convection heat transfer, low efficiency;
4. Tube bursts in winter.



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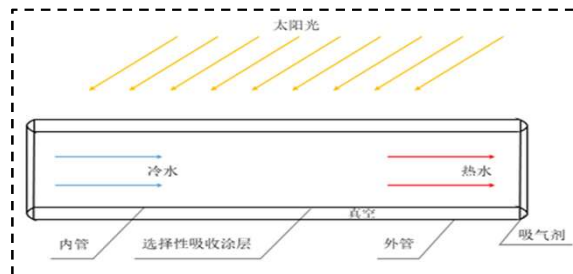


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New straight-through vacuum collector tube

Working principle: active flow, selective endothermic coating to absorb heat, when water flow through the heat will be taken away, play the role of convection heat transfer, high thermal efficiency.



Straight - through collector pipe principle



Straight - through collector pipe physical picture

几何和光学参数

Parameter	Value
Diameter of absorber tube, (m)	0.047
Diameter of glass cover, (m)	0.058
Length, (m)	2
Absorptivity of selective coating	0.96
Emissivity of selective coating	<0.092
Emissivity of glass cover	0.86
Transmissivity of glass cover,	0.96
Glass thickness, (m)	0.003
Thermal conductivity , (W/(m * K))	1.2
Specific heat, (J/(kg * K))	980

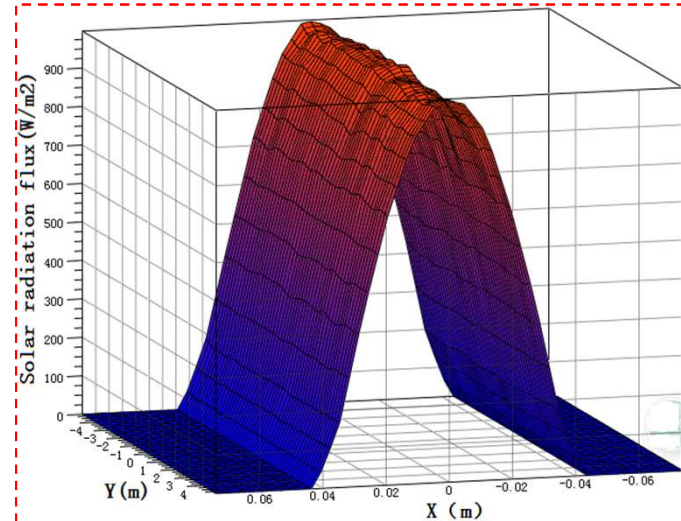
Optical analysis

The surface heat flux of the collector tube is expressed as follows:

$$E_{\theta} = \xi_{\text{abs}} \times \tau_{\text{gla}} \times \text{DNI} \times \cos \theta$$

The heat flux on the surface of the collector pipe is integrated as follows:

$$Q_{\text{abs}} = L \frac{D_{\text{abs}}}{2} \int E_{\theta} d\theta = L \times D_{\text{abs}} \times \xi_{\text{abs}} \times \tau_{\text{gla}} \times \text{DNI} \int_0^{\frac{\pi}{2}} \cos \theta d\theta$$



Collector tube surface heat flux distribution diagram

Analysis of thermal mechanism

Some of the energy absorbed by the selective coating is absorbed by the fluid and the rest is mainly lost in the form of external radiation. The energy shown is divided into absorbed and lost parts. According to the conservation of energy, energy is expressed as follows:

$$Q_{\text{abs}} = Q_{\text{u}} + Q_{\text{loss}}$$

The energy lost is calculated as follows:

$$Q_{\text{loss}} = \pi D_{\text{abs}} \left[h_{\text{a}_g} (T_{\text{abs}} - T_{\text{a}}) + \varepsilon_{\text{abs}} \sigma (T_{\text{abs}}^4 - T_{\text{s}}^4) \right]$$

The energy absorbed is calculated as follows:

$$Q_{\text{u}} = k_{\text{abs}} \frac{\pi D_{\text{absi}} (T_{\text{abs}} - T_{\text{absi}})}{\ln\left(\frac{D_{\text{absi}}}{D_{\text{abs}}}\right)}$$

The convective heat transfer coefficient in the formula is calculated as follows:

$$h_{\text{f}} = \text{Nu} \frac{k_{\text{f}}}{D_{\text{absi}}}$$

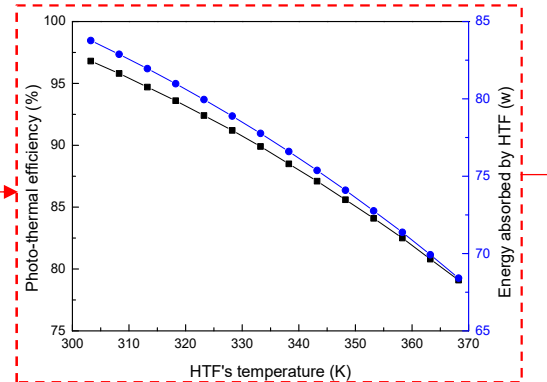
Nusselt number in the convective heat transfer formula:

$$\text{Nu} = 4.36$$

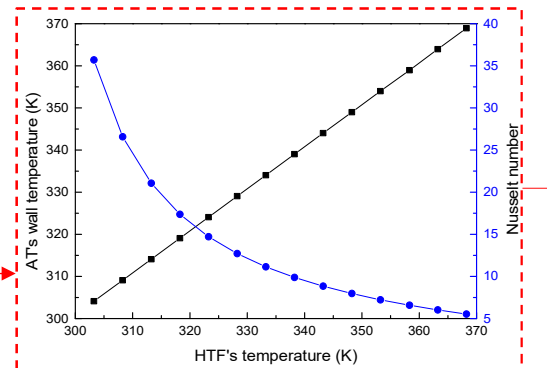
$\text{Re} < 2300$, laminar flow

$$\text{Nu} = \frac{f / 8 (\text{Re} - 1000) \text{Pr}_{\text{f}}}{1 + 12.7 \sqrt{f / 8} (\text{Pr}_{\text{w}}^{2/3} - 1)} \left(\frac{\text{Pr}_{\text{f}}}{\text{Pr}_{\text{w}}} \right)^{0.11}$$

$\text{Re} > 2300$, turbulent flow



The relationship between absorbed energy and surface temperature

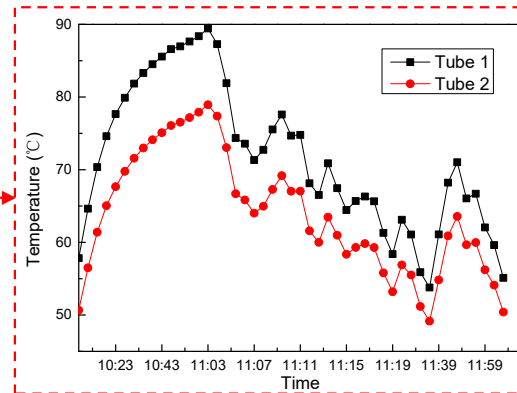


Nusselt number graph

Single collector tube experiment



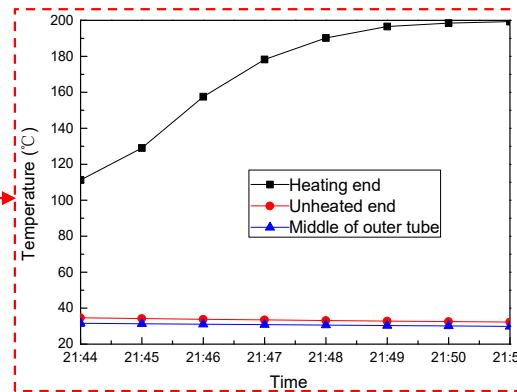
Surface temperature test diagram of two kinds of collector tubes



Comparison of surface temperature of two kinds of collector tubes

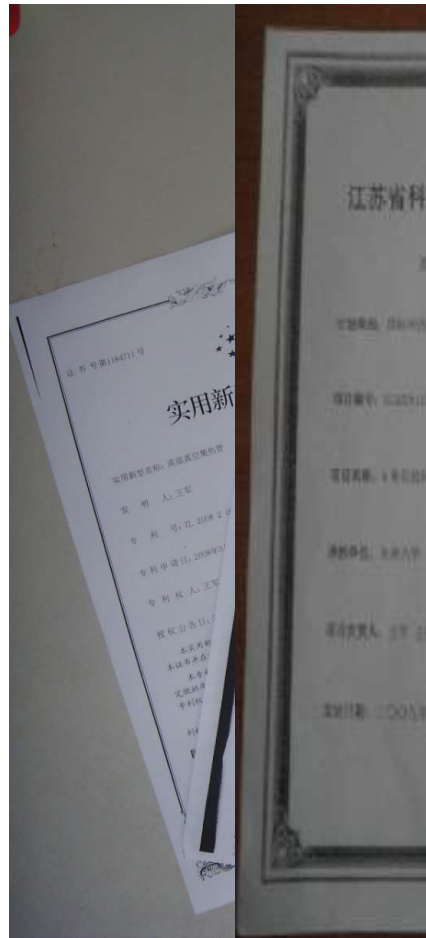


Collector pipe safety test drawing



Collector pipe safety temperature diagram

Introduction of achievements



Jiangsu Provincial Achievement

Transformation Fund: BA2018024

1. Jing-hu Gong, Zheng Jiang, Xian-feng Luo, Bin Du, **Jun Wang**, and Peter D. Lund. "Straight-through all-glass evacuated tube solar collector for low and medium temperature applications." **Solar Energy** 201 (2020): 935-943.
2. 一种带选择吸收涂层的直通式双层玻璃集热管,发明专利,王军. ZL201611204726.2
3. **Wang Jun**, Zhang Yaoming, Liu Deyou. Development and Study on Heat-Pipe Type Vacuum Absorber Tube[J]. 2008.
4. **Wang Jun**, Zhang Yaoming, Liu Deyou and An CuiCui. Development and Study on Vacuum Absorber Tubes[J]. 2008.



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Glass heat pipe type vacuum collector tube

(19) 中华人民共和国国家知识产权局



(12) 实用新型专利

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地址 210002 江苏省南京市东白菜园 45 号 702 室

(72) 发明人 王军

(74) 专利代理机构 江苏省专利事务所

代理人 何朝胆

(51) Int. Cl.
F24J2/32;

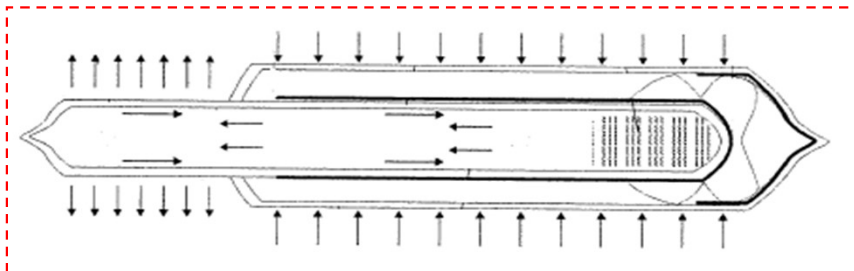
权利要求说明书 说明书 附图

(54) 发明名称

热管式真空集热管

(57) 摘要

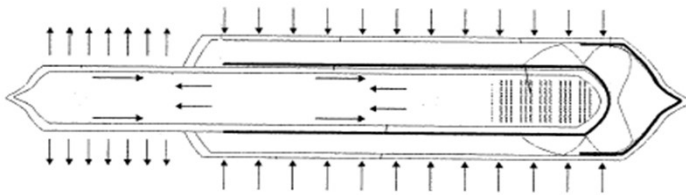
本实用新型公开了一种热管式真空集热管,含有真空玻璃集热管和热管元件,所述热管元件的冷却段外露,所述真空玻璃集热管的内壁即为热管元件的加热段。这种真空玻璃集热管内壁与热管元件加热段合而为一的



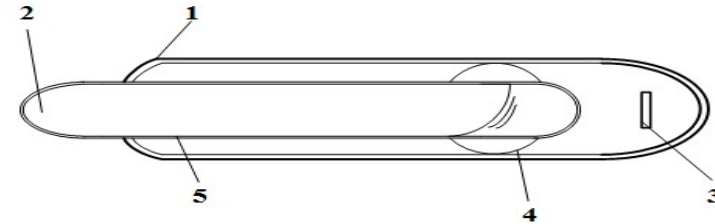
Glass heat pipe type vacuum collector pipe schematic diagram1

Glass heat pipe type vacuum collector tube was first proposed in 2001

Geometric models and parameters



Glass heat pipe type vacuum collector pipe schematic diagram1



Glass heat pipe type vacuum collector pipe schematic diagram2

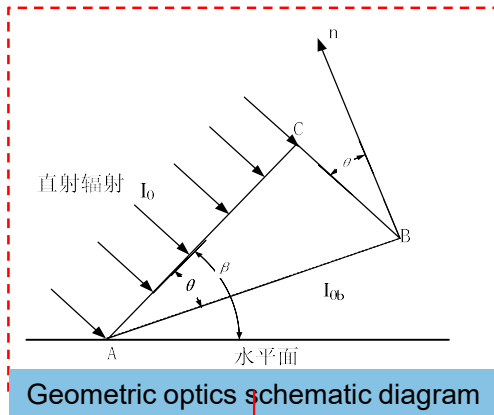


Physical image of glass heat pipe vacuum collector tube

项目	符号	单位	数值
玻璃外管管外径	d_{go}	m	0.058
玻璃外管管长	l_g	m	1.8
玻璃外管壁厚		m	0.002
玻璃热管管外径	d_{po}	m	0.047
玻璃热管管长	l_p	m	1.8
玻璃热管壁厚		m	0.002

Geometrical parameter

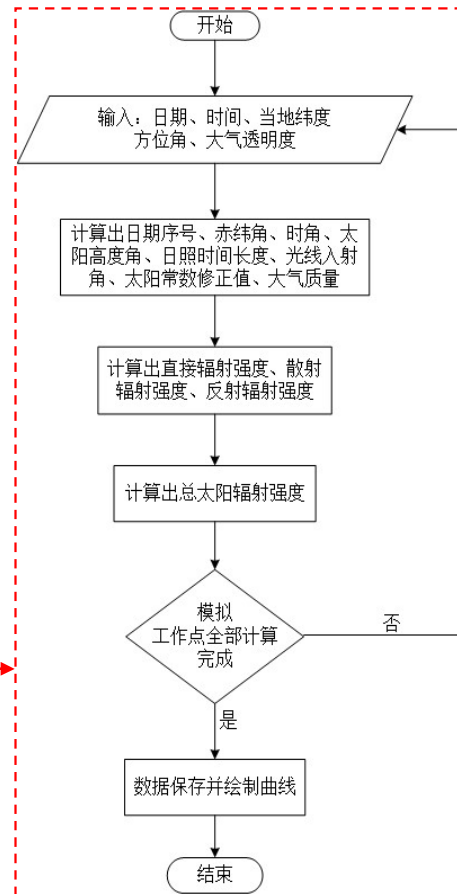
Optical analysis



Algorithm formula

Total solar radiation intensity on the inclined surface:

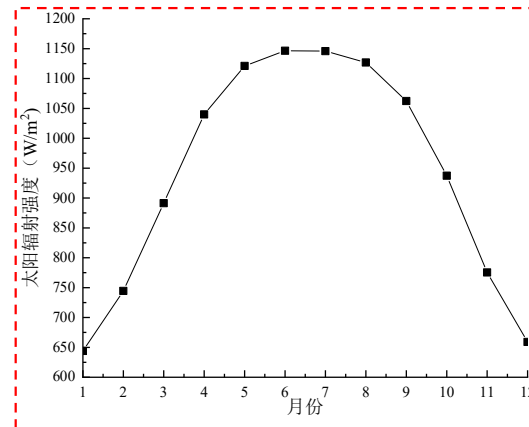
$$I_{\theta} = I_{\theta b} + I_{\theta d} + I_{\theta p} = I_b \frac{\cos \theta}{\sin \alpha_s} + I_d \cos^2 \frac{\beta}{2} + (I_b + I_d) \rho (1 - \cos^2 \frac{\beta}{2})$$



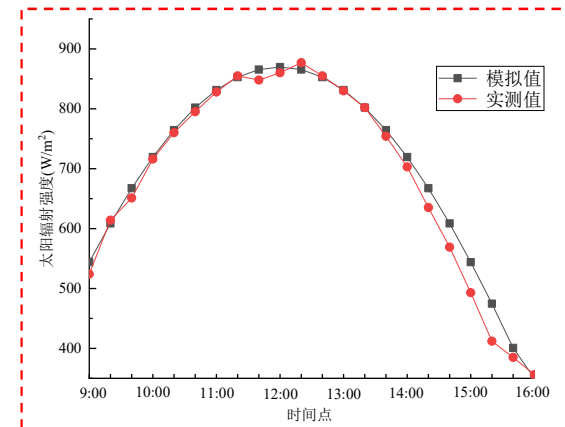
Matlab solves the heat flux distribution diagram on the collector pipe

