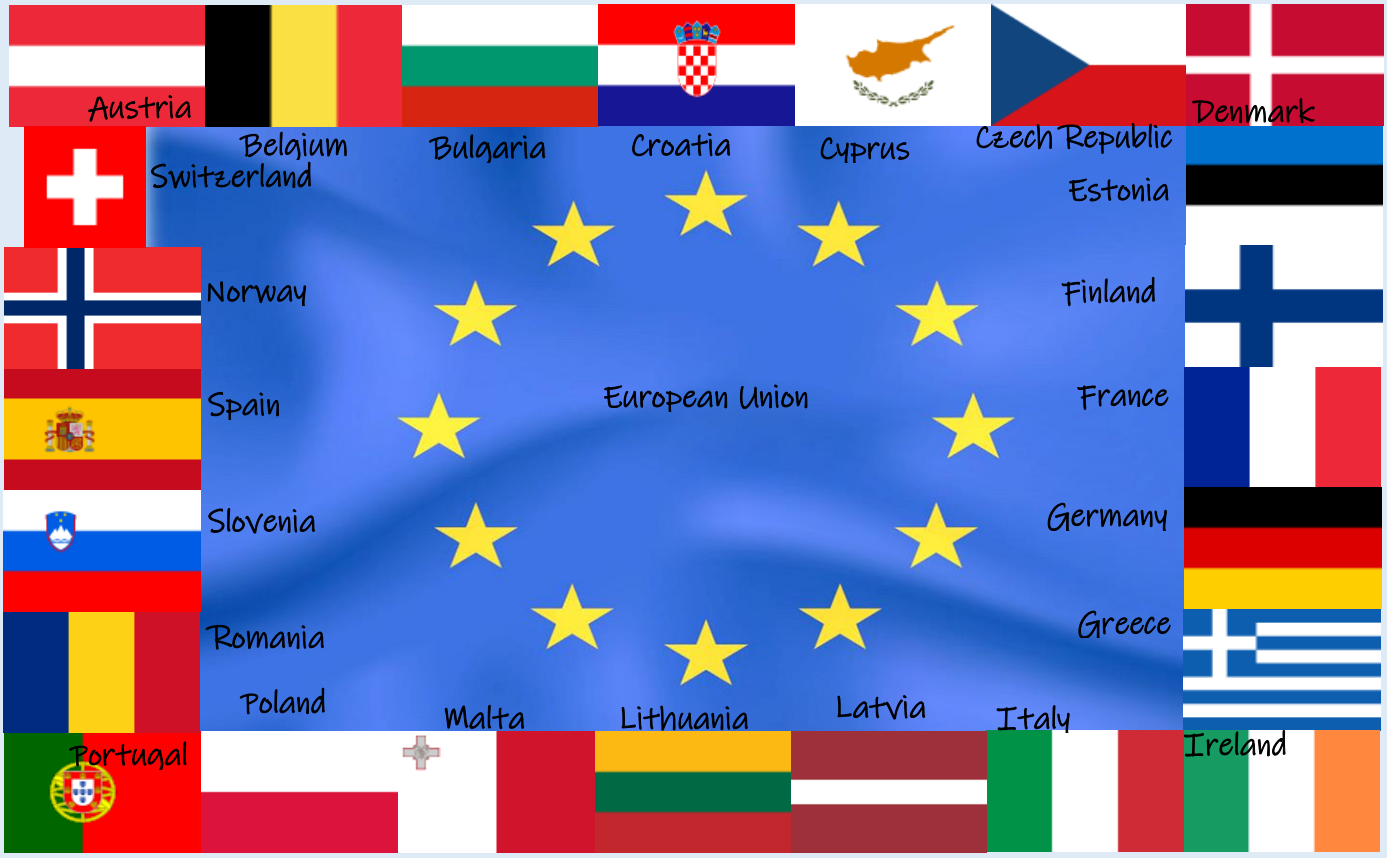
RESEARCH, INNOVATION AND SCIENCE:

cooperation between EU Member States, H2020 Associated Countries, the EU and China



EUROPEAN UNION
DELEGATION TO CHINA
Science & Technology Section

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Disclaimer

This brochure has been compiled by the Science & Technology Section of the EU Delegation to China.

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For more detailed information please consult the Embassies of the EU Member States and Countries Associated to the Framework Programme based in China as well as the Delegation of the European Union to China.

Contents

INTRODUCTION

This brochure represents information collected by the EU Delegation Science & Technology Section at the beginning of 2021. It contains contributions received from 23 EU Member States and 2 Countries Associated to the Framework Programme, active in research and innovation activities in China. The brochure is meant to provide a general overview of current activities as well as perspectives for the future. It provides a non-exhaustive picture giving a snapshot on the state of play at the time of compilation.

The countries provided information from the following points requested:

PRIORITY AREAS – general table

	AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	GR	IE	IT	LT	LV	MT	PL	PT	RO	SI	ES	NO	CH	EU	**TOT**
Health	X		X	X	X	X	X	X	X	X	X		X	X	X	X		X	X		X	X	X	X	X	**21**
ICT	X	X	X	X		X		X	X			X	X	X	X	X		X	X				X	X		**15**
Food and agriculture	X	X	X	X	X	X		X			X	X	X	X				X	X	X		X	X		X	**17**
Environment	X	X		X	X	X	X	X		X	X	X		X			X	X	X	X	X	X	X	X	X	**20**
Materials		X				X					X		X	X		X		X	X		X	X	X			**11**
Energy	X	X		X		X		X		X		X		X		X		X	X	X		X	X		X	**15**
Physics	X					X			X		X			X	X			X						X		**8**
Space		X				X					X			X				X	X					X		**6**
Urbanization (incl. transport)	X	X					X	X		X		X		X			X					X	X	X	X	**11**
Engineering		X				X	X	X			X			X	X	X	X	X	X	X		X				**13**

NOTE: only areas listed as priorities by at least five countries have been taken into account. With respect to the 2014 brochure, the areas of "Engineering", “Urbanization” and "Physics" have been added and the area of "Social sciences" has been left out, since it was mentioned only sporadically.

PRIORITY AREAS – specific table

	AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	GR	IE	IT	LT	LV	MT	PL	PT	RO	SI	ES	NO	CH	UE	TOT
HEALTH, MEDICINE AND LIFE SCIENCES	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓			✓	✓	✓	✓	21
Public health																		✓								1
Therapies																		✓								1
Diagnostic tools																		✓				✓				2
Genetics									✓									✓								2
Veterinary medicine						✓																		✓		2
Biology						✓												✓	✓							3
Biotechnology and biomedicine		✓	✓					✓								✓		✓	✓		✓	✓		✓		9
ICT	✓	✓	✓	✓		✓		✓	✓			✓	✓	✓	✓	✓		✓	✓				✓	✓		16
Computer science and informatics																		✓	✓							2
Systems and communications engineering																		✓								1
FOOD AND AGRICULTURE	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓				✓	✓	✓		✓	✓		✓	17
Food safety								✓						✓						✓		✓	✓			5
Fishery science and technology																						✓	✓			2
Food technologies								✓														✓				2
Food and biotechnology			✓																							1
Sustainable agriculture			✓																							1
ENVIRONMENT	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	20
Climate/climate change							✓			✓	✓	✓											✓	✓		6
Earth sciences																		✓	✓			✓		✓		4
Water research/water management							✓	✓										✓				✓				4
Arctic/polar science								✓														✓	✓			3
Environmental engineering							✓											✓						✓		3
Green transition/growth								✓						✓								✓				3
Clean technologies		✓																				✓		✓		3
Air quality		✓																						✓		2
Deforestation																		✓		✓						2
Marine/maritime research																	✓						✓			2
Bio-economy																✓										1
Karst research																					✓					1
Low-emission societies																							✓			1
Pollution																		✓								1
MATERIALS		✓				✓					✓		✓	✓		✓		✓	✓			✓	✓	✓	✓	12
Advanced materials											✓		✓	✓								✓				4
Biomaterials, nanomaterials, inorganic non-metallic																		✓								1
Smart materials and technologies																✓										1

	AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	GR	IE	IT	LT	LV	MT	PL	PT	RO	SI	ES	NO	CH	UE	TOT
ENERGY	✓	✓		✓		✓		✓		✓		✓		✓		✓		✓	✓	✓		✓	✓	✓	✓	16
Renewable energy/sustainable energy	✓			✓				✓						✓				✓				✓	✓	✓		8
Smart energetics										✓						✓										2
Low-carbon energy technologies	✓																						✓			2
Energy systems								✓																		1
Clean coal utilisation																		✓								1
New energy development																		✓								1
PHYSICS	✓					✓			✓		✓			✓	✓			✓						✓		8
Condensed matter physics									✓									✓								2
Optics													✓		✓											2
Particle physics											✓													✓		2
Geophysics														✓												1
Quantum Information science	✓																									1
Nuclear sciences						✓																				1
SPACE		✓				✓					✓			✓				✓	✓					✓		7
Astronomy						✓												✓								2
Space technologies for Earth observation																			✓					✓		2
SUSTAINABLE URBANISATION	✓	✓					✓	✓		✓		✓		✓			✓					✓	✓		✓	11
Smart cities	✓	✓					✓															✓				4
Transport												✓					✓									2
Intelligent transportation										✓												✓				2
Urban development							✓																			1
ENGINEERING		✓				✓	✓	✓			✓			✓	✓	✓	✓	✓	✓	✓		✓		✓		14
Engineering systems																✓										1
Management sciences																		✓								1
Microelectronics		✓																								1
Remote sensing						✓																				1
Chemical sciences		✓																✓								2
Digital technology																	✓							✓		2
Mathematical sciences																		✓						✓		2
Artificial intelligence		✓									✓													✓		3
Intelligent manufacturing							✓							✓								✓		✓		4
Nanoscience/nanotechnologies		✓						✓											✓			✓				4

AUSTRIA

BILATERAL AGREEMENTS

Agreement between the Government of the Republic of Austria and the Government of the People's Republic of China on Scientific and Technological Cooperation concluded in Beijing on 24th April 1984

Memoranda of Understanding

- MoU on the Cooperation between CSTEC (China Science and Technology Exchange Center) and FFG (Austrian Research Promotion Agency)
- MoU between EUPIC (EU Project Innovation Centre, Chengdu) and FFG (Austrian Research Promotion Agency)
- MoU's of Global Incubator Network (GIN), represented by aws and FFG, with Mainland China:
    - SOSV Chinaccelerator
    - Plug and Play China
- MoU's of Global Incubator Network (GIN), represented by aws and FFG, with Hong Kong:
    - InvestHK
    - Brinc.io
    - 5x Ventures

Other strategic cooperation agreements

- **National Development and Reform Commission (NDRC)** in field of infrastructure.
- **Ministry of Science and Technology (MOST)** in fields of applied research and innovation.
- **Ministry of Transport (MOT)** in technology-specific cooperation in the fields of road, civil aviation, coastal and inland waterway transportation.
- **National Railway Administration (NRA)** in sector of railway transportation.
- **Chinese Academy of Sciences (CAS**) in applied research (Nanotechnology, New Materials and ICT).
- **Shanghai University** in the field of Nanotechnology.
- **Zhejiang und Guangdong Province** in the field of Smart City.
- **China National Space Administration (CNSA**) in the field of Space Technology (*in negotiation*).

City Cooperations

- Shenzhen, Guangzhou, Chengdu, Shanghai, Beijing, Nanjing, Hangzhou, Jiaxing, Changzhou, Tangshan, Linyi in fields of environmental protection, infrastructure, smart cities, water, waste management, artificial intelligence.

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VIS-À-VIS CHINA

The current government programme (from January 2020) foresees the development of an overall China strategy to be led by the Austrian Federal Ministry of European and International Affairs. However, due to the current situation and priorities, work on that strategy has not started yet.

PRIORITY AREAS OF COOPERATION

Ongoing priorities*

- Quantum Information Science
- Information and Communication Technology
- Intelligent Production
- Medicine and Health Research (including TCM, COVID-19)
- Renewable Energy and Low Carbon Technology
- Food, Agriculture and Biotechnologies
- Environment, Smart Cities and Sustainable Urbanisation

* Based on a recent co-publication study as well as feedback from the STI relevant ministries

INSTRUMENTS OF COOPERATION WITH CHINA (funding schemes, joint structures etc.)

Bilateral mobility programme Scientific and Technological cooperation

The international "Scientific & Technological Cooperation" (S&T Cooperation) programmes are based on inter-governmental and bilateral agreements or memoranda of understanding and contribute to the further development of the international cooperation activities of Austrian higher education and research institutions in the fields of science and technology. Calls for proposals for bilateral research projects with selected partner countries are usually issued every two years within the framework of these S&T Cooperation agreements.
(see https://oead.at/en/projects/international-cooperations/scientific-technological-cooperation-st-cooperation/)
These agreements aim at

1. Exchange of information on scientific and technical publications, documentations and information
2. Exchange of scientists, researchers and experts within bilateral scientific projects as well as for counselling, lectures and the implementation of special studies
3. Realisation and support of seminars, symposia and other scientific-technical events
4. Implementation of mutual study and research projects
5. Support of the collaboration between universities and other research institutions

Other bilateral funding schemes

These more applied-oriented programmes focus on the Co-funding mechanism in the fields of Nano, ICT, Advanced Materials, Smart Cities, applied research and innovation.

Joint Calls based on MoU's with following partners:

- **Chinese Academy of Sciences (CAS)**

  Funding programmes:
  - Production of the Future
  - ICT of the Future

Funding owner:
- Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK)
- Shanghai University (SHU)

Funding programme:
- Production of the Future

Funding owner:
- Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK)
- University of Shanghai (SHU) / Shanghai Industrial Technology Institute (SITI)

Funding programme:
- Production of the Future

Funding owner:
- Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK)
- Guangdong Provincial Department of Science & Technology (GDST)

Funding programme:
- Production of the Future

Funding owner:
- Nationalstiftung für Forschung, Technologie und Entwicklung
- Zhejiang Science & Technology Department (ZDST)

Funding programme:
- Production of the Future

Funding owner:
- Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK)
- Ministry of Science and Technology (MOST

Funding programme:
- Production of the Future

Funding owner:
- Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK)

- **Beyond Europe | Programme for Internationalisation of RTI Projects**
  "Beyond Europe" is a programme of the Austrian Federal Ministry for Digital and Economic Affairs (BMDW) implemented by the Austrian Research Promotion Agency (FFG) to support Austrian companies and research institutions to create and extend research collaborations with partners outside Europe.

Academic Network

Eurasia Pacific Uninet (EPU):
Eurasia-Pacific Uninet is a network which aims at establishing contacts and scientific partnerships between Austrian universities, universities of applied sciences, other research institutions and member institutions in East Asia, Central Asia, South Asia and the Pacific region - among them 66 Chinese member institutions. (http://www.eurasiapacific.net/)

Joint institutes

1. Sino-Austria Research Institute of Intelligent Industries, located in Nanjing, since 2020
2. Sino-Austria Research and Innovation Centre, located in Hangzhou, since 2020

Liaison Offices

1. Liaison Office of the Technical University of Graz at the Tongji University /Shanghai since 2016;
2. Liaison Offices of the Eurasia Pacific Uninet (EPU):

    - At the Beijing Academy of Science and Technology
    - Austrian EPU Office established in 2019 (Head of Office Dr. Huang Lin),
    - At the Mongolian University of Science and Technology in Ulan Baatar
    - Austrian EPU Center (Head of Office Prof. Sarantuya)
    - At the Binzhou Medical University in Yantai an office has been provided for EPU

Joint Research Labs/Research Centres

1. University of Graz
    - Joint Laboratory on Occultation for Atmosphere and Climate, with the National Space Science Center (NSSC) of the Chinese Academy of Sciences in Beijing (directed by Prof. Gottfried Kirchengast of Uni Graz and Prof. Sun Yueqiang of NSSC)
    - Joint Research Center of Chinese Traditional Medicine, with China Academy of Chinese Medical Sciences in Beijing (this academy signed an MOU with University of Graz, with the help of EPU)
    - Joint Research Center of Chinese Traditional Medicine, with Baotou Medical College in Inner Mongolia

2. University of Innsbruck - Beijing University "Chinese-Austrian Center for Biomarker Discovery" (https://www.uibk.ac.at/acrc/mitarbeiter/bonn/infos_biomarker-center.pdf; http://english.bjmu.edu.cn/academicsresearch/keyinstitutes/62.htm)

3. University of Vienna
   Joint Laboratory, located in the TEDA Institute of Applied Physics of Nankai University in Tianjin (this institute's dean, Prof. Romano A. Rupp is Austrian)

4. Technical University of Vienna
    - Austria-China Research Center on Tunnel and Underground Engineering; located at the Tongji University since 2007
    - China-Austria Center for Research/Innovation in Logistics, Supply Chain Management, Material Flow; located at Beijing Jiaotong University, since 2009
    - Belt and Road Joint Laboratory with Hangzhou Dianzi University, since 2020

5. University of Natural Resources and Life Sciences, Vienna (BOKU)
    - Joint Laboratory on Feed Mycotoxin Detoxification Technology, with the Chinese Academy of Agricultural Sciences in Beijing

6. Vienna Institute for Urban Sustainability
    - Joint Laboratory on Ecological Housing and Innovative Technology, with Zhengzhou University in Henan Province

7. University of Salzburg
   - Sino-Austria Center for Media and Marketing
     located at Fudan University, Shanghai, since 2004 – mainly student exchange

8. Other
   - Sino-Austria Diagnosis, Treatment and Research Center of Cardiovascular Diseases
     located at Nanjing First Hospital, since 2010 (currently inactive)
   - Sino-Austrian Collaborating Center for Chinese Medical Sciences
     located at China Academy of Chinese Medical Sciences, Beijing (funding ended in 2019)
   - Sino-Austrian Research Center for Environmental Protection
     located at Northwest A&F University, Yangling, since 2007 with the Austrian University of Natural Resources and Life Sciences, Vienna (BOKU) and the University of Veterinary Medicine in Vienna

INNOVATION-RELATED ACTIVITIES

GIN – Global Incubator Network
The Global Incubator Network Austria (GIN) is the connecting link between Austrian and international startups, investors, incubators and accelerators with a focus on selected hotspots in Asia (Hong Kong, Israel, Japan, Mainland China, Singapore and South Korea).
GIN is a program initiated by the Austrian Federal Government, managed by the public funding agencies Austria Wirtschaftsservice GmbH (aws) and Österreichische Forschungsförderungsgesellschaft (FFG), and financed by the Österreichische Nationalstiftung für Forschung, Technologie und Entwicklung (NFTE).