Write the flow chart according to the algorithm formula

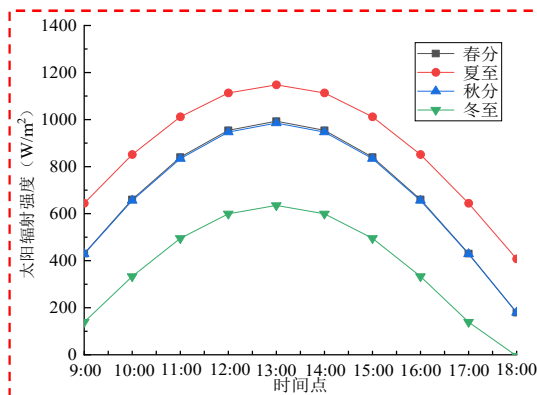
Optical verification



The annual intensity of solar radiation at noon



Comparison of simulated and measured values of solar radiation intensity



Solar radiation intensity on a typical day

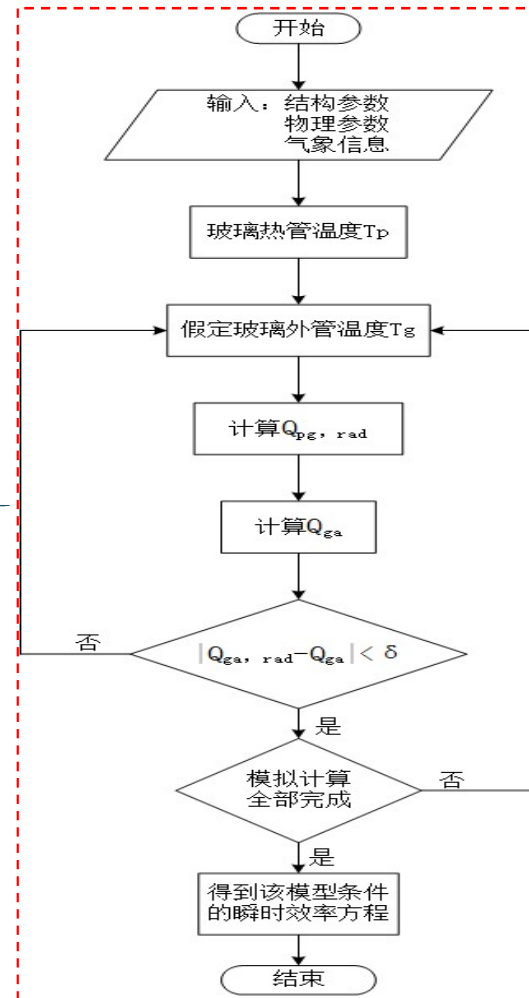
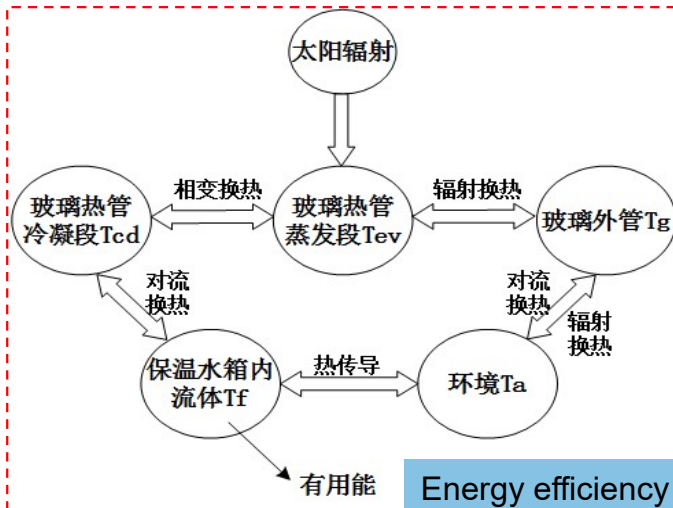
Thermal performance analysis

The thickness of the pipe wall is calculated as follows:

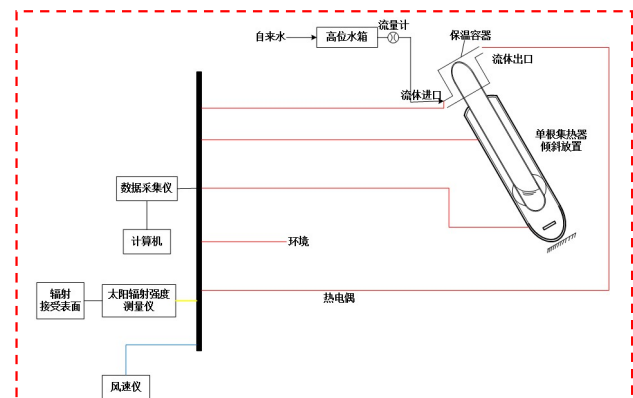
$$b_t \geq \frac{pd_{po}}{2[\sigma]\phi - p} + C$$

The minimum flow rate in the heat pipe is calculated as follows:

$$G = (0.8l_{ev} + l_{ad} + 0.8l_{cd}) \left[\frac{3\pi^2 \mu_l \rho_l d_o^2}{h_{fg} g} \right]^{1/3} \sqrt[3]{Q_{in}}$$



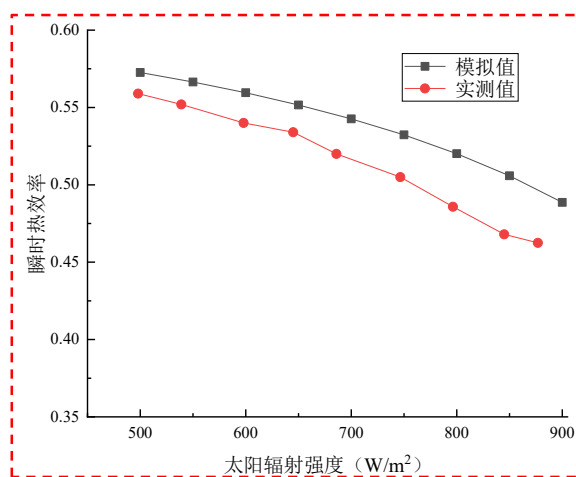
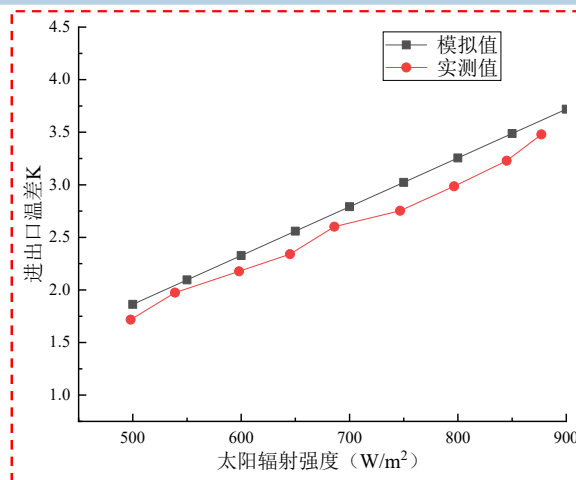
Comparison of single collector experiment and theory



Schematic diagram of single collector tube experiment

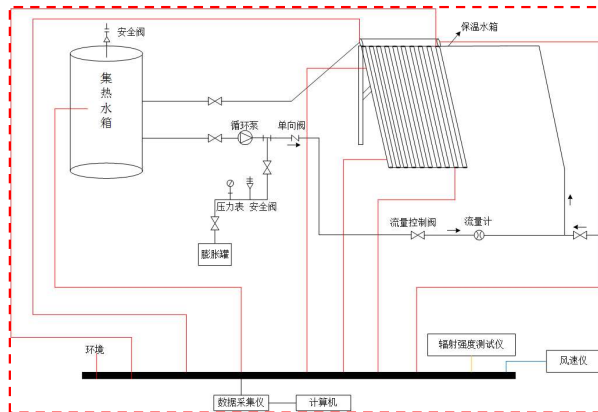


Single collector tube test diagram



The theoretical analysis accords with the practice

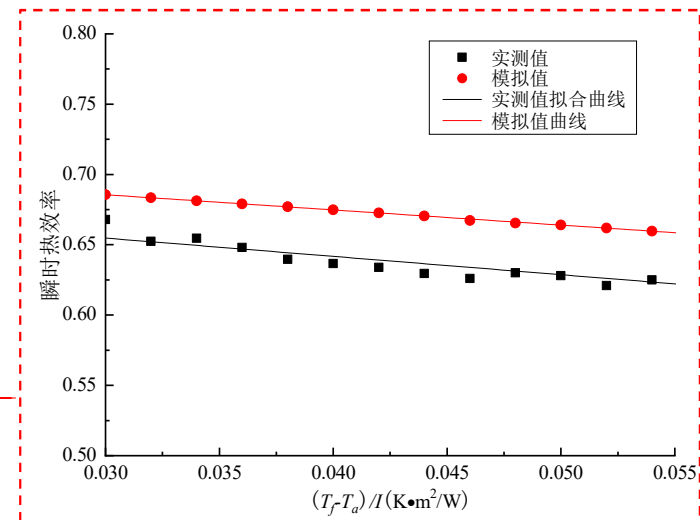
System thermal efficiency analysis



Schematic diagram of water heater test



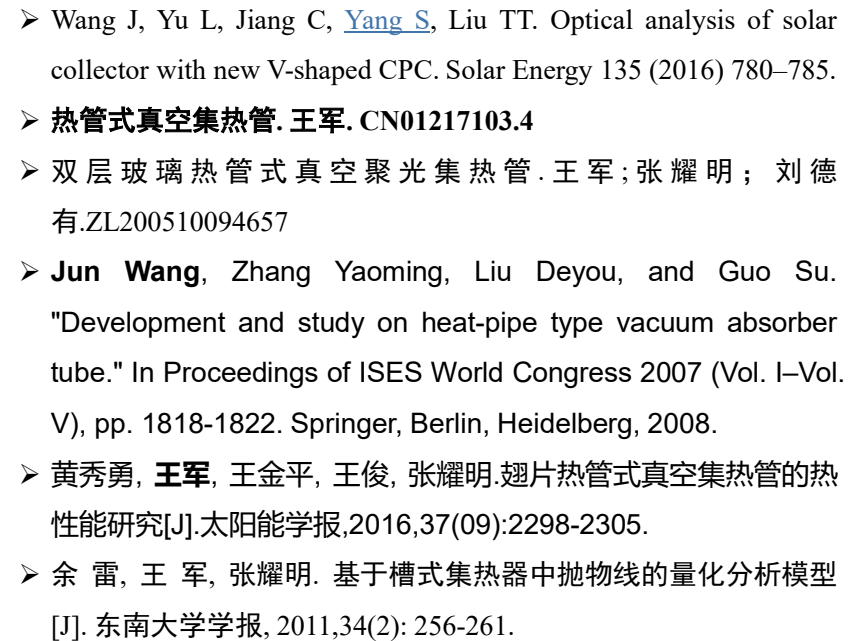
Water heater test drawing



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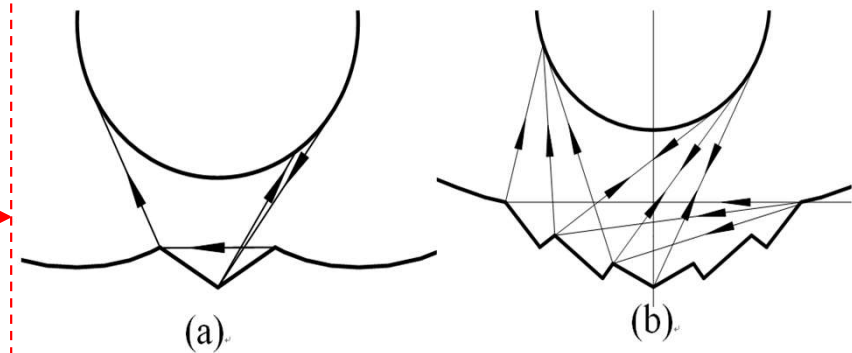
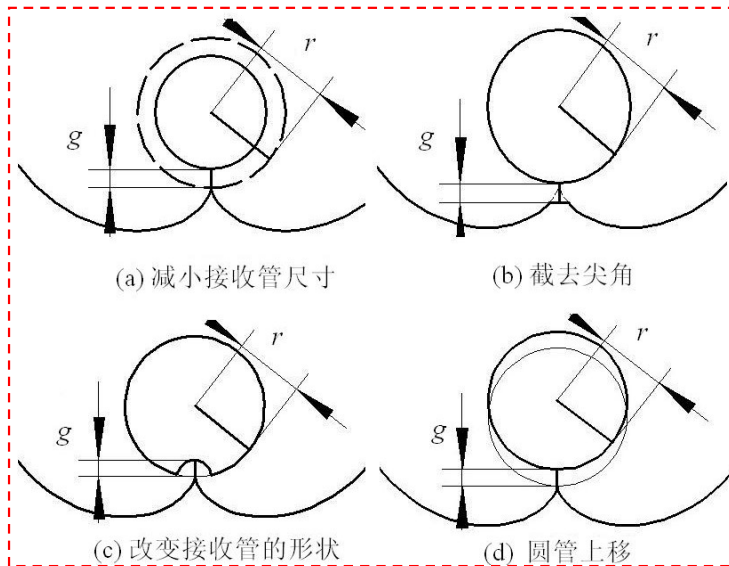


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CPC type vacuum collector tube

Introduction to Geometric Models



新V型CPC集热管



Through geometric optics research, the **final V-shaped CPC mirror** is determined to improve the optical efficiency of the collector tube.

Optical efficiency

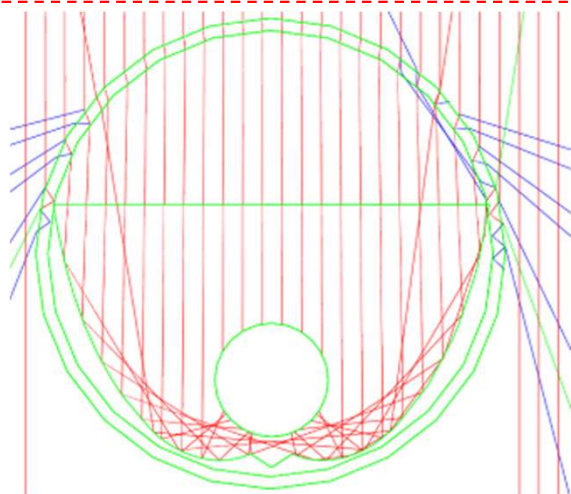
Combined with the structure of the new CPC collector pipe, the optical efficiency is calculated as follows:

$$\eta_{opt} = \frac{I_b \cdot \eta_{opt,b} + I_d \cdot \eta_{opt,d}}{I_b + I_d} \cdot r_a$$

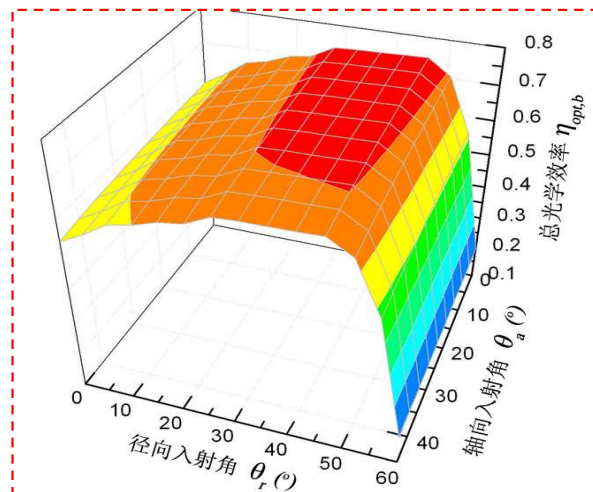
Where

$$\eta_{opt,b} = \tau_b \cdot \rho_b \cdot \alpha_b \cdot \zeta_b$$

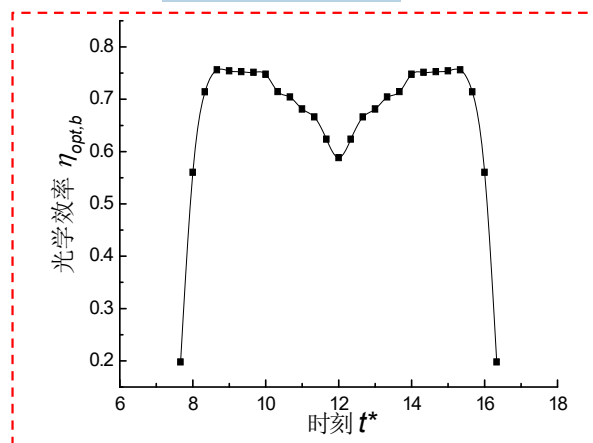
$$\eta_{opt,d} = \tau_d \cdot \rho_d \cdot \alpha_d \cdot \zeta_d$$