TRILATERAL OR MULTILATERAL ACTIVITIES

Austria participates in the following multilateral activities:

1. **Joint Programming Initiative Urban Europe (JPI Urban Europe)**
   MoU's with:
   China Centre for Urban Development (CCUD)
   China Academy of Urban Planning and Design (CAUPD)
   National Natural Science Foundation of China (NSFC)
   Joint Call with:
   National Natural Science Foundation of China (NSFC)

2. **Enterprise Europe Network**

3. **ERICENA (ENRICH in China) | European Research and Innovation Centre of Excellence in ChiNA**

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

The Austrian Science Fund (FWF) has a bilateral agreement with the National Natural Science Foundation and within the Austrian Academy of Sciences has a number of bilateral agreements with partner organisations in China.

BELGIUM

BILATERAL AGREEMENTS

The Belgian Federal Government agency BELSPO (Belgium Federal Science Policy Office), has a coordinating role[1] for the policy field of scientific cooperation in Belgium. It covers around 18% of direct government funds devoted to research and development, with a substantial part devoted to Space programmes. Regions and communities have competencies of their own for research and development and the remaining 82% of budget allocated to research and development is split between them, with Flanders accounting for about 60% of the total Belgian budget (excluding tax exemptions). A range of agreements are therefore negotiated with these entities as well.

Three bilateral agreements between Belgium (at Federal and Community level) and MOST have been renegotiated in June 2010 during the China-Belgium Joint Commission. Joint Commissions at different levels have taken place in June 2012, March 2013 and March 2017. Since 1979, at the federal level, there is a bilateral R&D cooperation agreement with China

Aside from BELSPO, the main parties in the field R&D in Belgium are the following : EWI (Department of Economy, Science and Innovation – Flanders), FWO (Research Foundation – Flanders), FNRS (Fonds de la Recherche Scientifique), WBI (Wallonie-Bruxelles International), imec (the Flemish nano- and digital technologies centre; independent strategic research centre) VITO (Flemish Institute for Technological Research; independent strategic research centre), ILVO (Flemish Institute for Agricultural and Fisheries Research), VIB (Flemish Institute for Biotechnology; independent strategic research centre).

PRIORITY AREAS OF COOPERATION

Belgium cooperates in a variety of areas with China. At the Federal level, BELSPO cooperates with MOST in joint research projects mostly on food safety, climate change, biodiversity and earth observation. Two MoUs on polar/ocean research were signed in 2011 to strengthen scientific and logistic cooperation. The 19th Joint commission meeting took place in June 2015 and the last call for joint research projects dates from 2016 (focus: oceans/climate/Antarctica and remote sensing Teams are encouraged to cooperate in EU funded projects while building on the bilateral cooperation experiences.. Further information on BELSPO programmes: BRAIN-be (2012-2017): www.belspo.be/BRAIN-be , STEREO III (2014-2020): http://eo.belspo.be.

The Flemish Department of Economy, Science and Innovation (EWI) also has a bilateral agreement with MOST since 2012 (renewed in 2017) to strengthen cooperation in R&D and Innovation. Its aims were to prepare a cooperation agreement between the two parties. The aim of the renewed MoU was to prepare a new cooperation agreement between the two parties, what is not yet realised.

For the occasion of the China-Belgium innovation dialogue (see below), priorities identified by EWI for possible cooperation with China include (but are not limited to): clean technologies, biotechnologies, pharmaceuticals, chemicals and microelectronics. Other actors such as imec, VITO, ILVO, and VIB are active in areas such as micro and nano-electronics, artificial intelligence, smart cities, air quality modelling, agriculture, energy management, biotechnology and material sciences.

[1] In the administrative sense of bringing together, not to be understood as steering or having the lead in the policies of the Regions or Communities.

Wallonia Brussels International (WBI) and MOST cooperate through a co-funding mechanism and signed an agreement on scientific and innovation cooperation in 2002. A call for joint research projects will be launched during the second half of 2020. The main priorities identified concern cooperation in biotechnologies, ICT and microelectronics, space and aeronautics, materials science and nanotechnology and agronomic sciences.

The Chinese Scholarship Council has agreements with the Flemish region, the French-speaking Community of Belgium (WBI) and the FNRS.

INSTRUMENTS OF COOPERATION WITH CHINA

In Flanders, the FWO – China research collaboration aims to provide the Flemish research community with the means to collaborate with their Chinese research partners. It organizes joint calls for research projects, enables Chinese participation in Flemish led research, offers mobility schemes in the framework of set projects and individual mobility possibilities. It includes cooperation with the Chinese Academy of Sciences (CAS), Chinese Academy of Medical Sciences (CAMS), the Chinese Academy of Social Sciences (CASS), and the National Natural Science Foundation of China (NSFC). More info on the FWO website.

In addition, the Flemish Ministry of Education and Training awards scholarships to highly talented international students, including Chinese students, who want to study a master's programme at a Flemish university, or a school of arts. More details on https://www.studyinflanders.be/scholarships.

In Wallonia and Brussels, the "Excellence.In.WBI" programme provides a range of opportunities for scholarships and grants at doctoral and post-doctoral level. An agreement between WBI, the F.R.S-F.N.R.S and CSC also offers financing for Chinese researchers. Further information on ***http://studyinbelgium.be/en/content/scholarship*** , ***www.wbi.be/inwbi*** and www.csc.edu.cn.

The F.R.S.-FNRS encourages scientific collaborations between researchers of the Wallonia-Brussels Federation and their counterparts abroad. To this end, bilateral scientific cooperation agreements have been concluded with sister institutions throughout the world, which aim at facilitating the mobility of researchers, encouraging the setting up of centres of excellence and supporting the creation of new research areas. In China, it has cooperation with the Chinese Academy of Sciences – CAS, Chinese Academy of Medical Sciences – CAMS and the Chinese Academy of Social Sciences – CASS. Finally, the National Natural Science Foundation of China and the F.R.S.-FNRS have an agreement which organizes yearly bilateral calls for the mobility of researchers.

On top of these existing structures, each year, agreements, conventions or joined collaborations are made or reiterated between Belgian and Chinese Universities.

MAIN INITIATIVES AND PROGRAMMES

Joint Institutes

IMEC China facilitates collaboration between IMEC and Chinese companies, universities and research institutes with a special focus on smart system and medical technologies and solutions; IC design, prototyping and manufacturing services, and setting up training programs. IMEC is a world-leading research and innovation hub in nano-electronics and digital technologies. It's leadership in microchip technology and profound software and ICT expertise makes imec a unique

innovation partner. IMEC leverages its world-class infrastructure and local and global ecosystem of partners across a multitude of industries, to create groundbreaking innovation in application domains such as healthcare, smart cities and mobility, logistics and manufacturing, energy and education.

As a result of the ever growing China-cooperation with **Ghent University**, which has a China Platform and a Representative Office in Beijing, the University currently has 9 Joint Laboratories with different 9 partner institutions in China. They cover domains such as structural engineering, sustainable crop pest control, geo-information, global health, food security, mycotoxin research, additive manufacturing, World War I Studies and advanced biomedical technology.

In 2017, the Province of West-Flanders together with the Zhejiang Province took the initiative to establish a **Knowledge Institute for Sustainable Economy** between Knowledge Institutes of the Zhejiang Province and the Province of West Flanders. Its aim is to promote (applied) research in the sectors of water treatment, recycling, construction and demolition waste, biomass valorization and the development of renewable energy. The parties involved are Ghent University, KU Leuven, Hogeschool VIVES, Howest and 3 Chinese higher education institutions: Zhejiang University, Zhejiang University of Technology and Zhejiang University of Science and Technology.

VITO has several fruitful initiatives and partnerships ongoing in China. It started its air quality modelling collaboration in China between 2005 and 2010. The early projects were co-funded through Belgium-China bilateral and EU_China collaboration structures. **VITO** established in 2011 its own Chinese subsidiary in Beijing **LIBOVITO Environmental Technology Co Ltd**. to valorize its air quality forecast model (OPAQ) in a commercial way. LIBOVITO was later selected as one of the three national demonstration water quality modelling providers by CNEMC (China National Environment Monitor Center). VITO also has successful cooperations in the fields of remote sensing, energy management and smart city innovations (water supply leaking detection, heating control systems, flood forecast systems…).Finally, VITO started collaboration with Zhong Aohuicheng Technology Co Ltd. (BZHB) in 2016 and signed a strategic collaboration agreement on advanced material & manufacturing technology for orthopedic implants. Further information on VITO in China : https://vito.be/en/about-vito/vito-worldwide/vito-china.

CARAH (Centre pour l'Agronomie et l'Agro-industrie de la Province du Hainaut) has enduring collaborations with China in the field of agriculture and agronomy, and established **the Sino-Belgian Engineering Center for Potato in Wuxi**. It now conducts cooperative research on new control strategies for main diseases caused by Phytophthora infestans、Alternaria and Rhizotonia with the Heilongjiang Academy of Agricultural Sciences. http://www.carah.be/39-relations-internationales/123-cooperation-with-the-people-s-republic-of-china.html

INNOVATION-RELATED ACTIVITIES

A first edition (coordinated by BELSPO and MOST) of the **China-Belgium innovation dialogue** took place in in March 2017 in Brussels, in cooperation with the Regions and Communities of Belgium. Plenary sessions and multi-stakeholder fora were focused on cooperation successes and opportunities in general and on 3 topics : 'Factories of the future', 'Life sciences', Space and aeronautics'. A second edition is planned to be organised in 2021 in China.

TRILATERAL OR MULTILATERAL ACTIVITIES

The F.R.S.-FNRS (Scientific Research Fund) takes part in various multilateral calls for proposals, in cooperation with NSFC. Eg.: 2018 call on « Sustainable and Livable Cities and Urban Areas » organized by JPI Urban Europe and the NSFC.

A trilateral call between Belgium (BELSPO) - South-Africa(DSI/NRF) - China(MOST) for joint research projects is to be launched during the autumn of 2020 in the area of 'Interplay between biodiversity, climate and health'.

BULGARIA

BILATERAL AGREEMENTS

In June 2018, the Council of Ministers of the Republic of Bulgaria approved an Agreement between the Government of the Republic of Bulgaria and the Government of the People's Republic of China on cooperation in the field of research and technology.

The purpose of the document is to facilitate the mechanisms for the implementation of scientific and technical cooperation and bilateral calls for proposals for joint scientific projects between Bulgarian and Chinese scientific organizations.

The basis for the scientific and technical cooperation between Bulgaria and China is the Agreement between the People's Republic of Bulgaria and the People's Republic of China on the basic guidelines for long-term economic and scientific and technical cooperation signed in Beijing in 1987.

The purpose of the Agreement approved by the Council of Ministers is to update the normative basis for scientific and technical cooperation between the two countries. This will promote the improvement and sustainable development of joint science and technology activities and initiatives between higher education institutions, research organizations and academies of Bulgaria and China.

The Agreement provides for areas of bilateral co-operation, whereas their concretization and updating are subject to agreement between the two parties. The Agreement is effective from the date it is signed (July6, 2018) and is valid for 5 years, with automatic renewal for another 5 years in case there is no reason to terminate it.

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VIS-À-VIS CHINA

INTERNATIONAL COOPERATION

Integration policy in the European Research Area and expansion of the international scientific cooperation

The Bulgarian scientists actively participate in an international scientific cooperation and the joint publications with researchers from abroad as a share of the total internationally visible scientific publications is close to the average for the EU. The purpose of this policy is to create the necessary conditions for more active involvement of scientists from Bulgaria into the European Research Area and expand the scope and effectiveness of the international scientific cooperation. One of the key elements of this policy is to fully utilize the potential and opportunities from the EU programs in the field of R&D.

Horizon 2020 and Horizon Europe - utilizing the potential and opportunities from the EU programs in the field of R&D

International cooperation via participation in Horizon 2020 projects is among the top priorities for Bulgaria in the context of developing and supporting excellent science, long-term research infrastructures sustainability, mobility of scientists and career prospects for bright young scientists. In this context and in line with the EU common goal to provide for scientific solutions

to global societal challenges Bulgaria considers the widening of participation to the EU Framework program as a necessity.

Sustainable development of Bulgarian research infrastructures and participation in EuropeanResearch Infrastructures Consortia

Bulgaria has been an associated member of the ICTP-Italy in the period 1985-2015, and a member of CERN since 1999. Bulgaria was mentioned for the first time in the ESFRI 2008 Roadmap. Bulgarian teams participated in the preparatory phases of the Pan-European RIs such as EURO ARGO, ELI, SPIRAL, ESS, CLARIN, DARIAH, e-GI (GRID) and CERN.

Bulgarian research organizations participate in or are associated with the respective European RIs in the 2016 ESFRI Roadmap. Administrative and financial support from Bulgaria, regarding the membership fee, is provided for only four infrastructures (PRACE, CLARIN and BioImaging), and for two of them funds for construction have been ensured (PRACE).

COOPERATION WITH CHINA

Cooperation in science between Bulgaria and China is continuously improving. Digitalisation and technological development over the past decade makes communication and exchange of information faster and easier. This allows for better coordination and communication of information regarding opportunities for cooperation as well as for prospects for future bilateral cooperation in science.

For the past 3 years the domains representing the common interest of Chinese and Bulgarian scientists for joint projects include sustainable agriculture, information and communication technologies, food and biotechnology, health and biomedicine.

Both countries and respective scientific teams will review all viable opportunities for cooperation where such cooperation produces tangible results representing excellent science, builds up on what has been already achieved via joint projects and initiatives and provides for the best conditions for the development of young scientists.

The Bulgarian-Chinese Commission for scientific and technological cooperation is tasked to coordinate and make or initiate necessary updates and corrections to the applicable program for bilateral cooperation, including also documents and legislation.

PRIORITY AREAS OF COOPERATION

Ongoing priorities:

Bulgaria adheres to the EU international cooperation goals in the domain of science and innovation, namely to strengthen the Union's excellence and attractiveness in research and innovation as well as its economic and industrial competitiveness, to tackle global societal challenges and to support the Union's external policies. One of the key priorities is accelerating the transfer and widespread dissemination of knowledge, data and scientific output in projects for a new generation of innovators and researchers.

FRAMEWORK CONDITIONS FOR COOPERATION

The Bulgarian-Chinese cooperation in science adheres to the framework conditions applicable for the EU member states and to the conditions set in the Agreements signed between the Governments of the two countries. A reference can be made to the Framework conditions of the

EU-China joint roadmap since these conditions represent a common understating of a holistic approach towards productive, ethical, and sustainable cooperation in science.

INSTRUMENTS OF COOPERATION WITH CHINA

The bilateral cooperation between Bulgaria and China in the domain of science is facilitated by the National Science Fund of Bulgaria (under the Ministry of Education and Science) and the National Natural Science Foundation of China (Under the Ministry of Science and Technology) via calls for proposals for joint science and scientific research projects.

On annual basis the two parties discuss and coordinate on the scope and specific goals for the relevant call for proposals for joint scientific research projects. The call for proposal sessions feature two aspects – projects for mobility i.e. exchange of researchers and scientific staff and the other – joint scientific projects.

The Bulgarian-Chinese Commission for scientific and technological cooperation holds meetings biennially with the purpose to provide for effective coordination, planning and monitoring of the progress of the bilateral cooperation in science. In 2020 the Commission will hold its 17th meeting.

Cooperation between the Ministry of Education and Science of Bulgaria and the Ministry of Science and Technology of China also features delegation visits. The Bulgarian Academy of Sciences and Bulgarian research institutions maintain direct contacts with their colleagues from China, organize and host visits, exchanges and meetings either in connection to a particular thematic conference or as part of an ongoing or future partnership.

Topics of such partnership between research organizations from Bulgaria and China still fall within the relevant common EU priorities and are in line with the National strategy for development of scientific research in the Republic of Bulgaria 2017 – 2030.

MAIN INITIATIVES AND PROGRAMMES

Joint institutes

In the autumn of 2018, scientists from the Agricultural University – Plovdiv and their colleagues from a partnering organisation from China agreed to set up international teams that will conduct joint research on the cultivation of grapes and rose varieties, as well as on sustainable agriculture in rural areas. This project is funded by the Chinese Ministry of Science and Technology, but focuses on Bulgaria's requirements in the field of agriculture.

The cooperation features academic exchange, joint research, technology transfer, staff training and business promotion. The idea is to create Chinese-Bulgarian research institutes, research teams and a stable partnership between the two countries in the field of science, promotion of technical capacity and industrialization.

On February 21, 2019, a 16+1 (now 17+1 Initiative) Demonstration Center for e-commerce in agricultural and other products was opened at the Agricultural University. The project was initiated and implemented by the Centre for the Promotion of Agricultural Cooperation between China and the countries of Central and Eastern Europe (http://china2ceec.org) and is the first of its kind for young entrepreneurs.

This example of a consolidated and strategic approach to bilateral cooperation between Bulgaria and China on a local level represents the concept of the bilateral cooperation in science between the two countries, namely to initiate and implement projects by adopting a holistic and strategic

approach towards result-oriented bilateral cooperation, whereas synergy between different initiatives and funding options is sought.

INNOVATION-RELATED ACTIVITIES

Cooperation in research between Bulgaria and China encompasses cooperation on Government level, on organization level and between researchers and scientists from the two countries. It has an additional dimension, since Bulgaria is an EU member-state. Science and innovation are among the priorities of EU, Bulgaria and China.

Cooperation in science including exchange of information, joint projects and initiatives and cooperation between the research organizations in China and Bulgaria allows for achieving results in both fundamental and applied science. Such joint scientific results could reach the market as technologies, products or services and become innovations improving the quality of life and solving societal challenges.

As part of a consolidated approach to innovation - communication is seen as a key success factor. Such information may refer to the organization of joint thematic events, exchange of information about opportunities for education and training programs for young scientists, funding joint research projects or to facilitating via events of different format the meeting, discussions and cooperation between representatives of the science and research domain and the business.

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

http://horizon2020.mon.bg/en

http://s2b.mon.bg/en/home/

https://www.fni.bg/

CROATIA

BILATERAL AGREEMENTS

Agreement on Scientific and Technological Cooperation between the Government of the Republic of Croatia and the Government of the People's Republic of China, signed in Beijing on June 11th, 1994.

Memorandum of Understanding between the Ministry of Science and Education of the Republic of Croatia and the Ministry of Science and Technology of the People's Republic of China on joint financing of research and development projects, signed in Zagreb on April 10, 2019.