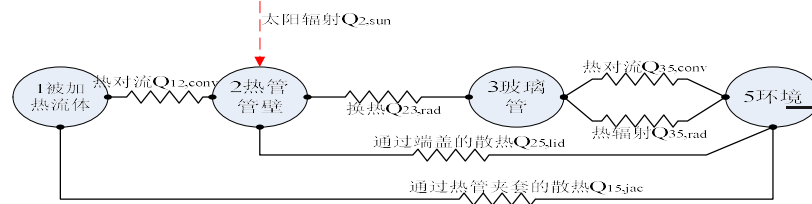
Optical path



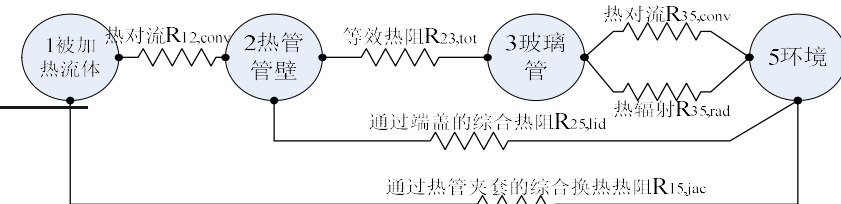
Optical efficiency



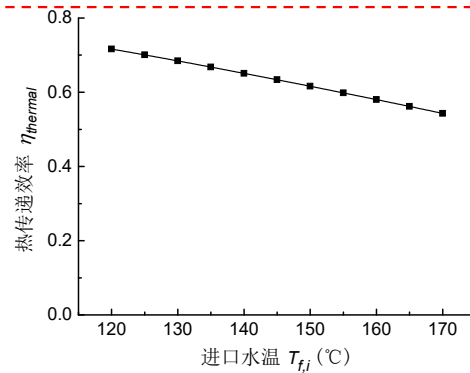
Thermal Analysis



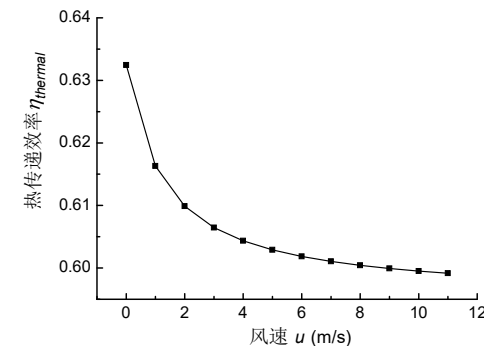
Schematic diagram of energy flow



Collector pipe heat transfer resistance network diagram



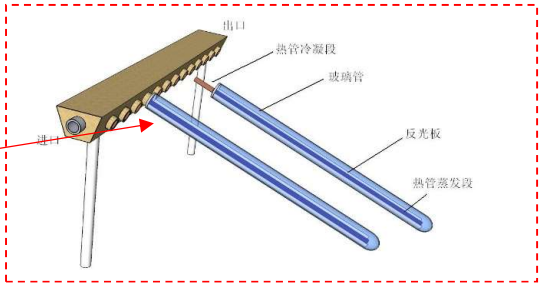
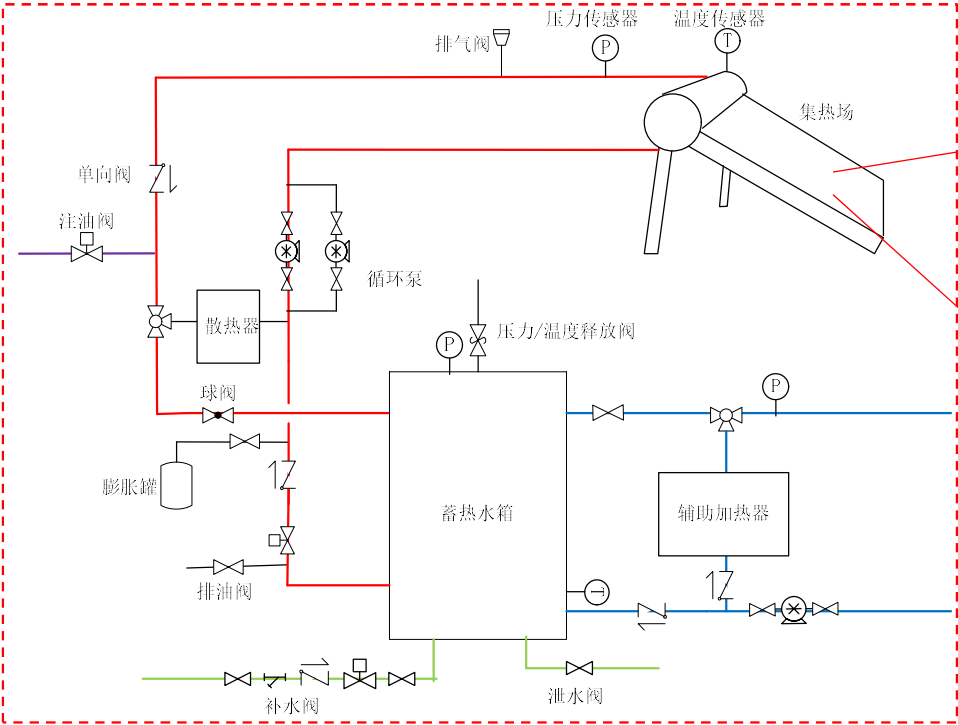
Heat transfer efficiency velocity with water temperature curve



Variation of heat transfer efficiency with wind speed

- The heat transfer efficiency of the collector tube is 62.6%. If the optical efficiency of the collector tube is 70%, the total efficiency is about 43.8%.
- In the heat loss, the loss through the glass tube accounted for 54.427%, the loss through the end cover accounted for 9.427%, the loss through the jacket accounted for 36.068%, the glass tube and the jacket loss is the largest.
- Reducing the emissivity of the absorption coating is the most effective way to reduce the heat loss through the glass tube. After optimization, the heat transfer efficiency of the collector tube can reach more than 70%.
- As the wind speed changes from 0m/s to 11m/s, the heat transfer efficiency decreases by about 3.3%, and the decline rate gradually decreases.

System thermal efficiency analysis



The new V type in the collector pipe



The new V type outside the collector pipe

Energy analysis table for each stage of the thermal system

	第一阶段	第二阶段	第三阶段	总系统
能量效率	61.59%	64.10%	93.85%	37.05%
(火用)效率	61.59%	13.57%	88.90%	7.43%
进口能质系数	95.33%	95.33%	27.85%	95.33%
出口能质系数	95.33%	27.85%	26.38%	26.38%



Achievements

Jiangsu Provincial Achievement

Transformation Fund: BA2020064

- Wang J, Yu L, Jiang C, [Yang S](#), Liu TT. Optical analysis of solar collector with new V-shaped CPC. Solar Energy 135 (2016) 780–785.
- 、一种二维复合抛物面聚光器余雷;张耀明;王军。CN200920231848.X。
- 两级复合抛物面聚光器. 余雷;王军;张耀明. CN201020022517.8
- 复合曲面二次反射聚光集热器. 余雷;张耀明;王军. CN200910035182.5
- 多段圆弧聚光器. 张耀明;余雷;王军. CN200910035185.9
- 内聚光与外聚光结合的复合抛物面聚光器. 余雷;王军;张耀明. CN201010018320.1
- 黄宁宁, **王军**, 姜牧笛, 冯炜, 蒋川, 余雷. CPC式集热器放置倾斜角的选择方法[J].太阳能学报,2019,40(09):2530-2535.
- 余雷, 王军, 张耀明. 关于管状CPC缝隙的相关问题的分析[J]. 太阳能学报, 2011,32(2): 246-251.
- 谷伟, **王军**, 余雷, 金叶佳, 张耀明. 聚光型热管式真空集热管的(火用)分析[J].太阳能学报,2012,33(07):1218-1225.
- 余雷, 王军, 张耀明. 内聚光CPC热管式真空集热管的光学效率分析[J]. 太阳能学报, 2012,33(4): 254-261.





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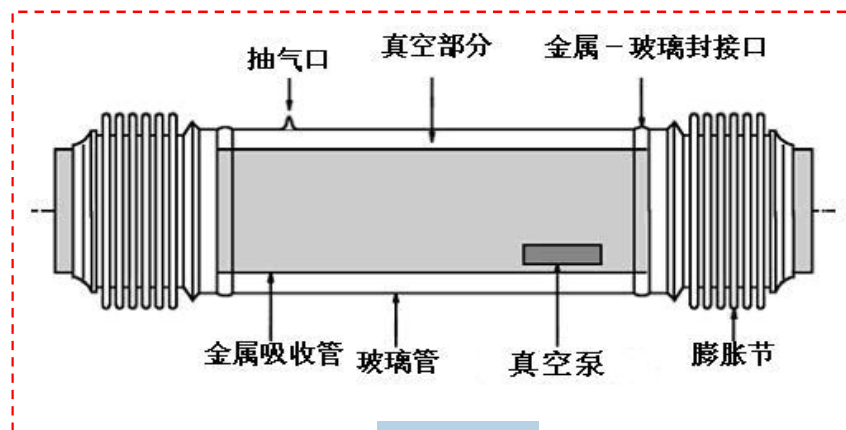
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Introduction to Geometric Structure

Vacuum collector tube is the most widely used receiver in the trough system at present and is the core technology of the trough solar thermal power generation system. As shown in the figure, the structure is mainly composed of metal inner tube, glass outer tube, bellows tube and cutting tube.



Parameter

集热管	长度2000mm，有效工作长度≥96.2
吸热管	321不锈钢，内外径29/32mm，吸收率≥96.2%，发射率≤9.2%
玻璃管	高硼硅玻璃，内外径66/70mm，通过率96.3%
真空度	$\leq 10^{-4}$ mbar
备注	运行温度 $\leq 250^{\circ}\text{C}$ ，运行压力 $\leq 40\text{bar}$



In 2006, academician Zhang Yaoming and professor Wang Jun made the first high temperature vacuum collector tube in China

Heat loss study

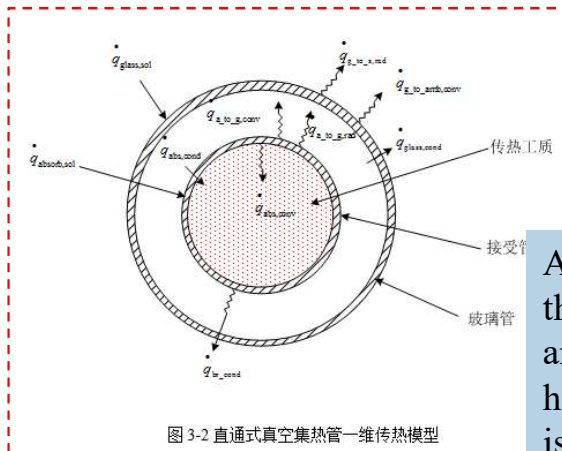
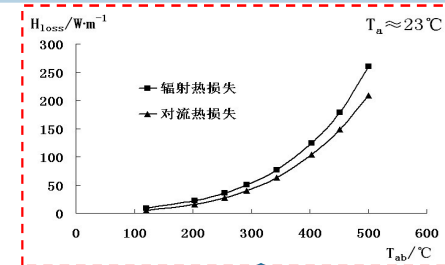
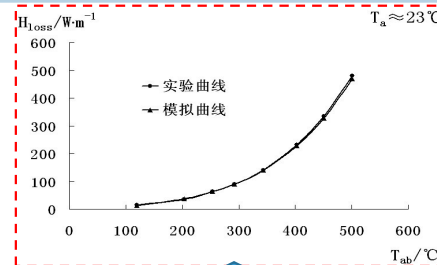


图 3-2 直通式真空集热管一维传热模型

According to the theoretical analysis, the heat loss model is established to guide the experimental heat loss research



Heat loss test diagram

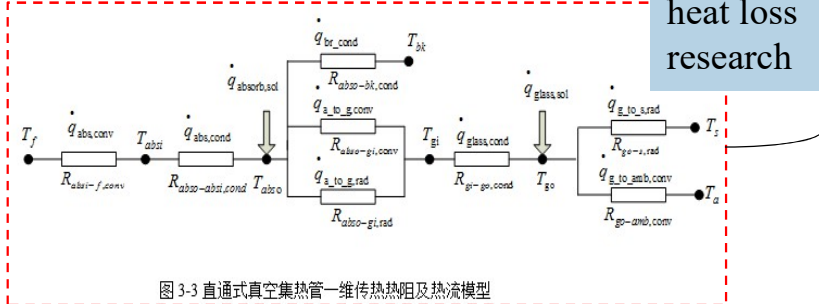
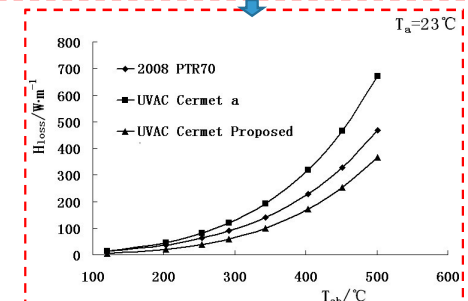
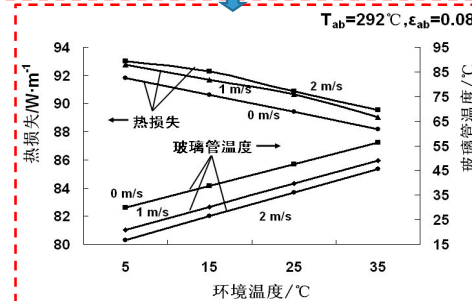


图 3-3 直通式真空集热管一维传热热阻及热流模型

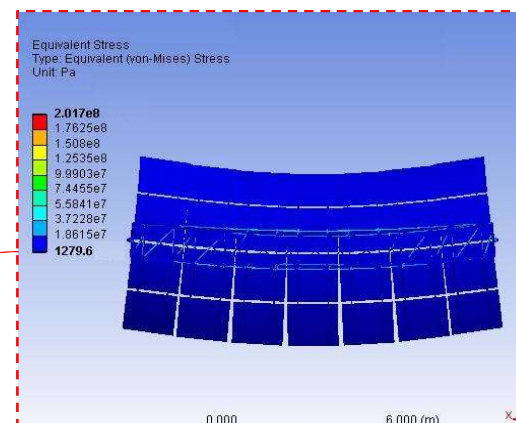




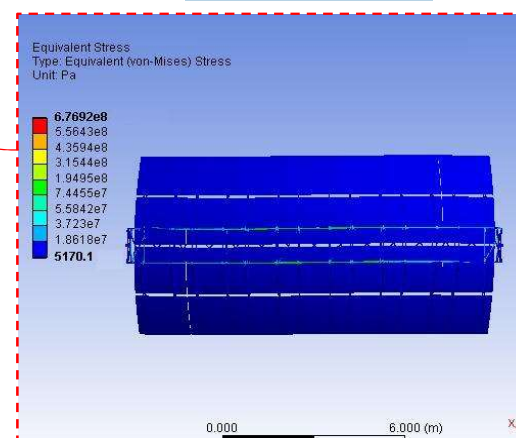
Structural Fatigue Research



Collector pipe fatigue test verification



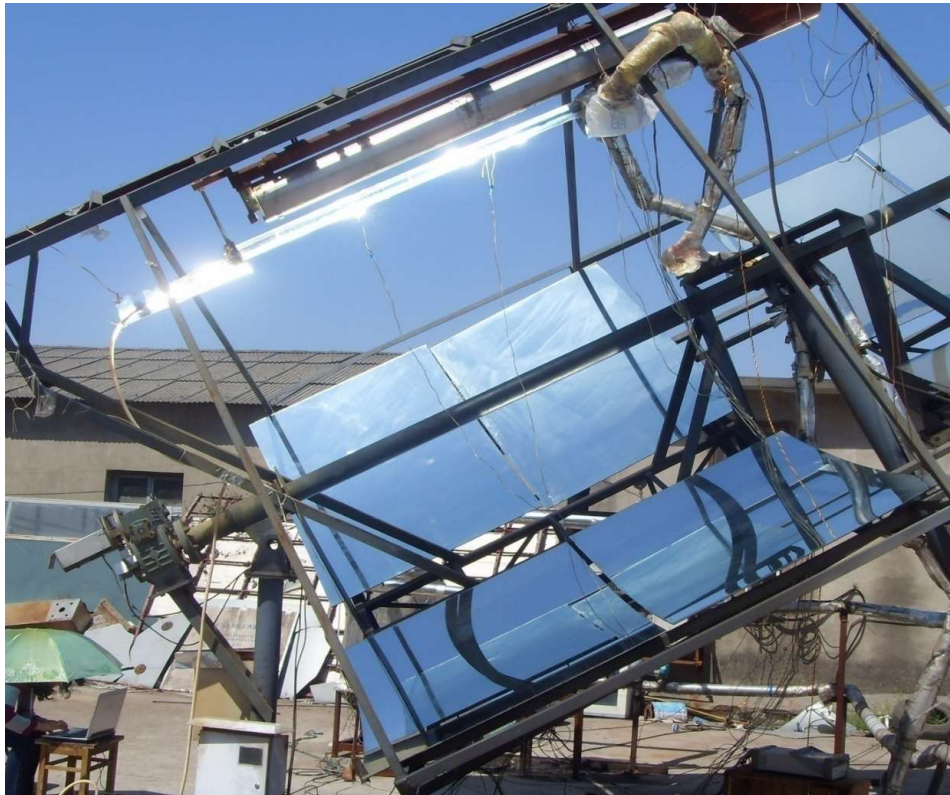
Bending diagram



The relationship between bending and flow velocity is the largest. The larger the flow velocity is, the more uniform the surface temperature is and the smaller the deformation is.