The Joint Croatian-Chinese Committee convenes every two years, last one was held in Zagreb in 2019, next session planned to be held in China, in 2021.

PRIORITY AREAS OF COOPERATION

The priority fields for the bilateral cooperation:

- Information and communication Technologies (ICT);
- Environmental protection;
- Life sciences;
- Renewable Energy;
- Agriculture.

INSTRUMENTS OF COOPERATION WITH CHINA

- Exchange of scientists and specialists;
- Exchange of scientific-technological information and documentation;
- Organization of scientific-technological symposiums and scientific conferences;
- Implementation of joint projects.

MAIN INITIATIVES AND PROGRAMMES

Joint institutes

Croatia-China Joint Research Centre for Ecological Protection has made a number of scientific research achievements in benthic aquatic biodiversity, travertine mechanism of microorganism, and the impact of tourism on lake water quality. The partners are University of Zagreb, Faculty of Science and Chengdu Institute of Biology, Chinese Academy of Science.

INNOVATION-RELATED ACTIVITIES

Within the framework of Memorandum of Understanding between the Ministry of Science and Education of the Republic of Croatia and the Ministry of Science and Technology of the People's Republic of China on joint financing of research and development projects, the first Call for Proposals for large-scale scientific research projects under joint Croatian-Chinese funding for research projects was opened in June 2019, aimed at selection of 3 significant large-scale projects, with high impact to the scientific and technological progress and economic development in both countries. The financial support for each project will be about 200,000 USD, the priority areas to be supported are ICT, environmental protection and biomedicine.

TRILATERAL OR MULTILATERAL ACTIVITIES

Opportunities within the European Framework Programme for Research and Innovation.

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

https://www.mzo.hr

https://www.hrzz.hr

CYPRUS

BILATERAL AGREEMENTS

A Bilateral Agreement for Science, Technology and Innovation Cooperation was signed in 2016 between the two countries. It foresees amongst others:

- Facilitation of joint research, development of innovation projects and exchange of their results on a cooperative basis;

- Exchange of information on relevant activities, policies and practices;

- Exchange of visits by scientists, technical expert and officials;

- Joint organization of scientific seminars, conferences, symposia, and workshops as well as participation of experts to those activities;

- Internships and practical training exchanges of university graduates;

- any other modality, such as the establishment of joint labs and research and development centres as may be mutually decided and in conformity with the policies and procedures applicable in both Parties.

The Bilateral Agreement establishes a joint Steering Science, Technology and Innovation Committee for the Management of the Agreement.

INSTRUMENTS OF COOPERATION WITH CHINA

The Bilateral Agreement provides the possibility for China and Cyprus to engage in joint calls for co-funded selection of projects and research.

This Bilateral Agreement has not yet been implemented through a joint Call of Proposal for funding common projects. A joint Call is under discussion and preparation between the two countries. The Call will fund common research projects in the areas of environment, health and agriculture (cooperation areas still pending).

MAIN INITIATIVES AND PROGRAMMES

Universities are creating direct contacts with partner universities, which include students exchange, join seminars and research cooperation.

TRILATERAL OR MULTILATERAL ACTIVITIES

Most of the cooperation is done via the EU Framework programme. Cyprus will continue to explore opportunities in areas of mutual interest under the EU Framework Programmes, including Horizon 2020's successor, Horizon Europe.

CZECH REPUBLIC

BILATERAL AGREEMENTS

The Czech-Chinese bilateral R&D cooperation is developed within the framework of the Agreement between the Government of the Czech Republic and the Government of the People´s Republic of China on Scientific and Technological Cooperation, signed in Prague on June 1st, 1995.

The implementation bodies of the Agreement are the Ministry of Education, Youth and Sports on the Czech side and the Ministry of Science and Technology on the Chinese side.

The Czech-Chinese Joint Committee for Scientific and Technological Cooperation meets every 2 years. Its forthcoming meeting is planned to be held in Prague in 2021.

The Technology Agency of the Czech Republic has memorandums of understanding signed with Science & Technology Departments of Jiangsu and Zhejiang Province. These provide a basis for bilateral cooperation under the DELTA and subsequent DELTA 2 programme administered by the Technology Agency of the Czech Republic. The programmes are focusing on applied research, experimental development and innovation

PRIORITY AREAS OF COOPERATION

There is no specific national strategy for Czech-Chinese R&D cooperation. However, joint cooperation in the following scientific fields is promoted: material research, energy, environmental research and technologies, engineering, astronomy, biology, medicine and others (ICT, nuclear sciences, remote sensing, veterinary medicine, agricultural science, etc.).

MAIN INITIATIVES AND PROGRAMMES

The Ministry of Education, Youth and Sports of the Czech Republic and the Ministry of Science and Technology of the People's Republic of China announce calls for Czech-Chinese joint research project proposals every 2 years. Joint projects developed in the fields of fundamental and applied research with the implementation period of 3 years are being supported. These two institutions also announce every 2 years a call for mobility of Czech-Chinese researchers. Duration of mobility projects is 2 years.

The eligible applicants in the Czech Republic are public universities, public research institutes, other entities that can be classified as research organizations, and small and medium sized enterprises.

The Technology Agency of the Czech Republic together with Zhejiang and Jiangsu Province runs a DELTA 2 programme for applied research, experimental development and innovation. The Programme is expected to run from 2020 to 2025. Its predecessor DELTA has been running since 2014 and is expected to be closed in 2021.

Joint institutes

There are no Czech-Chinese joint research institutes or laboratories financed from the funds of the Ministry of Education, Youth and Sports of the Czech Republic.

One of the most extensive Czech private investment in China is the construction of a bio-medicine

laboratory in Beijing accomplished by Czech company SOTIO a.s. (part of PPF group). The project was launched in 2013. SOTIO is a biotechnology company with a focused portfolio of innovative Immuno-Oncology therapies, including a next generation Active Cellular Immunotherapy based on activated dendritic cells for the treatment of cancer and autoimmune diseases. This kind of research has been the main activity for the laboratory in Beijing since its inception. Specifically, multiple clinical studies targeting prostate, lung, and ovarian cancer have been carried out in China with leading Chinese hospitals in Beijing, Shanghai, and Guizhou, etc. SOTIO already became a leading project in the field of bio-medicine research cooperation and a vivid example of successful collaboration between the Czech Republic and China under the Bilateral Contract between Czech and Chinese Ministry of Health.

DENMARK

BILATERAL AGREEMENTS

Framework Agreement on Strengthening Higher Education Cooperation, 2012, Between the Ministry of Science, Innovation and Higher Education of the Kingdom of Denmark and the Ministry of Education of the People's Republic of China

The aim of this agreement is to increase joint activities between Denmark and China in higher education (including vocational education) as well as identify priority areas of cooperation.

Memorandum of Understanding between the Government of the Kingdom of Denmark and the Government of the People's Republic of China on Bilateral Cooperation in Science and Technology – September 2007

- Biotechnology and Bio medicine, including traditional Chinese medicine
- Agricultural and food technology
- Clean energy and renewable energy (esp. wind, power, bio energy, and fuel cells)
- nanoscience and technology
- Health and TCM application
- ICT

Collaboration between Chinese ministry of science and technology and Innovation Fund Denmark & Ministry of Higher Education and Science – 2015

Agreement to launch joint calls for proposals within the area of energy, water, and climate. In 2019, the collaboration has resulted in projects dealing with issues such as increasing efficiency of central heating systems, flood prevention, effective storage of energy, and waste water management.

Joint Work Programme (2017-2020)

A comprehensive catalogue of government-to-government collaboration projects which to a varying degree involves universities and academics from both sides.

More information on the Joint Work Programme:

http://kina.um.dk/~/media/Kina/Documents/ChinaDenmark%20Joint%20Work%20Program%2020172020%20English.PDF?la=en

The two sides are negotiating a new version of the Joint Work Programme (2021-2024) and it will include, like the current version of the programme, projects that involve researchers and research collaboration within the different sectors highlighted in the programme.

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VISÀ-VIS CHINA

Denmark does not have a specific strategy for science and technology cooperation with China.

PRIORITY AREAS OF COOPERATION

Ongoing priorities:

- Renewable energy
- Biotech and biomedicine
- Agriculture and food technology
- Nanoscience and tech
- Healthcare and health science
- ICT

Priorities for the years to come:

- Sustainable City Solutions[2]
- Arctic science
- Higher vocational education and training
- Green transition
- Healthcare
- Renewable energy, energy systems
- Food and agriculture

Under the auspices of the Sino-Danish Centre for Education and Research, the following research topics are prioritized:

- Nanoscience
- Water and Environment
- Food Safety
- Sustainable Energy
- Life Science (Neuro Imaging, Omics)
- Social Sciences

FRAMEWORK CONDITIONS FOR COOPERATION

The framework conditions listed by the survey are partially covered in the existing agreements between the Ministry of Higher Education and Science of Denmark and its Chinese counterparts.

For example, the following aspects are mentioned:

- Fair access to information in China
- Fair and equitable treatment of IPR in R&I projects
- Cooperation on research ethics

INSTRUMENTS OF COOPERATION WITH CHINA

International Network Programme – Ministry of Higher Education and Science

The International Network Programme offers financial support to carry out networking activities between Danish scientists and scientists from a range of countries with whom Denmark has bilateral agreements, including China. The programme is part of the Ministry of Higher Education

[2] Innovation Fund-MoST collaboration, Joint Work Programme

and Science's efforts to internationalise Danish research. Supported activities include events such as international workshops and conferences as well as short-term research stays.

International Collaborations Programme - Danish Innovation Fund

The Danish Innovation Fund provides funding for collaborations between Danish researchers and international researchers. The International Collaborations programme contains a number of sub-programmes. These programmes include Grand Solutions, Horizon 2020, Nordic Cooperations, EUREKA, Eurostars and GlobalStars.

In 2019, the Danish Innovation Fund and Chinese Ministry of Science and Technology provided 19million DKK for four Sino-Danish research collaborations within the fields of green energy and water. Concrete topics of research have been efficiency of central heating systems, flood prevention, effective storage of energy, and wastewater management.

Sino-Danish University Centre

SDC is a joint venture between the eight Danish universities, the Danish Ministry of Higher Education and Science, the University of the Chinese Academy of Sciences (UCAS) and the Chinese Academy of Sciences (CAS).

The activities at SDC fall within six major research areas, which have been selected based on the two countries' strengths and common areas of interest: Water and Environment, Sustainable Energy, Life Sciences, Nanoscience, Food and Health, and Social Sciences. Within these research areas, SDC currently offers eight joint Master's programmes.

The university centre is jointly financed by China and Denmark. The aim for the university centre is to have 100 researchers, 75 PhD students and 3-400 Master's students – half of these from China and half from Denmark.

Industriens Fonds Hus, a building donated by The Danish Industry Foundation, finished construction in 2017 and constitutes the physical framework in Beijing for the education and research collaboration.

MAIN INITIATIVES AND PROGRAMMES

- Sino-Danish Centre for Education and Research
- Innovation Fund Denmark-Ministry of Science and Technology
- Innovation Centre Denmark (Shanghai)

TRILATERAL OR MULTILATERAL ACTIVITIES

Not at the moment, but may materialise in 2021.

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

The Academy of Military Science under Peoples' Liberation Army and the Royal Danish Defence College co-organise yearly conferences as well as exchange military researchers.

ESTONIA

BILATERAL AGREEMENTS

The Government of Estonia has signed an agreement with the Government of the People's Republic of China on cultural, educational and scientific cooperation in 1993. There are no regular steering committee meetings.

PRIORITY AREAS OF COOPERATION

Social sciences, physics condensed matter, genetic heredity, optics, information technology.

FRAMEWORK CONDITIONS FOR COOPERATION

Enterprise Estonia (EAS) has the structure in PRC to support the entrepreneurs and develop the economic cooperation between Estonia and Asia - Asia Information Centre.

MAIN INITIATIVES AND PROGRAMMES

Most of the cooperation is done via the EU Framework programme. Universities are creating direct contacts with partner universities, which would include professor exchange, join seminars and research cooperation but it is in very early stage yet.

TRILATERAL OR MULTILATERAL ACTIVITIES

The EU Framework programme is used, in the areas of biological and environmental sciences and sustainable development.

FINLAND

BILATERAL AGREEMENTS

On government level, an important basis for S&T co-operation between Finland and China is provided by the Science and Technology Cooperation Agreement between the two countries, signed in 1986. The cooperation that takes place under the auspices of this agreement is administered by the Ministry of Economic Affairs and Employment of Finland (MEAE) and Ministry of Science and Technology (MOST) of China. Regular committee meetings and functions are organized as an umbrella for MoUs regarding practical funding and other cooperation at agency level.

The Ministry of Economic Affairs and Employment is responsible for the Finnish national innovation strategy. From science policy and research cooperation perspective, the Ministry of Education, Culture and Science of Finland also takes parts in the dialogues. Business Finland (an umbrella organization consisting of a government-owned company for Export, Invest-In and Visit Finland activities with a funding agency for innovation, all under MEAE) and Finnish Academy of Science participate representing the operational agency level.

Business Finland has carried out annual joint funding calls with MOST as well as with Jiangsu and Zhejiang provinces' Science and Technology Commissions based on bilateral MoUs. From 2021, also Shanghai Science and Technology Commission has joined the annual joint funding calls framework with a renewed MoU. Each year around 10-15 joint R&D projects have received funding and Business Finland funding for these projects has been around 5 million euros. Business Finland mostly operates via thematic programmes, which it uses to provide information, contacting, internationalization and funding services. Roughly half of Business Finland's annual research and innovation funding budget goes through these programmes and majority of the funding is allocated to ecosystemic co-innovation projects with industry-academia collaboration.

Additionally, Business Finland has collaboration under MAP Market Access Program with Tsinghua and Fudan Universities for Finnish companies interested in entering or expanding the Chinese market.

In Finland, basic research is administered by the Ministry of Education, Science and Culture, which has in 2010 signed an MoU with the Chinese Ministry for Education on i.a. co-operation in the field of science. The provisions in this separate MoU complement the existing S&T co-operation between MEAE and MoST. The Ministry of Education and Culture has also signed a Letter of Intent with MoST in 2011 to further promote cooperation in the field of research and science between the two countries. In 2015 Ministries of Education signed a MoU on strengthening comprehensive cooperation in education, including also scientific and research cooperation.

In practice, funding co-operation in the field of basic research is administered at national level by the Academy of Finland, which operates under the Ministry of Education and Culture. The Academy of Finland administers mobility programmes for senior researchers. The longstanding partners of the Academy of Finland in China are CAS, CASS and NSFC.

International mobility of students and professionals is mostly supported by the Finnish National Agency for Education, which also reports to the Ministry of Education and Culture.

In addition to bilateral national level arrangements, Finnish higher education institutions engage in a wide range of co-operation with various partners in China, both independently and jointly.

PRIORITY AREAS OF COOPERATION

Ongoing priorities and priorities for the years to come

The focal areas of S&T cooperation between Finland and China are agreed upon via bilateral consultation and updated regularly. These focal areas reflect the programme portfolios of the key national agencies doing S&T co-operation, Business Finland and Academy of Finland.

The most recent topics for joint funding between Business Finland and MOST have been energy, health, sustainable manufacturing and smart mobility. In the calls managed with Jiangsu and Zhejiang provinces, focus areas have been clean technologies, information technologies/digital economy and medical/life sciences. In general, it is good to note that in recent years Business Finland focus has shifted from research to innovation and company projects, including ecosystemic co-innovation projects with industry-academia collaboration.

Currently, active areas for cooperation at national level include climate change & sustainable development, health and digital transformation. These areas are complemented by cooperation in a variety of fields conducted e.g. directly between higher education institutions and research institutions.

Collaboration and developing new ways of cooperation between Universities of Applied Sciences has been listed as one of the priorities in the Joint Action Plan, including also innovation actions of the HEIs. These include the cooperation between Rectors Conference of Finnish Universities of Applied Sciences ARENE (FI) and China Center for International Education Exchange CCIEE (CN), National Academy of Education Administration NAEA (CN) and Rector's Conference of Finnish Universities of Applied Sciences Arene (FI) and National Center for Schooling Development Programme (NCSDP), Ministry of Education (CN) and Rector's Conference of Finnish Universities of Applied Sciences ARENE (FI).

A further goal of Finland's S&T co-operation is the improving of mutual understanding between Finland and China as well as enhancing China-related competencies and awareness in Finland and Finland-related competencies and awareness in China.

MAIN INITIATIVES AND PROGRAMMES

Joint institutes

Key national level partners for operational S&T co-operation in China are MOST, MoE, NSFC, CAS, CASS, CEAIE and China Scholarship Council. In addition, there is co-operation with and between several higher education institutions and research institutes.
There are various joint programmes/institutes such as:

1. The Shanghai International College of Design and Innovation (Shanghai D&I) and the Sino-Finnish Center at Shanghai Tongji-university (Tongji University, Shanghai and Aalto-University)
2. Sino-Finnish Environmental Research Center at Nanjing University (Nanjing University and the University of Eastern Finland)
3. Fudan Nordic Centre at Fudan University (various universities from Finland participating)
4. Sino-Finland Life Sciences Centre at Wuhan University (various Chinese institutes and universities, particularly Wuhan University, and University of Helsinki)

5. Based on the MoU between Ministries of Education in both countries, Sino-Finnish Joint Learning Innovation Institute (JoLII) was established in 2016. JoLII is a cooperation network of nine Finnish and several Chinese universities.

An example of novel Sino-Finnish collaboration combining research, innovation and business is the Sino-Finnish Cooperation and Exchange Center in Nanjing, which is a living showcase location for Finnish innovations and products as well as a framework for business-driven research and innovation.

The scope of joint operations is set to expand with plans for new centers well underway.

INNOVATION-RELATED ACTIVITIES

The Finchi Innovation Center in Shanghai provides a soft-landing platform and support services for i.a. R&D co-operation and business between Finnish and Chinese companies. Team Finland connects all the essential national actors of Finnish innovation system in China and provides foresight of the changes in the global innovation environment. Additionally, Business Finland offers to SMEs Market Access Programs with Tsinghua and Fudan Universities.

China-Finland Committee for Innovative Business Cooperation is company-led forum with four sector-specific WGs. Committee was founded in 2017 by a joint statement between the Ministry of Economic Affairs and Employment of Finland and the Ministry of Commerce of China. It involves high-level participation from these ministries and major companies from both countries.