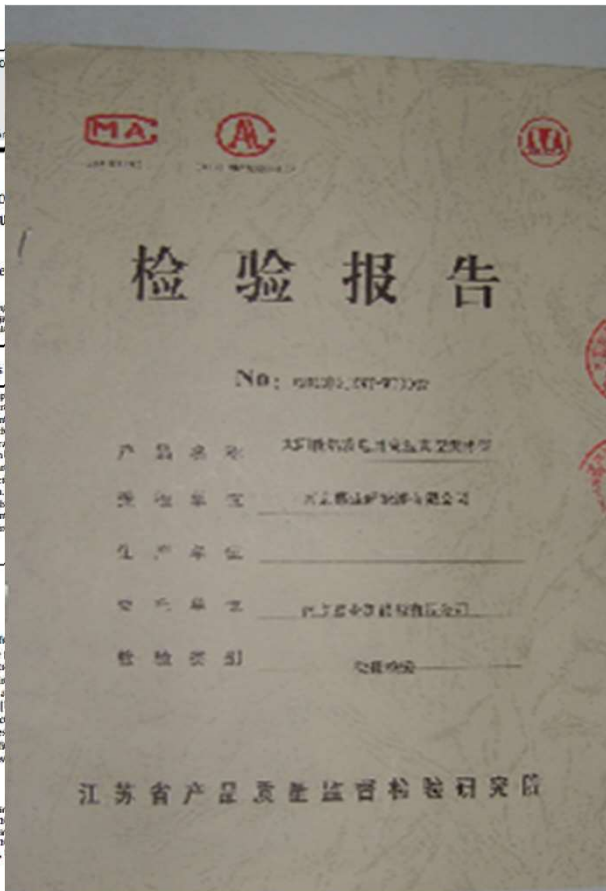
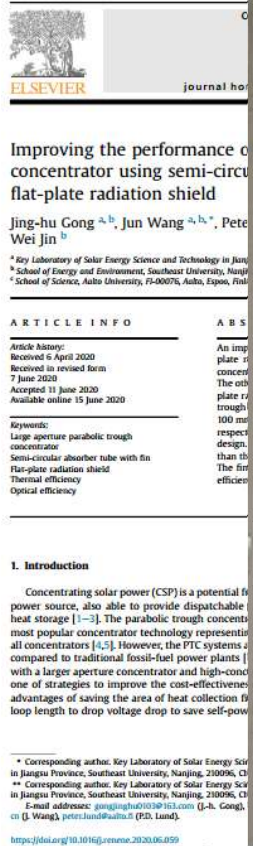


Outdoor test stand



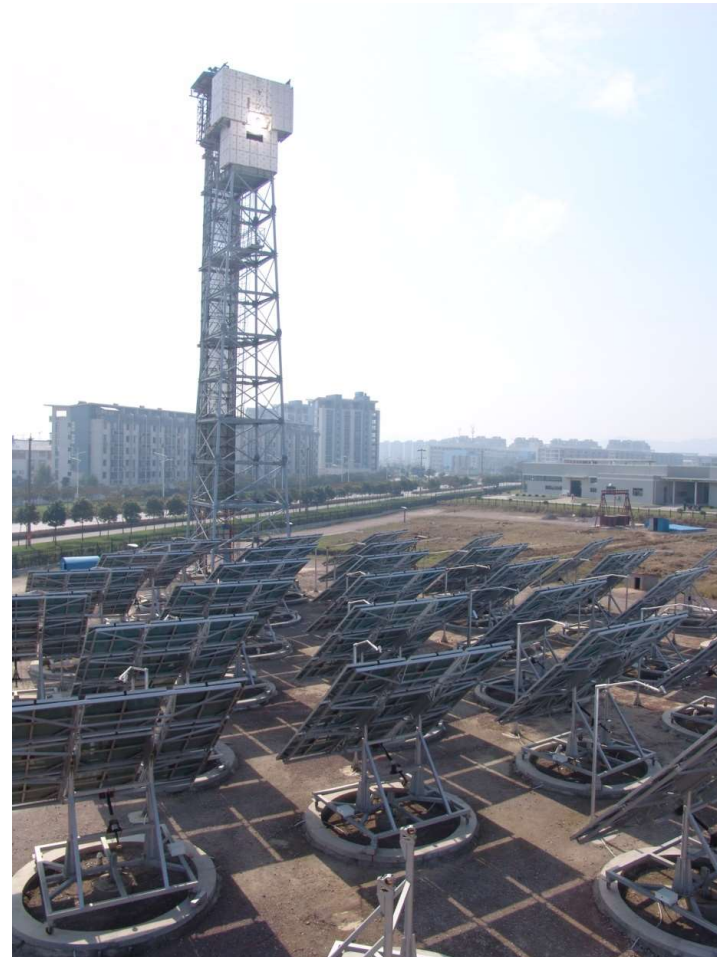


Achievements



- **Jun Wang**, Zhang Yaoming, Liu Deyou, and An Cuicui. "Development and study on vacuum absorber tubes." In Proceedings of ISES World Congress 2007 (Vol. I–Vol. V), pp. 1813-1817. Springer, Berlin, Heidelberg, 2008.
- Gong, Jing-hu; **Wang, Jun**; Lund Peter D; Zhao, Dan-dan; Hu, En-yi; Jin Wei. [Improving the performance of large-aperture parabolic trough solar concentrator using semi-circular absorber tube with external fin and flat-plate radiation shield](#). Renewable Energy 159 (2020) 1215-1223.
- 丁林, **王军**, 蒋川, 杨嵩, 王登文, 张耀明. 中温槽式集热器的聚光特性模拟及误差分析[J]. 太阳能学报, 2019, 40(10): 2755-2762.
- 刘婷婷, **王军**, 郝旖旎, 杨帆, 冯伟, 王登文. 槽式太阳集热器聚光特性的模拟研究[J]. 太阳能学报, 2017, 38(12): 3202-3209.
- 龚广杰, **王军**, 黄鑫炎, 郝梦龙, 张耀明. 槽式太阳能真空集热管的热损失研究[J]. 太阳能学报, 2011, 32(04): 517-522.
- 龚广杰, **王军**, 黄鑫炎, 郝梦龙, 孙伟彪. 新型高温真空集热管的热性能实验和分析[J]. 太阳能学报, 2010, 31(10): 1292-1297.
- **王军**, 龚广杰, 黄鑫炎, 郝梦龙. 残存气体对高温真空集热管热损失的影响研究[J]. 太阳能学报, 2011, 32(01): 107-111.
- **王军**, 龚广杰, 谢启辉, 黄鑫炎, 郝梦龙. 新型高温真空集热管端部热损失的实验研究与分析[J]. 太阳能学报, 2010, 31(11): 1434-1439.
- 一种新型的太阳能双效制冷和热水联合系统, 专利号: 201611013849.8. (一作)

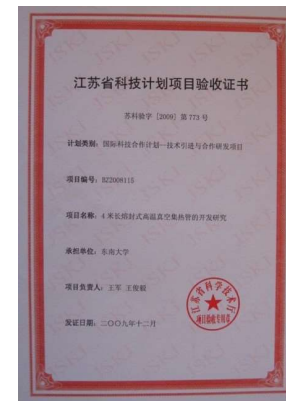
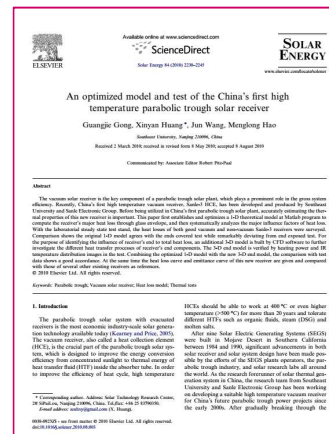
- The first "70kW tower solar thermal power generation system" in China was successfully completed in Nanjing Jiangning Solar Power Experimental Ground on October 29, 2005, and successfully put into grid power generation.





Integrated
photovoltaic
thermal system
(Pukou Base)

It has cultivated 80 postdocs, doctors and masters, presided over and participated in the completion of more than 50 national, provincial and municipal projects, published more than 200 papers, applied for nearly 100 patents, signed 10 international cooperation agreements, introduced 1 foreign academicians, 1 high-end talent, 1 foreign professor, and hired 10 external talents.





THANKS

南京帕倬特太阳能有限公司
Nanjing Panuote solar Co.,Ltd

Pitch session

Description of your organisation

Relying on the State Key Laboratory of Pollution Control and Resource Reuse Research in Nanjing University, the institute currently has two platforms, "Environmental Risk Management" and "Green Human Settlements and Environmental Protection".

Specify your cooperation interest

Environmentally Friendly Materials, Air Purification, Digital Environmental Protection, Environmental Consultants.

Description of your partner of interest

Small and micro enterprises with R&D capabilities.

Research areas

Environmentally Friendly Materials, Air Purification, Digital Environmental Protection, Environmental Consultants.

Keywords

Air Purification / Water Purification

Contact info

Please, write information you would like to share

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- weiweizou@gmail.com
- 086-13815430147
- Nanjing YRD ECO Development R.I. Co. Ltd
- Nanjing, China



南京大学绿色发展与清洁技术研究院
Nanjing University ECO Development & Clean Tec.R.I.
南京长三角绿色发展研究院有限公司
Nanjing YRD ECO Development R.I. Co. Ltd

April 2021

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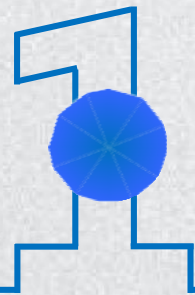
R&D

3

COMPETITIVE ADVANTAGES

4

COOPERATION AREAS



ABOUT US





Overview



Relying on the State Key Laboratory of Pollution Control and Resource Reuse Research in Nanjing University, the institute currently has two platforms, "Environmental Risk Management" and "Green Human Settlements and Environmental Protection", to face the major national needs for green development and energy conservation and emission reduction, create a green human settlement and green development industrial platform and base, and promote the transformation and upgrading of the technology-related industries.



Chief Scientist



Professor Bi Jun

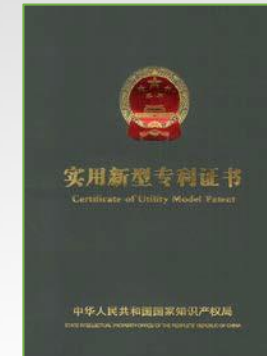
- **Professor of Nanjing University**
- **Changjiang Distinguished Professor of the Ministry of Education**
- **Executive Director of the Chinese Society for Environmental Sciences**
- **Decision-making Consultancy Expert of the Jiangsu Provincial Committee**

Engaged in the fields of environmental management and policy analysis, environmental risk management and emergency response, air pollution control, environmental health assessment and risk management, et al





Qualifications



2

R&D





Indoor High-efficient Moisture-resistant Ozone Purification Material

The Material is a new type of inorganic non-metallic material specifically for the purification of the ozone pollution, with a broad application prospect in the future in the high-quality residential buildings, office buildings, hotels, nursing homes, high-end maternity and baby health centers, early childhood education places, government departments, research institutes and high-end enterprises.



The Multi-metal Catalyst with Active Components

The Multi-metal Catalyst is applied to the field of VOCs disposal, which can improve the low-temperature activity of the catalyst and lower the light-off temperature; the coating material of specific components is used to reduce the influence of harmful substances on the precious metal, and improve the catalytic efficiency of the catalyst and its service life.



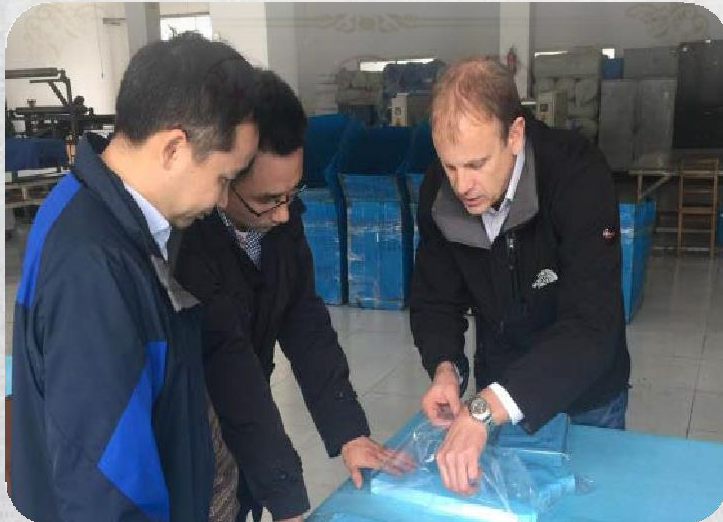


Competitive Advantages





Advantage – Leading Technologies



“High-Tech Enterprise” certificate

Series of patents

Strong R&D team

4 COOPERATION AREAS







CONTACT



Mr. Zou Weiwei

Mobile phone: +86 13815430147

Email: weiweizou@gmail.com



THANK YOU!

Potential Topics for Cooperation Between CIT and Company & University in The Czech Republic

Dr. Zhenli Lu

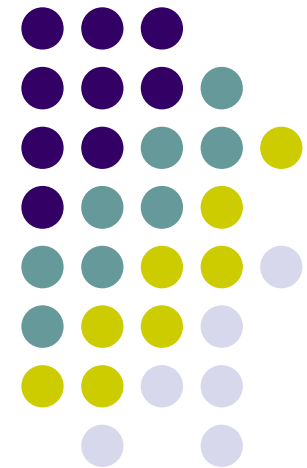
Dean of CIT technology transfer center in Rudong, Nantong
Principle Investigator of robotic innovation research group

&

Principle Investigator of human robot interaction technology
and its application in new energy car within sub-branch in
Mechanical Engineering Discipline

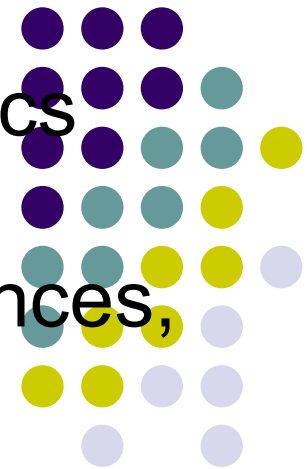
Changshu Institute of Technology, China

13 April, 2021



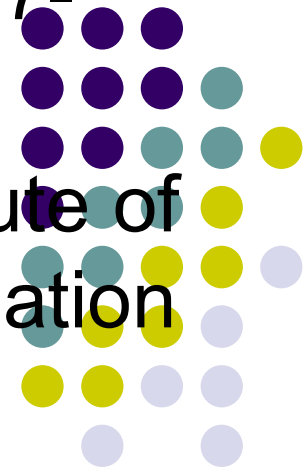
CV

- 1993, 9 ~ 1997, 7 Nanjing University of Science and Technology, Bachelor ,
Mechatronics
- 2002, 9 ~ 2007, 7 State Key Robotics Laboratory, Shenyang Institute of Technology, Chinese Academy of Sciences, Master-Doctor , PHD, Mechatronics



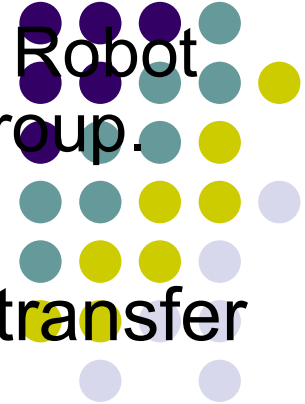
CV

- 2008, 9 ~ 2009, 8, INSERM U 846, Lyon, France, Post-doc, Cooperative Human Robot Interaction Systems (FP7-215805) .
- 2009, 1 ~ 2009, 2, IIT(Italian Institute of Technology), System engineer, installation and control of iCub robot.



CV

- 2009, 8 ~ 2014, 8 , FCT-Ciencia 2007 Program funded Post doctoral researcher position at IEETA, University of Aveiro
- 2013.8 – Present, Changshu Institute of Technology Professor position and Principle Investigator of Robot intelligent control and application research group.
- 2019.7-Present, Dean of CIT technology transfer center in Rudong, Nantong



Cooperation Between CIT and VSB



With China's "one belt, one road" policy, the cooperation between China and Czech will become more and more scientific and technological. In October 2015, Ostra University of technology held the first China Czech science and technology exchange meeting. Dr. Lu Zhenli, School of electrical and automation engineering, was invited to attend the meeting and gave a report.

Cooperation Between CIT and VSB



From May 18 to 20, 2016, Dr. Petr Bilik and Dr. Radek Martinek of VSB were invited to visit CIT. Signed cooperation agreement to carry out in student exchanges, teacher visits and scientific research cooperation, gave two lectures on "using LabVIEW for power quality analysis" (Petr Bilik) and "advanced signal processing using LabVIEW" (Radek Martinek) for teachers and graduate students.

<http://news.cslg.edu.cn/index/read/id/68337>

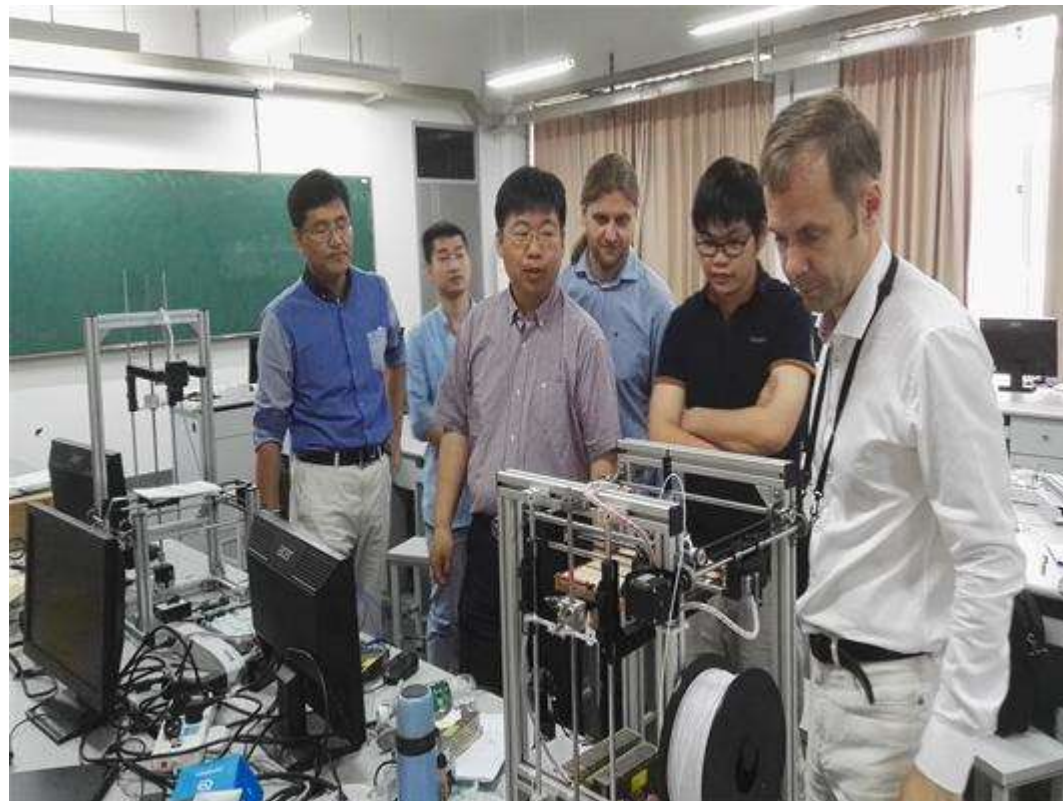
Sign cooperation agreement



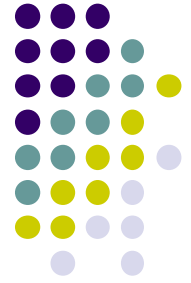
Reports



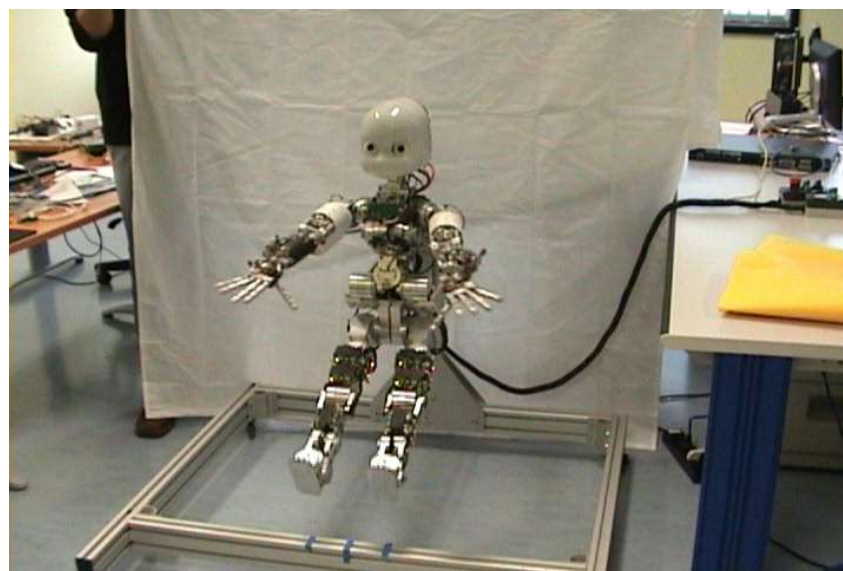
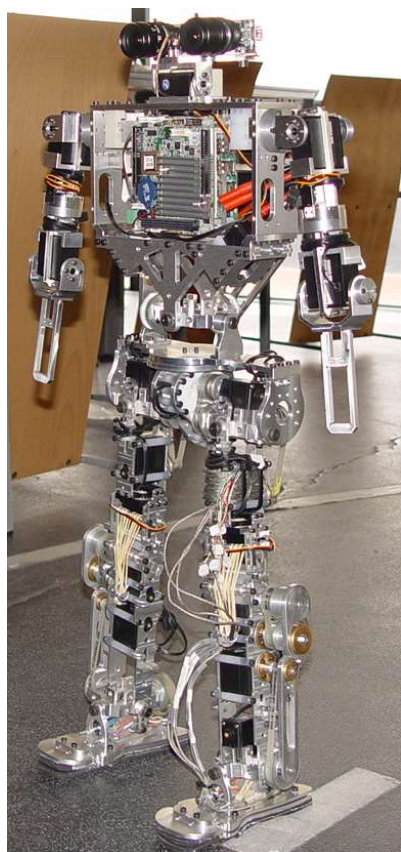
Visit Labs



Potential Cooperation Topic

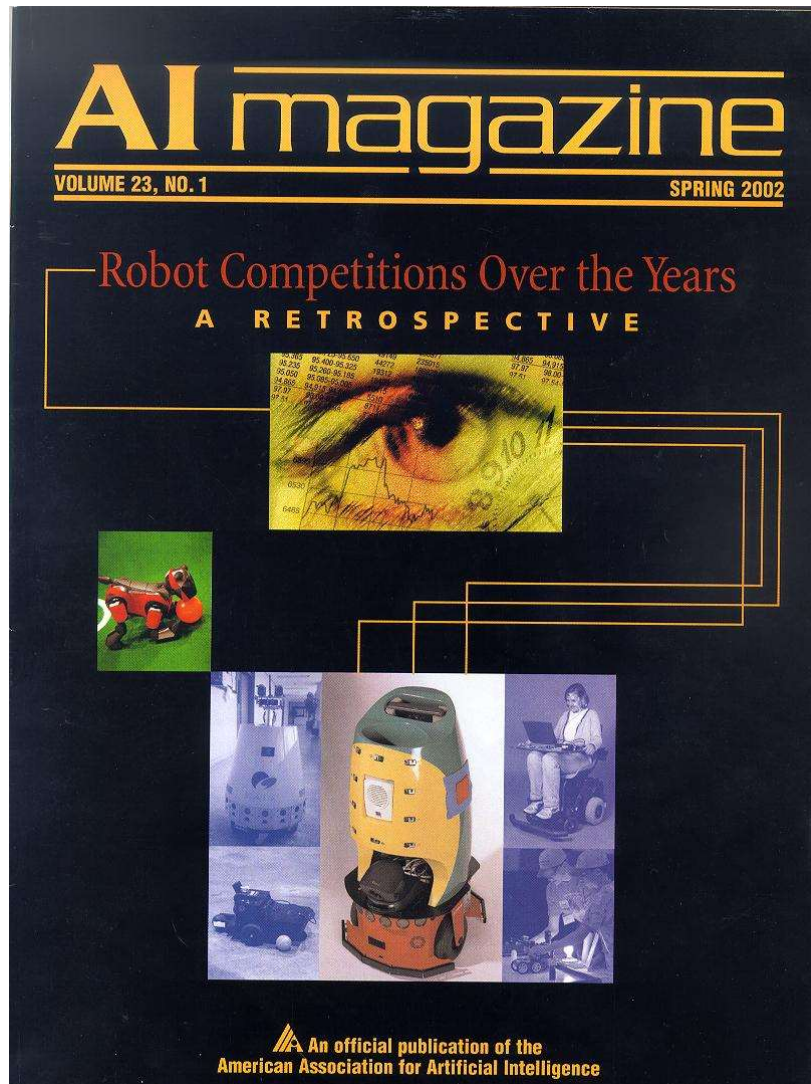


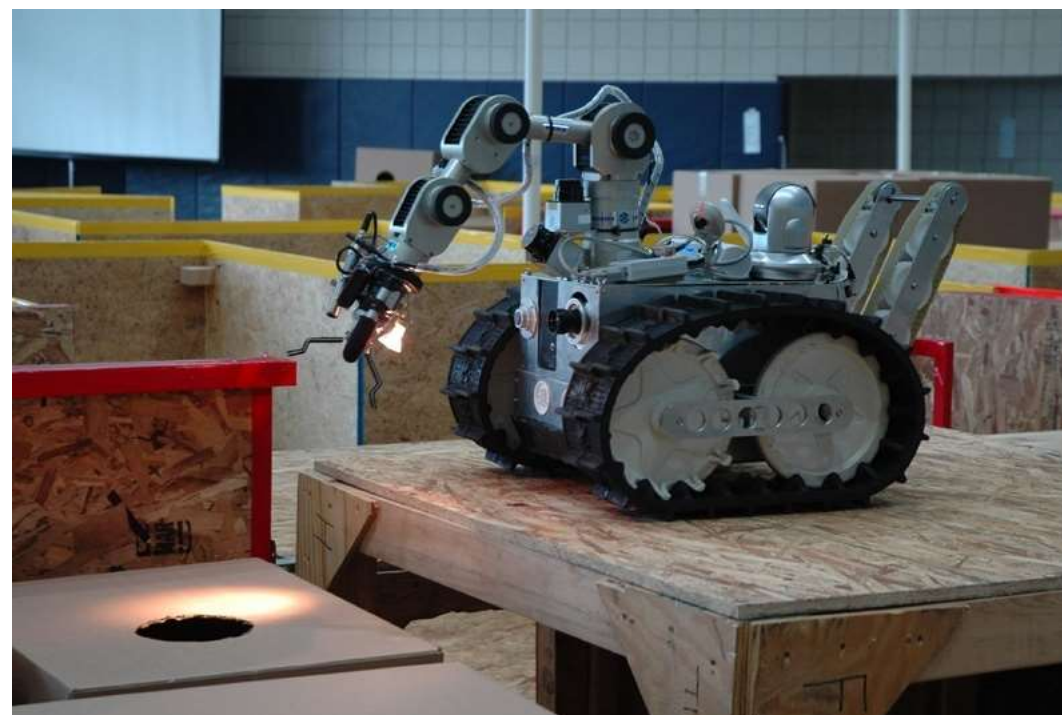
- Humanoid robot
- Industry robot
- Medical and service robot



A blue robotic arm with two joints is mounted on a wooden base. The arm is holding a small white cup. A red battery pack and a green battery are visible on the desk surface.







Labview and NI in CIT



Robot in CIT



Robot in CIT



Robot in CIT



Robot in CIT



江苏省如东高新技术产业开发区



如东高新区

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传真 0513-84164302
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邮箱 zhenlilu@cslg.cn



常熟理工学院
电气与自动化工程学院

卢振利 博士、副教授 机器人工程系主任
博士后 INSEAD 访问学者 IEETA, 阿威罗大学, 葡萄牙

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微信 nasacsig



Thank you for your attention.

E-mail: zhenlilu@cslg.cn

Wechat: nasacsig

联系人：卢振利



Introduction to the achievements of Jiangsu-Czech Bilateral R&D Funding Program

**Southeast University
Genture Electronics
R.C.E Systems**

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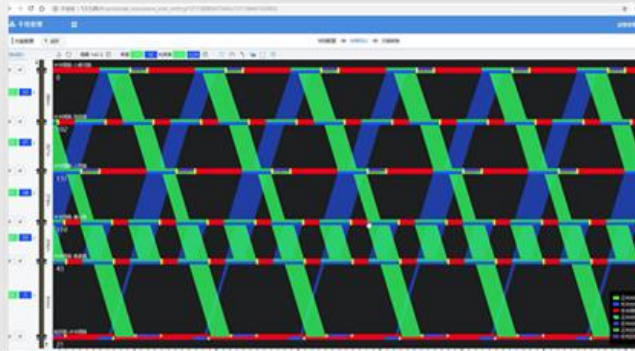
3. Cooperation achievements

4. Cooperation needs

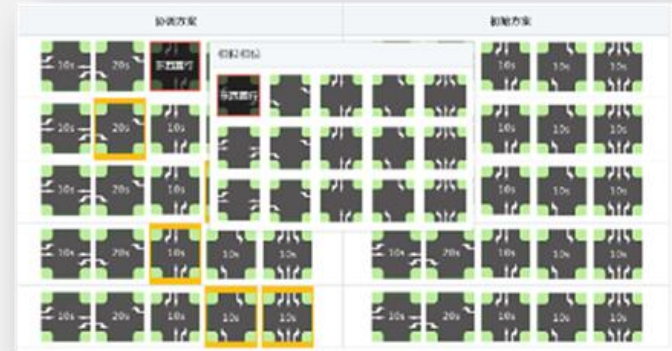
1. Active signal optimization



Intelligent setting of
signal time



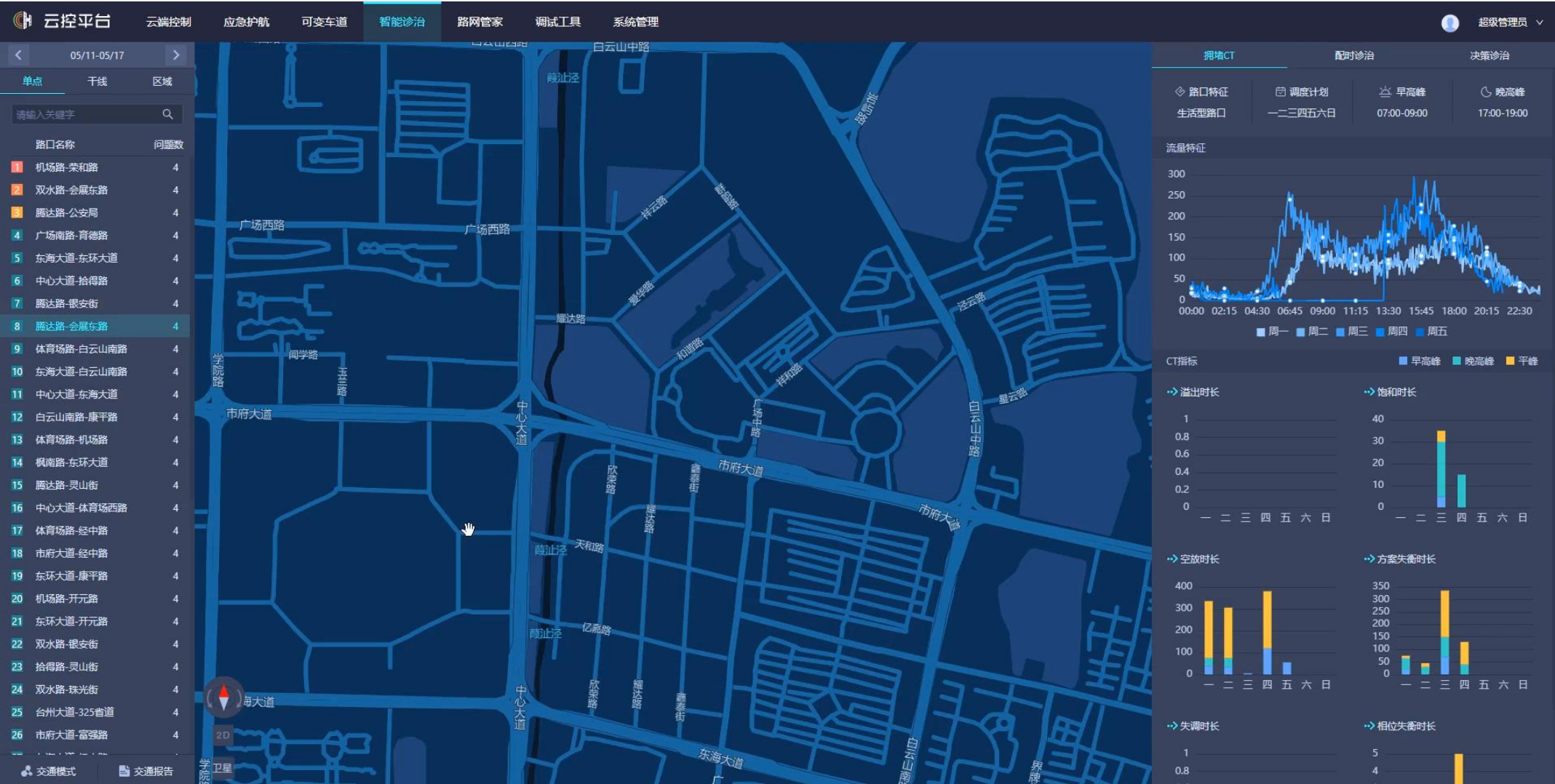
Visual trunk line **coordination**
optimization configuration



Intelligent recommendation of
signal **scheme**



1. Active signal optimization



1. Active signal optimization



重 视 提 供 完 整 的 方 案 ！ 重 视 建 立 长 久 的 合 作 ！

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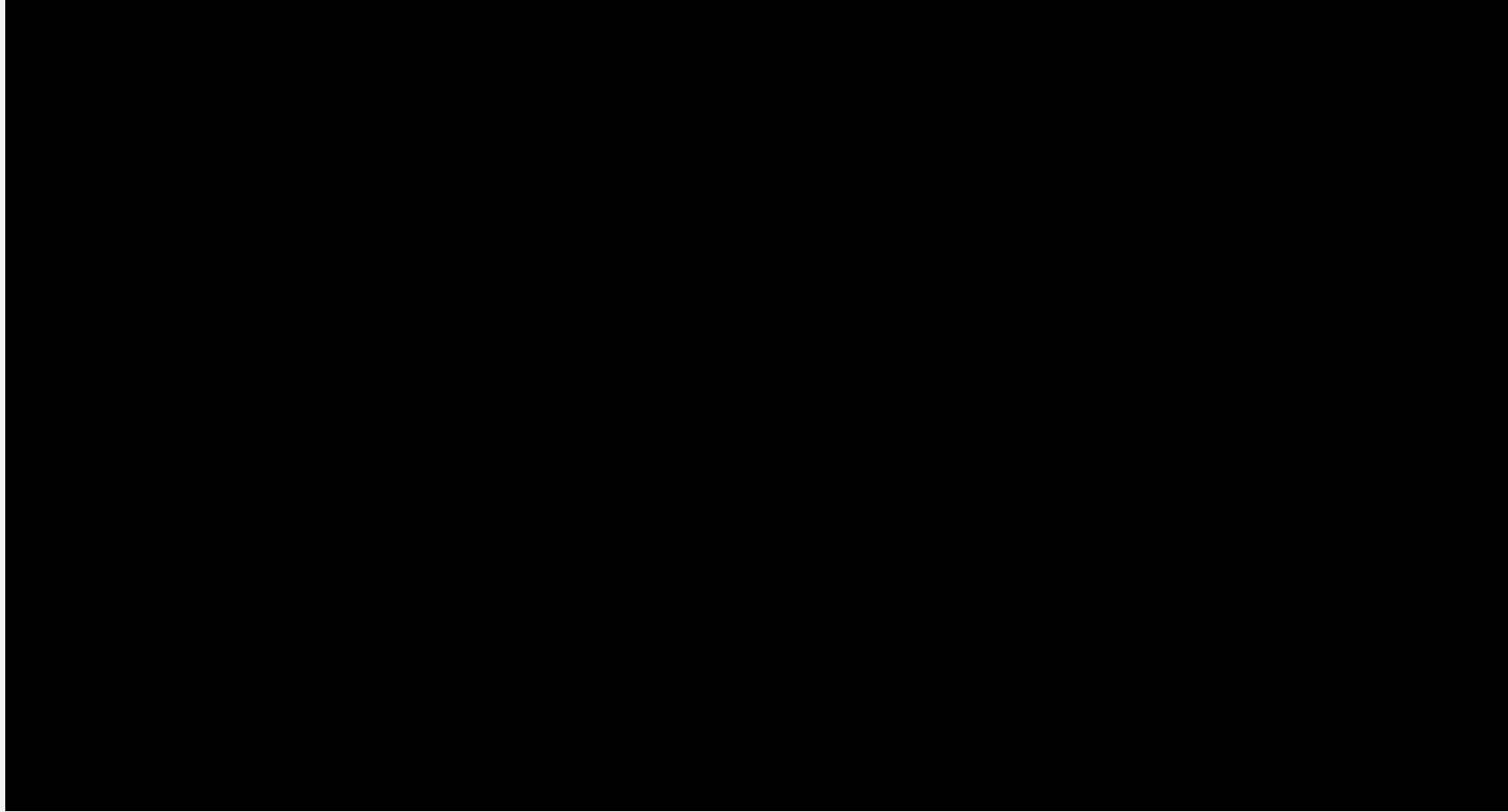
1. Active signal optimization