There is a working group between Finnish Ministry of Economic Affairs and Employment and National Energy Administration of China (NEA). MoU was signed in 2017 and was renewed in 2020. The WG has agreed e.g. on joint company demonstration projects in China and the collaboration under the energy theme has been active with NEA and China Electric Power Planning & Engineering Institute (EPPEI).

In addition to the above, the already mentioned bilateral annual joint innovation calls with MOST, Zhejiang, Jiangsu and Shanghai form a basis for the Finland-China innovation collaboration.

TRILATERAL OR MULTILATERAL ACTIVITIES

Some specific activities are conducted as multilateral co-operation schemes involving several partner countries. For instance, the Academy of Finland has launched joint calls for trilateral research projects with the NSFC and the German DFG. The Academy has also coordinated a trilateral Research Programme in Neuroscience between Finland, Canada, and China.

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

Both Business Finland and the Academy of Finland have ongoing calls for proposals and programmes both independently and jointly with their Chinese cooperation partners. Business Finland has new programmes in preparation every year. The Academy of Finland launches new calls for proposals annually.

Further information on current Business Finland and Academy of Finland national programmes can be found on their respective webpages. This includes inter alia various thematic Business Finland programmes and Academy of Finland joint call. Not all of these are necessarily relevant for China.

FRANCE

BILATERAL AGREEMENTS

- **21st January 1978** Agreement on scientific and technical cooperation (joint scientific committee)
- **May 1997** Agreement on cooperation in space (CNES and CNSA)
- **9th October 2004** Agreement on emerging infectious diseases - MAEE/MOST (meeting every year)
- **23 January 2008** Agreement between the French funding agency ANR (Agence nationale de la recherche) and the NFSC (one joint call for proposal per year)
- **18 November 2009** Signature of the agreement for the implementation of Cai Yuanpei, a program created by the French ministries of Foreign and European affairs and for Higher education and research and the Chinese ministry for Education (meeting and joint call for proposal every year)
- **25 March 2014** Agreement between BPIFrance, the French innovation agency, and the Chinese Ministry of Science and Technology (to support joint call for proposals), replacing the agreement Oséo/MOST signed on 2011.

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VIS-À-VIS CHINA

Joint S&T commission every two years to define priorities areas of cooperation.

February 25th 2019: 14th session of the Franco-Chinese Joint Scientific and Technological Commission. Seven priority themes have been approved for the next 3 years (see priority areas of cooperation).

PRIORITY AREAS OF COOPERATION

Priorities for the years to come:

Seven priority themes have been approved during the 14th session of the Franco-Chinese Joint S&T Commission for three years:

- Environment and climate change
- Space
- Health
- Agriculture
- Particle physics
- Advanced materials
- Artificial intelligence

INSTRUMENTS OF COOPERATION WITH CHINA

72 joint-laboratories are active: 5 in the field of chemistry, 20 in biology-medicine, 3 in mathematics, 7 in the nuclear field, 16 in environment, 5 in physics, 7 in the field of information technology (IT), 9 in human and social sciences.

Biology-medicine (20):

- Plant Epigenome Research Laboratory
- Evolution and Development of Magnetotactic Multicellular Organisms Laboratory
- Sino-French Laboratory of Deep-Sea Microbiology
- Sino-French Biomedical Information Research Centre
- Sino-French Urology Centre
- Sino-French Laboratory of Physiology and Pathophysiology
- Institut Pasteur of Shanghai
- Christophe Mérieux Laboratory
- Sino-French Laboratory of Molecular Pathology
- Laboratory of Cell and tissue engineering and applications in regenerative medicine
- Sino-French Joint Lab of Food Nutrition/Safety and Medicinal Chemistry
- Analyzing Virus – Host interactions for therapeutic targeting of human viral infections
- Franco-Chinese centre for virus and tumors Immunology
- Helicase-mediated G-quadruplex DNA unwinding and genome stability
- International laboratory in Hematology and Cancer associated with the Sino-French Research Center for Life Sciences and Genomics
- Mesenchymal Stem Cells and Regenerative Medicine
- Sino-French Hoffmann Institute
- Joint lab Institut Pasteur / Nanshan CCDC
- Medical Engineering and Theory in Image and Signal Laboratory

Mathematics (3):

- Sino-French Laboratory of Fundamental Mathematics
- Sino-French International Associated Laboratory for Applied Mathematics
- International Associated Laboratory LIA "Zéolites"

Nuclear Field (7):

- The Collaboration Laboratory on Ageing and Lifetime management of PWR
- Associated Laboratory on Severe Accident Management
- Associated laboratory on Fast Reactor Technology
- China-France Associated Laboratory of Geological Disposal
- Decommissioning and Decontamination laboratory
- Controlled Nuclear Fusion laboratory
- Collaboration on hot laboratories

Environment (16):

- Sediment Transport and Landscape Dynamics Laboratory

- Conservation Agriculture Network for South East Asia
- Monsoon, Ocean and Circulation Laboratory
- "Ecosystem health and environmental disease ecology Group"
- "Sino-French joint lab Ecosystem services provided by contaminated Land"
- Zoonotic emerging arboviruses
- Innovation and understanding of grapevine adaptation to the environments in the context of climate change
- Invasive forest pests affecting biodiversity and forestry ecosystems
- Developing the science of mixing plants for crop protection
- Bacteria-insect-Plant interaction for pest Biocontrol
- Wheat Genomics and Breeding
- China-France Plant Phenomics Center
- Agroecology – Agriculture Green Development
- Dairy technologies, food processing and nutrition
- Figs and fig-wasps: a model system to investigate biotic interaction network responses to global change
- Deep Sea engineering and technology research center

Physics (5):

- Joint Laboratory for Astrometry, Dynamics and Space Science
- Origins of matter and life in the Universe Laboratory
- France China Particle Physics Laboratory
- Photonics and Optoelectronics research Network
- UTC-NWPU Virtual Prototyping Working Group for Design and Manufacturing

Information technology (7):

- Smart Computing for Sustainable Development Franco-Chinese Laboratory
- Sino-French PLM Innovation Center
- Sino-French Institute for Engineering Education and Research
- Sino-French Lab in Computer Science, Automation and Applied Mathematics
- Joint ComplexCity Laboratory
- Sino-French Automation and Signal Laboratory
- Marine security and navigation

Human and social sciences (9):

- Post-Western Sociologies and field research in China and France Laboratory
- Joint Research Institute for Science and Society
- Sino French Research Center at Tsinghua University
- French School of Asian Studies
- Sino-French archeological mission in Xinjiang
- Inequalities in China: Empirical and Experimental Approaches
- Chinese French center for Innovation in Education
- The circulation of enameled objects between France and China

- French-Chinese archaeological mission in North-East China: men and environment in the valley of the Dongliao River

MAIN INITIATIVES AND PROGRAMMES

Joint institutes

Discover China program (« Découverte Chine »): The Discovery China program is a program of the Ministry of Europe and Foreign Affairs (MEAE) (French Embassy in China) that supports the mobility of French researchers (juniors and seniors) to enable them to make an inventory of research conducted in China in their areas of expertise. https://www.campusfrance.org/fr/decouverte-chine

Xu GuangQi program: The Xu GuangQi program is a program of the MEAE (French Embassy in China) which supports the mobility of researchers to support cooperation already initiated between French and Chinese researchers. The program allows the mobility of French researchers toward China, as well as Chinese researchers toward France. The application form is submitted by the French side.
https://www.campusfrance.org/fr/xuguangqi

Cai YuanPei program: The PHC Cai YuanPei is a program of the MEAE (French Embassy in China) that supports the mobility of researchers to consolidate scientific exchanges revolving around co-supervised or co-supervised theses. The financial support is spread over three years. This is a joint program with the Chinese Scholarship Council. https://www.campusfrance.org/fr/caiyuanpei

Young talents France-China program The program «Jeunes Talents FRANCE-CHINE » is the practical implementation of the Memorandum of Understanding for the exchange of eminent young researchers in science and technology between France and China supported by the French Ministry of Higher Education, of Research, and Innovation (MESRI), and Ministry of Europe and Foreign Affairs (MEAE) and the Ministry of Science and Technology (MOST) of the People's Republic of China. This program enabled French and Chinese researchers to undertake immersion stays in a host laboratory in China and France and to undertake studies at the crossroads of the expertise of the respective laboratories in order to identify a potential collaborative research field. Chinese candidates should contact directly the Ministry of Science and Technology (MOST) of the People's Republic of China.
https://cn.ambafrance.org/Appel-a-projet-JTFC-programme-Jeunes-Talents-France-Chine

Coopol* Innovation program: The Coopol * Innovation program is a program of the MEAE (Embassy of France in China) which proposes the organization of an exploratory mission to companies, with the aim of identifying Chinese cooperation partners in the field of research , development and innovation. Companies are eventually accompanied by innovation structures: SATT (French incubators), competitiveness cluster, research laboratories.

Call for project BPI France – MOST: BPI France and MOST propose co-financing of technological partnership and R&D projects between French companies and Chinese companies.
https://www.bpifrance.fr/A-la-une/Appels-a-projets-concours/Appel-a-projets-France-Chine-Bpifrance-MOST-22129

Call for project ANR–NSFC: The ANR (French R&D financial agency) and NSFC (National Science Foundation of China) offers co-funding for French-Chinese scientific cooperation projects.
http://www.agence-nationale-recherche.fr/missions-et-organisation/europe-international/collaborations-par-pays/

K.C. Wong Foundation Postdoctoral Program for Education: An agreement between the CNRS and the K.C. Wong Foundation for Education (Hong Kong) allows the financing each year of two post-doctoral stays of Chinese researchers in CNRS units involved in structuring CNRS actions with China. Call for projects around May. More information on this program by contacting the CNRS office in China.