**2. Real-time simulation and
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2. Real-time simulation and evaluation platform



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2 Invention Patent



2 Papers



1 Software Platform



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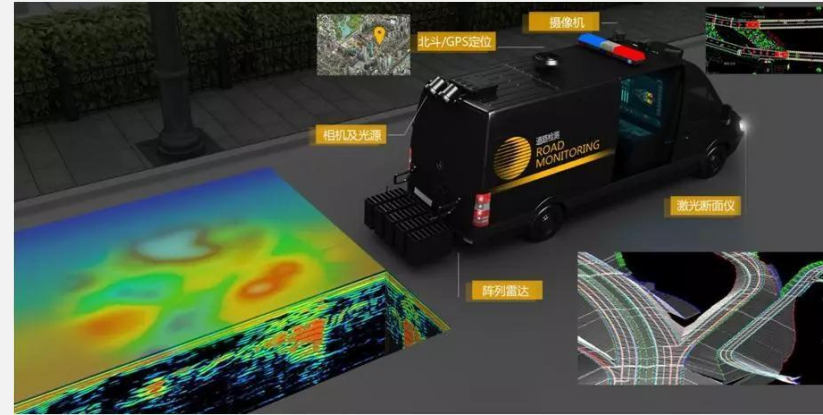
3. Cooperation achievements

4. Cooperation needs

4. Cooperation needs

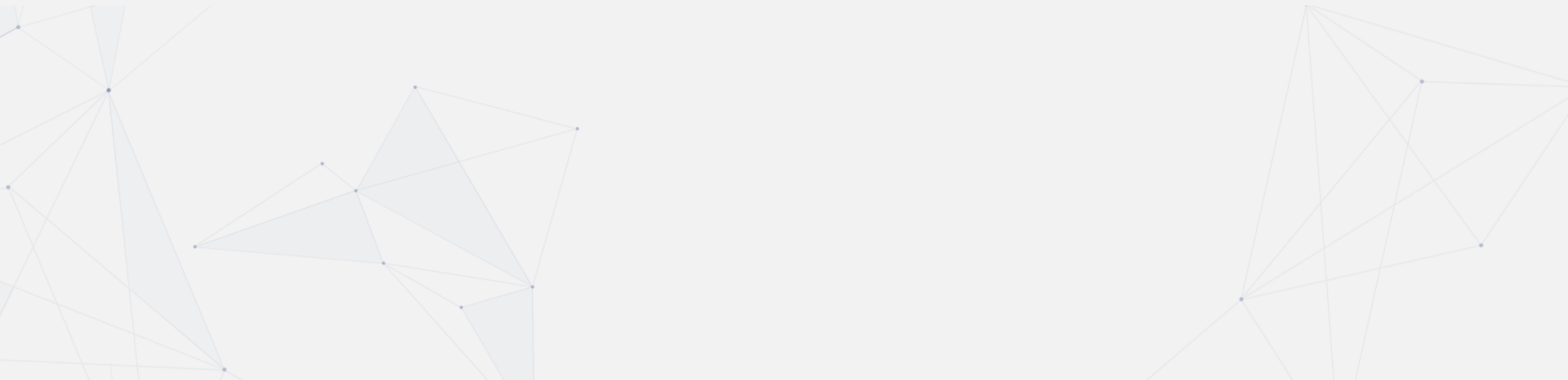


Radar data analysis



Pavement defect identification

Thanks for Listening





南京大學

NANJING UNIVERSITY

新药转化实验室

Laboratory of Drug Development

Fragment-Based BRAF V600E Inhibitor Design

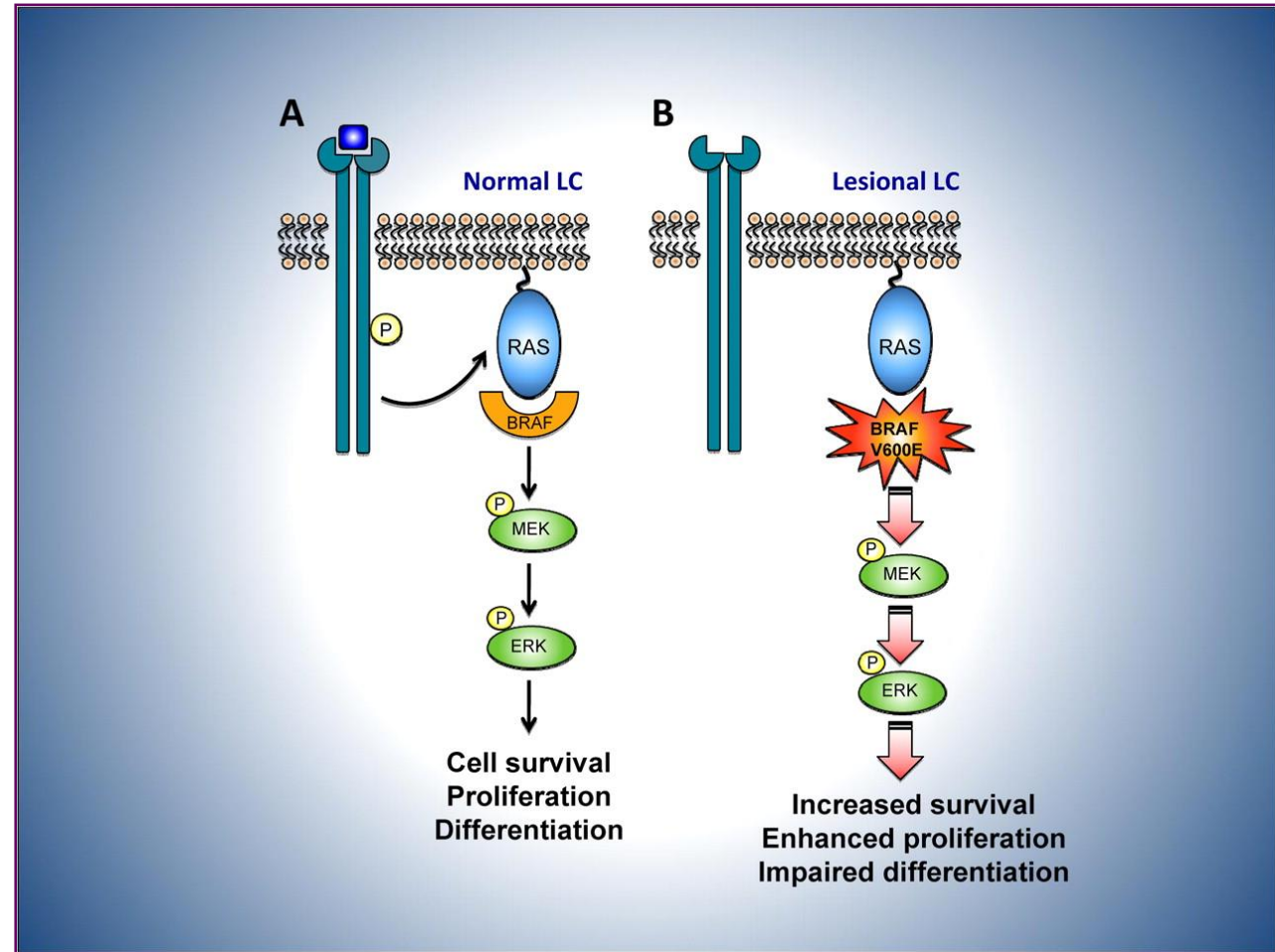
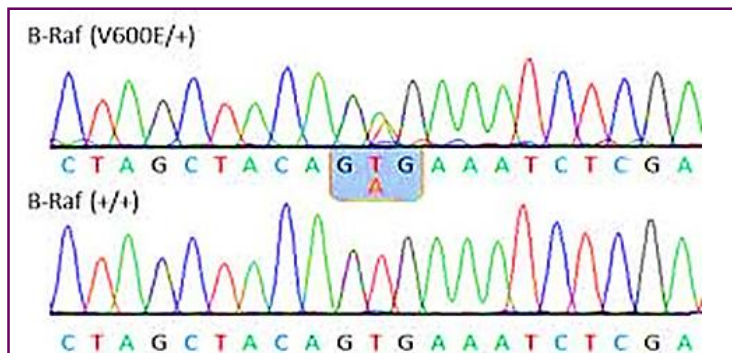
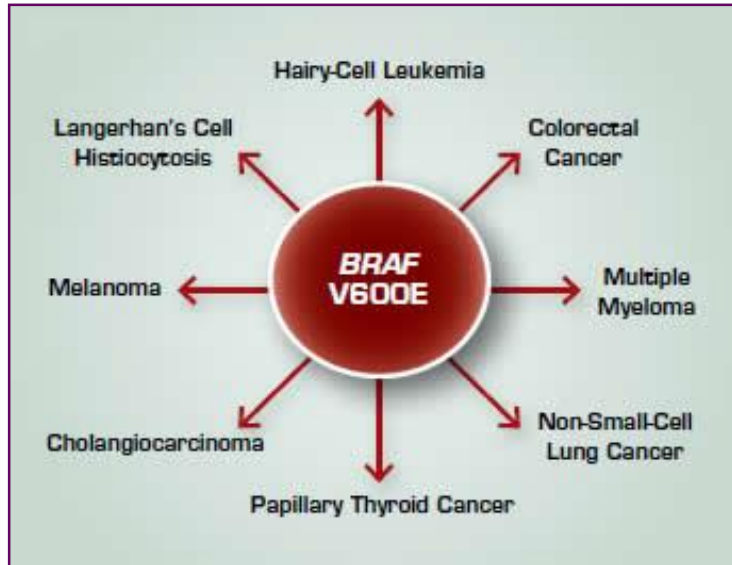
基于片段策略的BRAF V600E抑制剂设计

ZHANG Yaliang

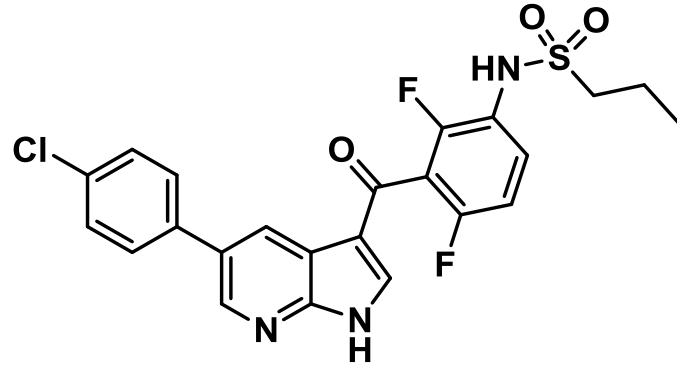
2021-04-13



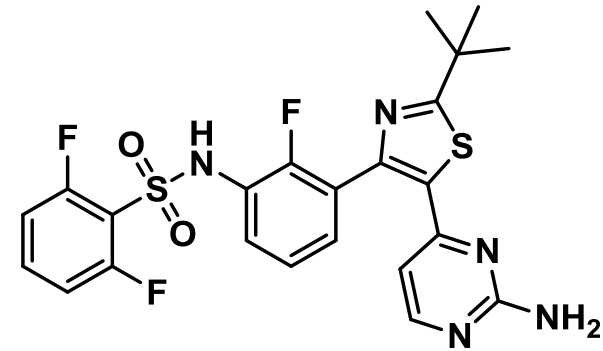
Ras/Raf-MEK-ERK pathway



● Approved B Raf^{V600E} inhibitors



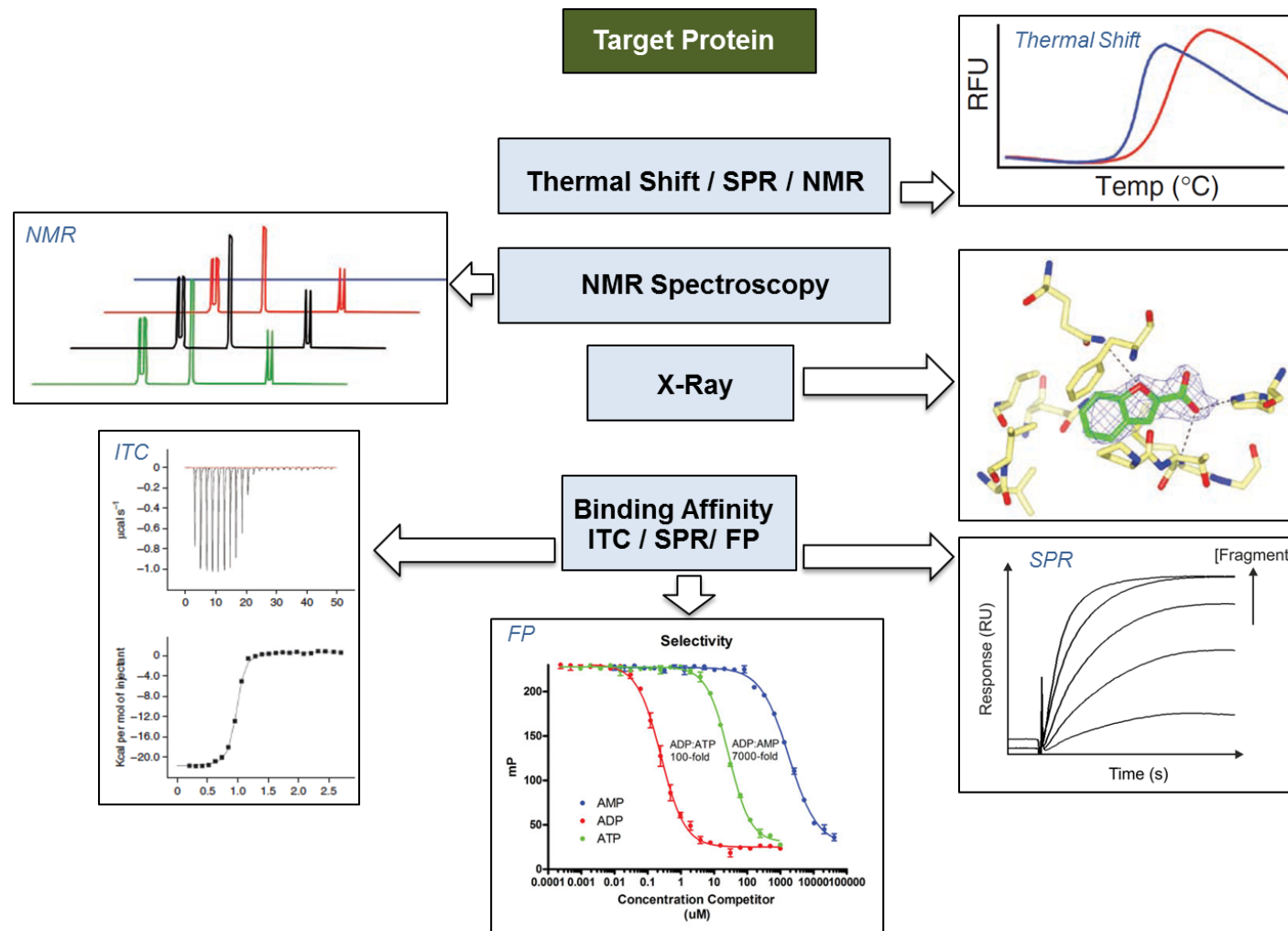
Zelboraf (Vemurafenib)



Tafinlar (Dabrafenib)



● Fragment-Based Drug Design, FBDD



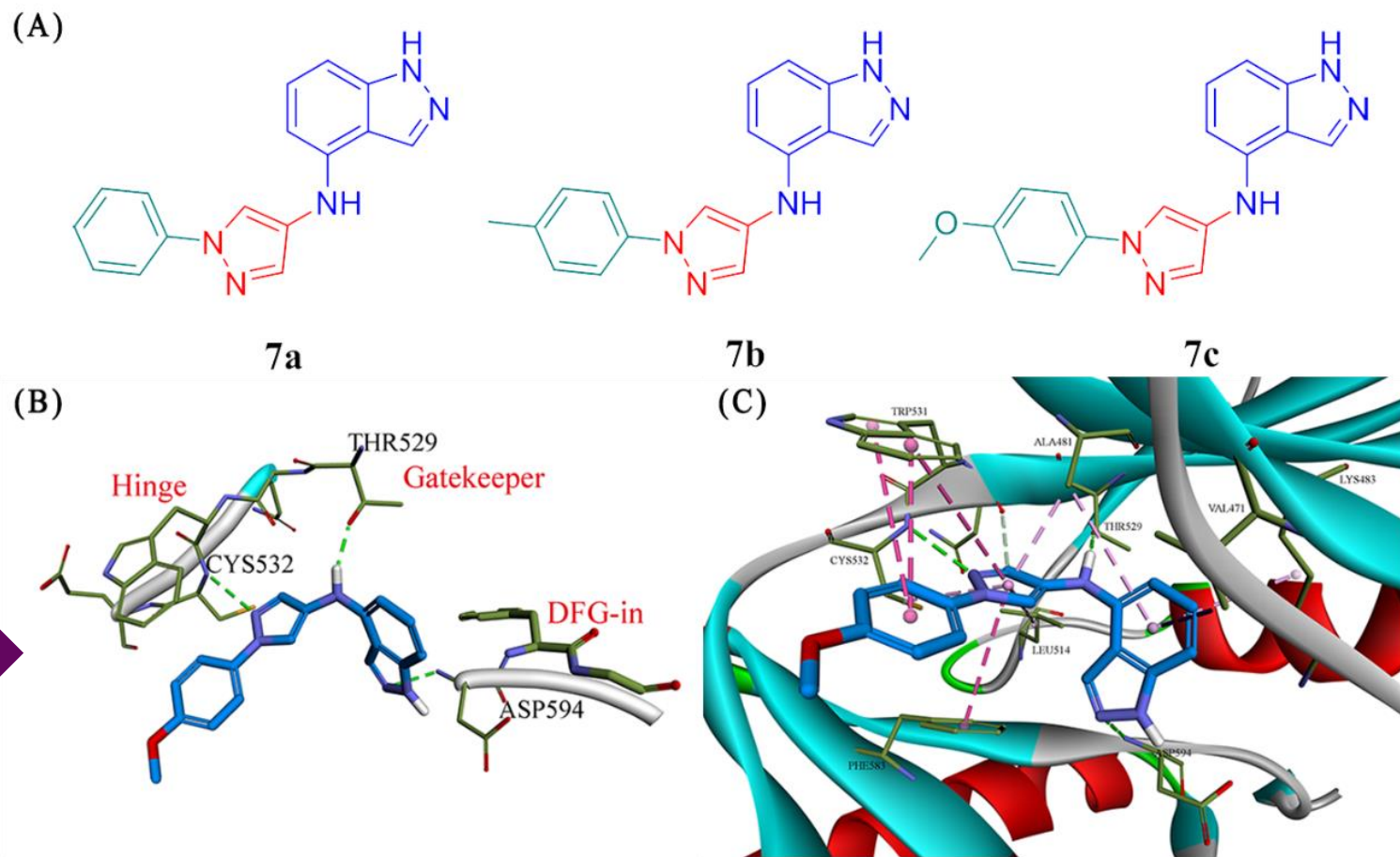
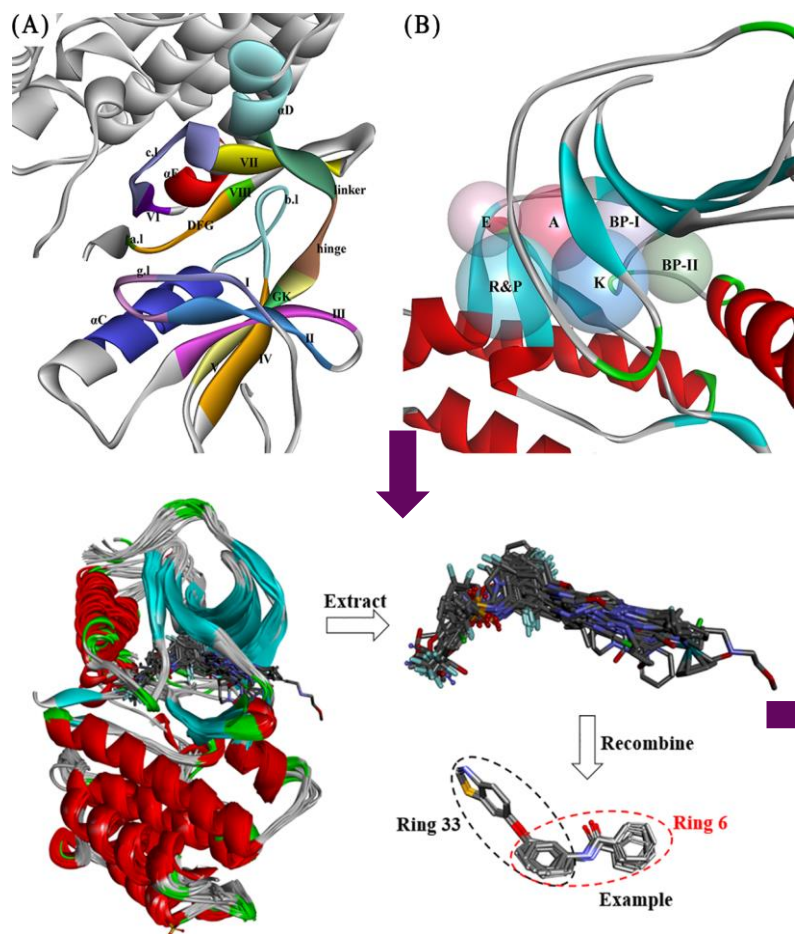
Experimental Screen

- ✓ relatively high accuracy
- ✗ expensive instruments
- ✗ complex process
- ✗ high professional level requirements
- ✗ low efficiency

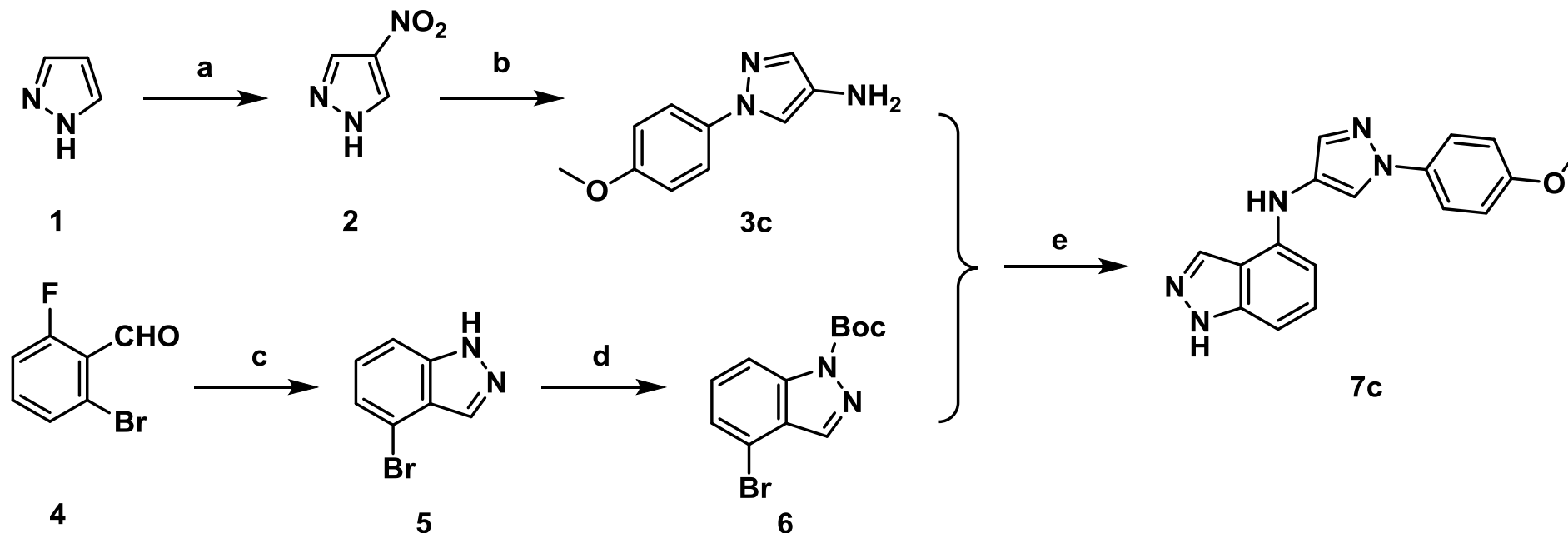
Virtual Screen

- ✓ convenient
- ✓ low cost
- ✓ without preparation of protein & compounds
- ✓ high efficiency
- ✗ relatively low accuracy
- ✗ needs to be improved by auxiliary methods

● Molecular design

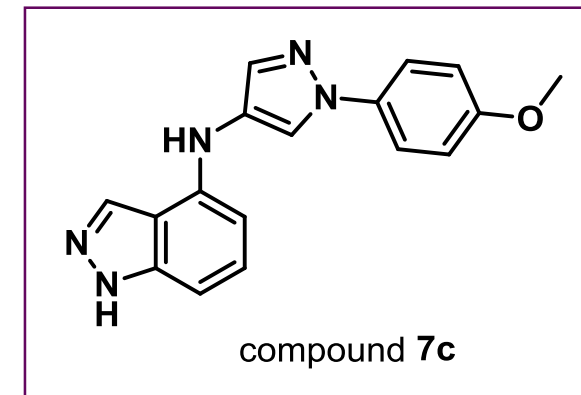
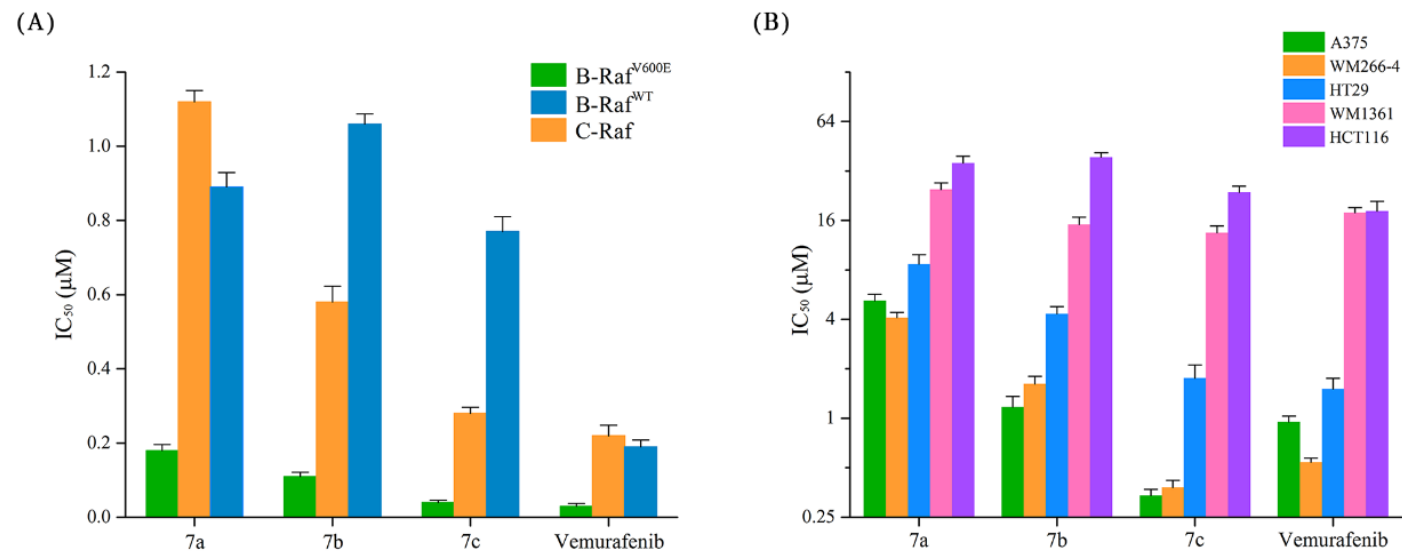


Synthesis of compound 7c



a. H_2SO_4 , HNO_3 , 60°C , 2 h; b. 1) Iodobenzene, 8-Hydroxyquinoline, CuI , K_2CO_3 , DMSO, 135°C , 2 h; 2) 80% Hydrazine hydrate, 10% Palladium charcoal, Ethanol, 80°C , 10 min; c. 80% Hydrazine hydrate, DMSO, 80°C , 8 h; d. Triethylamine, Di-tert-butyl bicarbonate, DCM, R.T., 8 h; e. 1) $\text{Pd}_2(\text{dba})_3$, Xantphos, Cs_2CO_3 , Toluene, Ar atmosphere, 100°C , 4 h; 2) Trifluoroacetic acid, DCM, R.T., 2 h.

Antiproliferation, kinase inhibition & selectivity



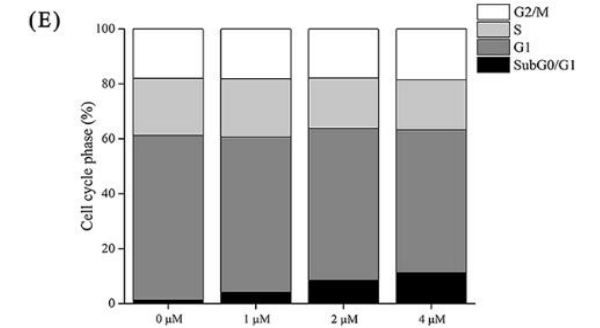
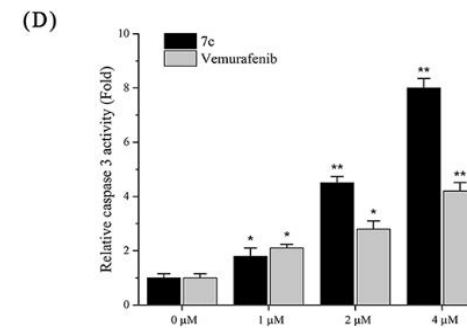
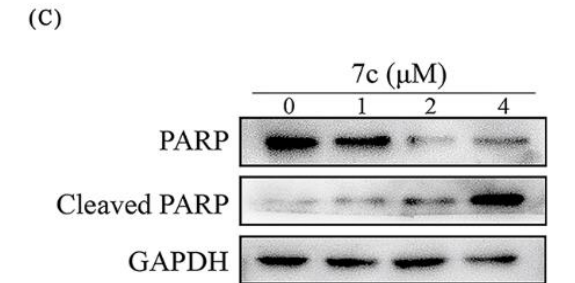
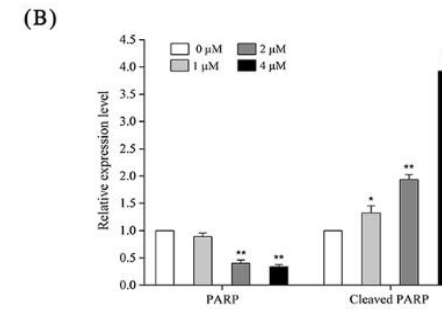
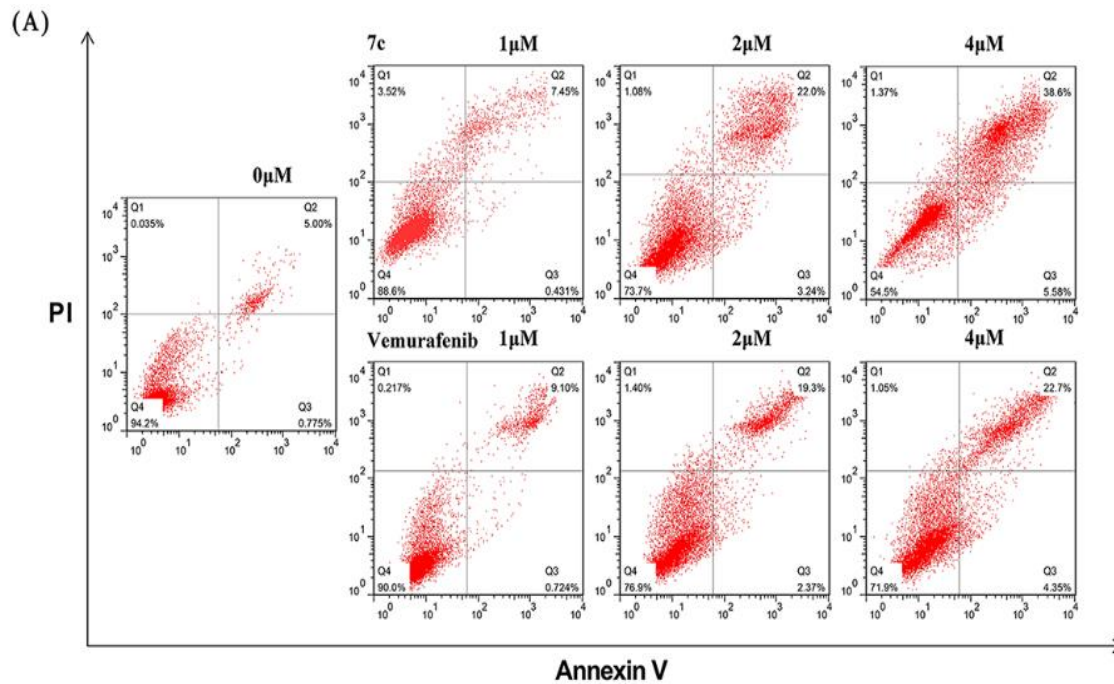
BARF ^{V600E}	
A375	0.34 μM
WM2664	0.38 μM
BARF ^{WT}	
WM1361	16.48 μM

Vemurafenib	
BARF ^{V600E}	
A375	0.95 μM
WM2664	0.54 μM
BARF ^{WT}	
WM1361	23.37 μM

Kinase	IC ₅₀ (μM)	Kinase	IC ₅₀ (μM)
B-Raf ^{V600E}	0.04±0.006	VEGFR2	15.1±1.80
B-Raf ^{WT}	0.28±0.017	JNK1	11.8±0.98
C-Raf	0.77±0.040	PKA	N.i.*
p38	N.i.*		

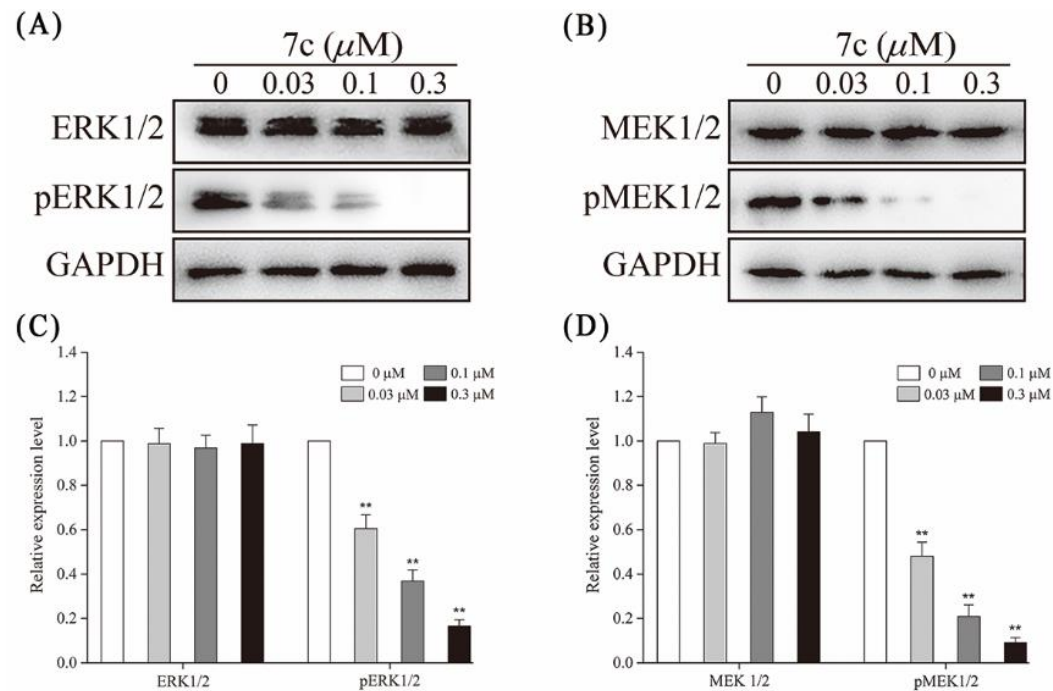
* No inhibition

● A375 apoptosis & cell cycle

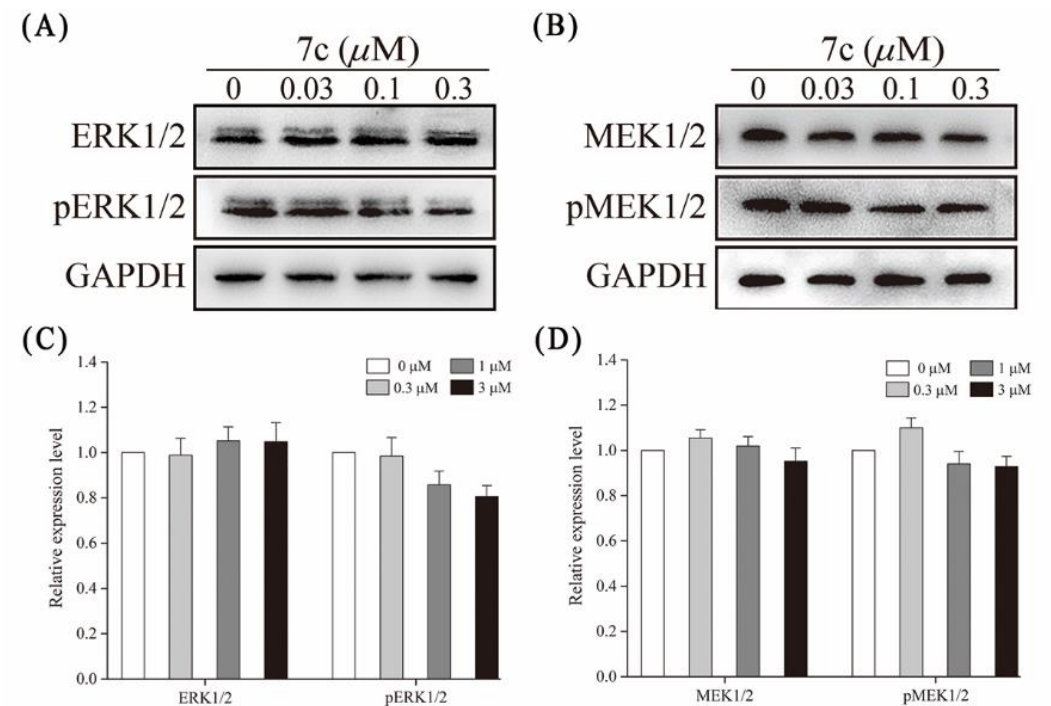


● 7c strongly block ERK pathway

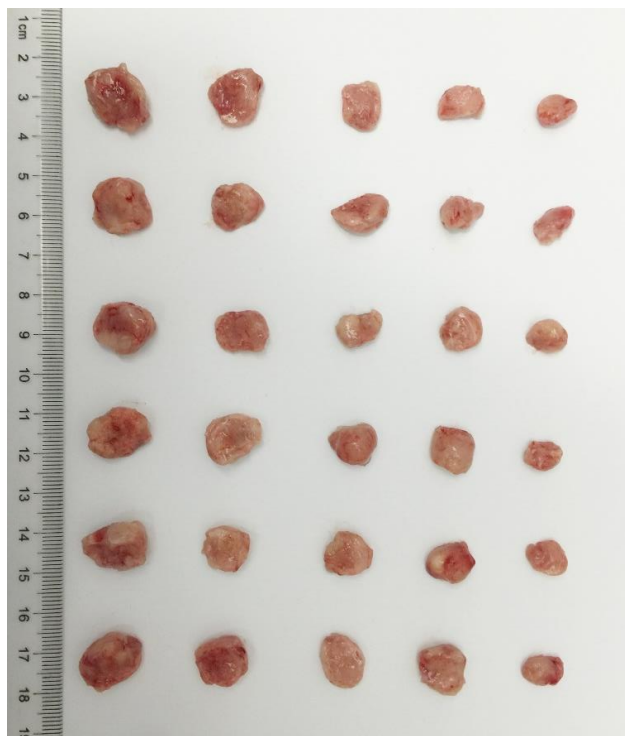
A375 (BARF^{V600E})



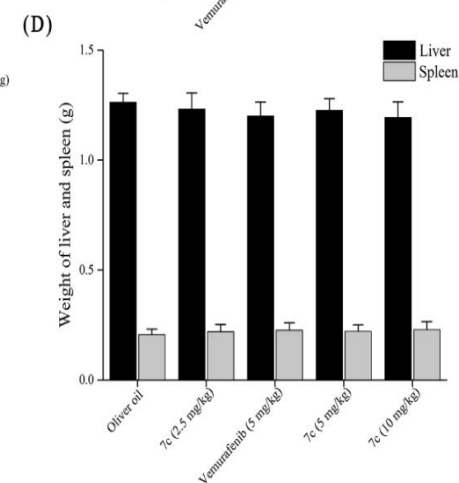
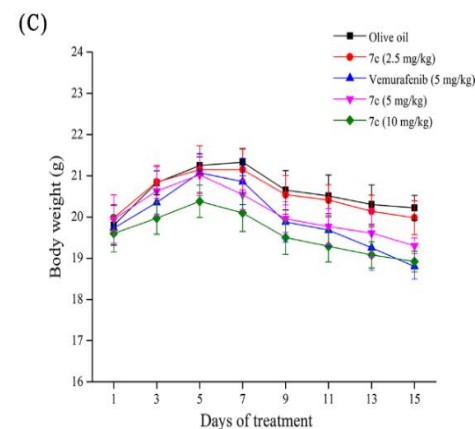
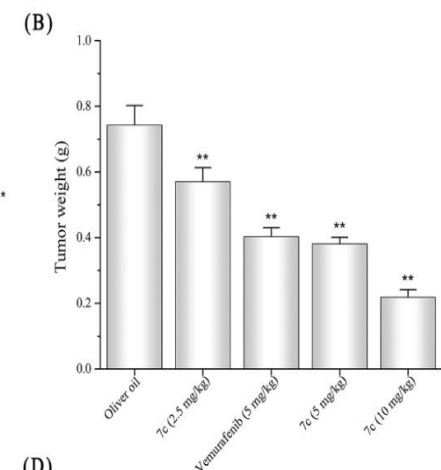
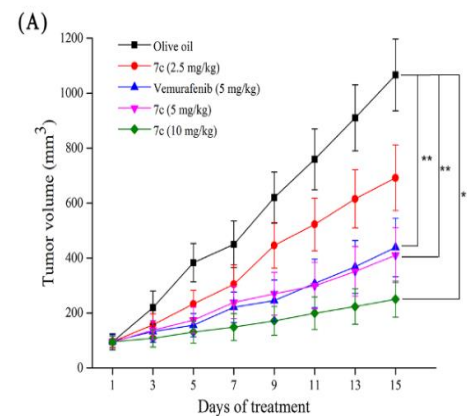
WM1361 (BARF^{WT})



● Xenograft model and *in vivo* study



Olive oil
7c 2.5 mg/kg
Vemurafenib
7c 5 mg/kg
7c 10 mg/kg



Biochemical Pharmacology **2017**, 132:63-76.



南京大學

NANJING UNIVERSITY

感谢聆听 敬请指正

THANK YOU FOR YOUR ATTENTION

Jiangsu-Czech R&D Funding Project

---YN Tech

---HelplifeS

2021

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- Background and Introduction
- Potential Cooperation
- Expected outputs

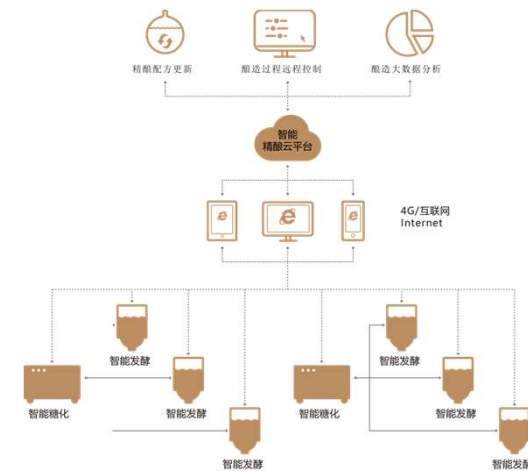
Background and Introduction--- Yunniang Technology



- Wuxi Yunniang Intelligence Technology Co.,Ltd was founded in 2016 and focus on the research, development and service of beer techniques, products, fermentation control and brewing equipment.
- YN Tech developed the ICBS (Intelligent Clouds-Brewing System), provides solutions for the brewing of high-quality craft beer to business partners and consumers.



Automatic intelligent brewing machine



Intelligent Clouds-Brewing System

Background and Introduction---Yunniang Technology



- YN Tech is a leading integrated service provider with great innovation in craft beer industry, devoted to the project promotion, product development and technical services for craft beer. YN Tech had several renowned trademarks, like 'qianghua', 'xiaobengu' and 'Brew Spot'.



Xiaobengu

Wheat Beer



IPA



Red Ale



Brown Ale



Schwarzbier



Milk Stout

Brew Spot



酿造现场
BREW SPOT

Background and Introduction---Yunniang Technology

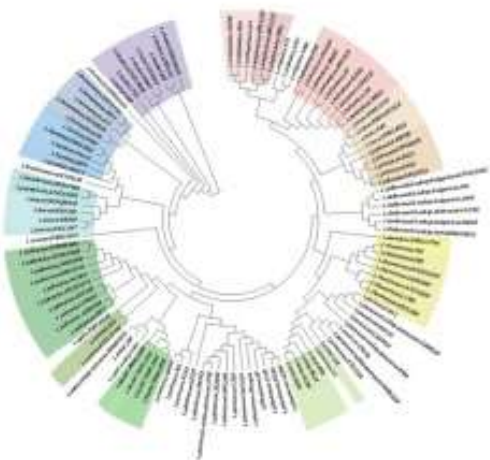


- YN Tech have provided services to more than ten hotels of Marriott and with more than ten brewing bars in China. Our company has pilot plant brewing base (50-2000 L).



Background and Introduction--- HelplifeS

- HelplifeS is a high-tech enterprise specializing in the development of scientific evidences probiotics and formulas. Based on scientific research, with human health as the mission, we select global high-quality functional ingredients and advanced manufacture technologies to optimize the industrial supply chain and empower our health.
- Based on the world's top research institutions and universities, such as Jiangnan University, which is top 1 in the field of food in the world (ShanghaiRanking's Global Ranking of Academic Subjects), passed the American IFT international food certification, and with the State Key Laboratory of Food Science and Technology.

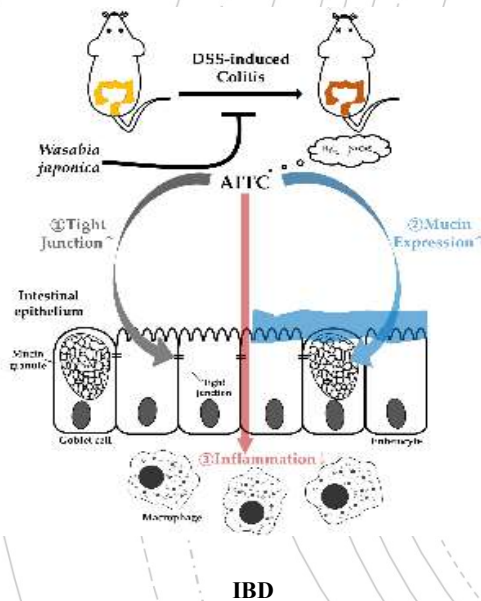


School of Food Science and Technology
Jiangnan University

Background and Introduction--- HelplifeS

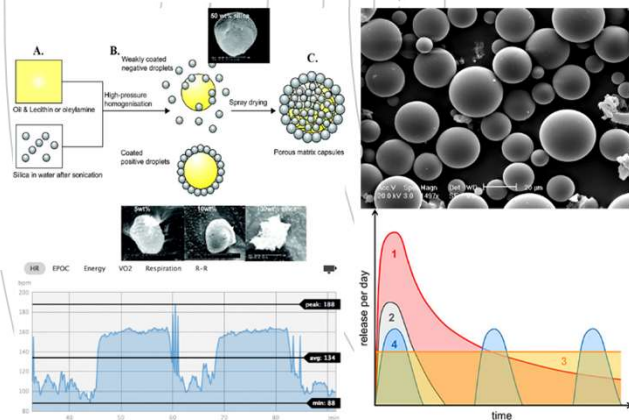
- HelplifeS has established a probiotics strain collection platform, a functional development platform, an industrial technology research and application platform for over 40 years, leaded by the president of China Probiotics Association
- We has more than 20,000 functional probiotic strains, more than 200 microecological product solutions, more than 100 domestic and foreign patented products and clinical products.

We have developed many functional strains, fermentation drinks and dietary supplements, such as Kombucha, Calpis, yoghurt, IBS supplement and so on. We have pilot plant and cGMP plants, with the capacity of 300 tons of probiotics powder.



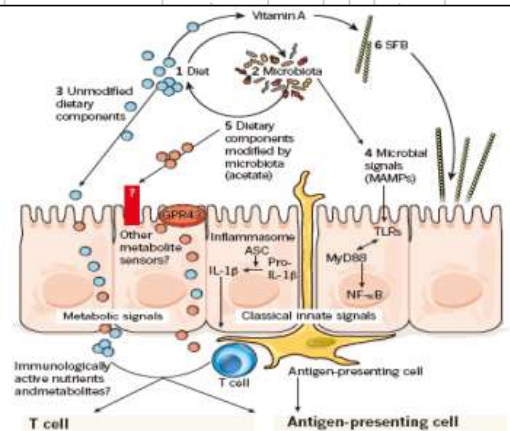
Potential Cooperation

- Development of alcohol free beer with probiotics;
- Isolation and identification of probiotics strains for beer and other brewing;
- Establishment of a joint research institute for functional brewing in China and Czech;
- Research on application of beer raw materials (special malt and hops);
- Training on beer culture and fermentation skills;
- Marketing promotion



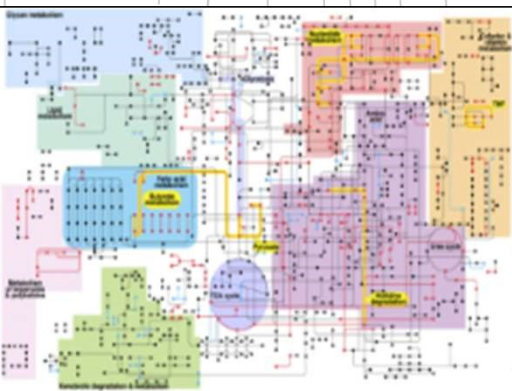
Innovation

- Alcohol free beer with probiotics
- Joint research institute for functional brewing drinks
- Training of beer culture and fermentation skills



Why can we do that

- Wuxi Yunniang has a rich experience in beer
- Helplifes has a powerful resource and capacity in probiotics
- We have more than 60 researchers and engineers
- We have pilot plant and manufacture plant
- We are good partners and have cooperated with each other on the development and application of Lactic acid bacteria drinks in the past.



Expected outputs

- At least one alcohol free beer comes into markets
- At least two functional brewing drinks come into markets
- Publish three papers or patents
- At least two times training



■ **Thanks !**