INNOVATION-RELATED ACTIVITIES

- Agreement between BPIFrance, the French innovation agency, and the Chinese Ministry of Science and Technology (to support joint call for proposals), replacing the agreement Oséo/MOST signed on 2011 (2014)
- Joint declaration on innovation between French ministries for Production recovery and for higher education and research and Chinese ministry of Science and Technology (exchanges on the national policies of innovation) in April 2013. The official launch of the dialogue took place in Paris in March 2014
- Agreement between Oséo and the MOST (2011) for funding innovative Sino- French projects (ongoing call for projects)
- Agreement between the French competitive clusters (DGCIS – Ministry of Economy, Finances and Industry) and the Chinese science parks (2007)
- The French Embassy organizes regular meetings in Shanghai, Beijing, Guangzhou and Wuhan with French high Tech companies (Clubs R&D).

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

Websites managed by the French Embassy:

- https://www.diplomatie.gouv.fr/fr/politique-etrangere-de-la-france/diplomatie-scientifique-et-universitaire/veille-scientifique-et-technologique/
- https://cn.ambafrance.org/-Sciences-Innovation-

GERMANY

BILATERAL AGREEMENTS

- Bilateral agreement between the Federal Republic of Germany and the People's Republic of China on Scientific and Technological Co-operation (WTZ) in 1978.

  The bilateral S&T commission meets at intervals of generally two years and coordinates the scientific and technological co-operation.

- In the framework of intergovernmental consultations and state visits, a large number of agreements in the following areas have been signed:
  - Climate protection
  - Health research
  - Intelligent manufacturing and smart services
  - Water research
  - Vocational education and training

PRIORITY AREAS OF COOPERATION

Ongoing priorities

- Climate research
- Health research
- Intelligent manufacturing and smart services
- Environmental technologies and ecology
- Urban development
- Water research

Priorities for the years to come

- Climate protection and sustainability
- Health research
- Environmental technologies, ecology

INSTRUMENTS OF COOPERATION WITH CHINA

- China and Germany engage in joint calls for co-funded selection of research projects.

MAIN INITIATIVES AND PROGRAMMES

Biotechnology

- Joint Institute: CAS-MPG for Computational Biology
- Innovation Platform for Life Sciences (MoST)

Environmental technologies and ecology including water research

- International Partnerships for Sustainable Technologies and Services for Climate Protection and the Environment (CLIENT) under the Framework Programme “Research for Sustainable Development" (FONA)
- BMBF-Project Office Clean Water at Tongji University

Marine science and technologies

- Joint Funding Sceme with Ministry of Natural Resources (formerly State Oceanic Administration) in Marine and Polar Sciences

Climate Protection

- In 2018, Germany and China agreed on an MoU on joint research activities regarding climate change and climate protection. Several joint projects are conducted in cooperation with Chinese partners.

Vocational education and training

- The German Office for International VET Cooperation (GOVET) supports visiting scientists from the Chinese Central Institute for Vacational and Technical Education (CIVTE)
- iMOVE – Training made in Germany
- Memorandum of Understanding between MoST and BMBF 2018: a)"Teacher´s training program in vocational education" (1000 participants from CHN) b) BMBF Pilot program "Education worldwide"

General Programmes of German Research Organisations and Institutes

- Mobility programmes for students, PhD-researchers, post docs and senior scientists
- Scholarship programmes
- Cooperative research projects
- Joint Institutes

Joint institutes

- NSFC-DFG Sino-German Centre for the Promotion of Science, Beijing
- Chinese Academy of Sciences (CAS) and Max Planck Society (MPG): Partner Institute for Computational Biology, Shanghai
- Chinese-German Campus (CDC), Sino-German University College (CDHK) and Sino-German University of Applied Sciences (CDHAW), all at Tongji University, Shanghai. Cooperation of numerous German universities with Tongji University

TRILATERAL OR MULTILATERAL ACTIVITIES

- Project “Sino-EU Personalised Medicine”

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

 www.research-in-germany.de
 www.bmbf.de

- www.kooperation-international.de
- www.fona.de
- www.helmholtz.cn
- www.daad.org.cn
- www.fraunhofer.cn
- www.sinogermanscience.org.cn
- www.sino-eu-permed.eu/

GREECE

BILATERAL AGREEMENTS

- Bilateral Agreement between the Government of the Hellenic Republic and the Government of the People's Republic of China on Scientific and Technological Cooperation, signed in Beijing November 15, 1979
- MoU on Science, Technology and Innovation Cooperation, signed on July 4, 2016
- Action Plan on Science, Technology and Innovation Cooperation, May 18, 2018 between the General Secretariat for Research and Technology (GSRT) of the Ministry of Development and Investment (formerly of the Ministry of Education, Research and Religious Affairs) and the Ministry of Science and Technology (MOST) of the People's Republic of China
- Executive Program on Research & Technology Cooperation (2019-2020) of March 5, 2019. 23 joint projects are currently being implemented in the framework of this program.

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VIS-À-VIS CHINA

To promote cooperation in science, technology and innovation, to strengthen industry-university-research interactions and to promote technology transfer between research organizations and industry of both countries.

PRIORITY AREAS OF COOPERATION

Ongoing priorities:

- Agrofood
- Energy
- Environment & Climate Change
- Transport
- Information and Communication Technologies
- Cultural Heritage (with emphasis on use of Key Enabling Technologies (KETs) for the preservation and restoration of monuments and artefacts).

Priorities for the years to come

Will be defined by the Joint Committee responsible for the design, approval and review of the work program of the bilateral cooperation.

FRAMEWORK CONDITIONS FOR COOPERATION

In Greece an open call for proposals was launched followed by peer review evaluation according to a specific set of criteria according to international best practices.

The final step for selection of proposals for funding was undertaken by the Joint Committee.

The duration of the project is three (3) years. Each side provides funding to its participating institutions.

INSTRUMENTS OF COOPERATION WITH CHINA

- Joint projects undertaken by consortia of research organizations and enterprises,
- Exchanges of scientists and experts.
- Joint workshops on areas of mutual interest

MAIN INITIATIVES AND PROGRAMMES

There is on-going discussion on the potential establishment of joint laboratories and/or institutes especially in the area of medical research.

INNOVATION-RELATED ACTIVITIES

On-going discussion on potential joint activities within Technology Parks and Innovation Districts.

IRELAND

BILATERAL AGREEMENTS

- In July 2019, Mr John Halligan TD, Minister for Training, Skills, Innovation, Research and Development in Ireland and Minister Wang Zhigang, Minister for Science and Technology in the People's Republic of China signed a revised Memorandum of Understanding (MOU) between Ireland and China.
- The 2019 MOU, which replaces the 2012 MOU, provides a framework to promote science, technology and innovation cooperation between the two countries. It will build on the strong links that already exist and explore opportunities for further collaboration between researchers and enterprise in the two countries.
- The memorandum sets out the objectives and modes of cooperation on science and innovation between the two countries. The memorandum of understanding is in line with and reflects the Agreement on Scientific and Technological Cooperation between the Government of the People's Republic of China and the Government of Ireland which was signed in September 2000.
- Following the signing of the MOU, the Irish Ministry for Business, Enterprise and Innovation hosted the inaugural Joint Committee Meeting which discussed recent developments between the two countries and the opportunities for further collaboration.

PRIORITY AREAS OF COOPERATION

- Under the 2019 MOU, Ireland and China will explore opportunities to promote further collaboration in areas of common interest such as advanced materials, ICT, life sciences (such as healthcare) and food.

INSTRUMENTS OF COOPERATION WITH CHINA

- Today, there are over 200 active collaborations between researchers and enterprise in Ireland and China.
- Science Foundation Ireland (SFI) is the national foundation for research in Ireland. In March 2017, the joint call for the SFI and National Natural Science Foundation of China (NSFC) Partnership Programme was issued.
- In June 2018, details of the research collaborations to be supported by the joint programme were announced – this involves joint funding of over €12 million for eight new research projects over four years.

- The chosen projects feature research into the areas of wireless and optical communications, artificial intelligence, micro- and nano-electronics, climate change, green energy, and nano-materials for biomedical applications.

INNOVATION-RELATED ACTIVITIES

- Under the 2019 MOU, Ireland and China will strengthen links and promote technology and knowledge transfer between research organisations and enterprises in both countries

TRILATERAL OR MULTILATERAL ACTIVITIES

- The Irish Government, particularly through its enterprise agencies, Enterprise Ireland and Science Foundation Ireland has developed strategic plans to ensure that Irish researchers and companies compete and succeed in Horizon 2020. Partnerships with international counterparts is an important element of this plan.
- Ireland will continue to explore opportunities in areas of mutual interest under the EU Framework Programmes, including Horizon 2020's successor, Horizon Europe.

ITALY

BILATERAL AGREEMENTS

The cooperation on Science, Technology and Innovation is governed by a bilateral agreement signed in Rome on June 9th, 1998.

Implementation and supervision of the agreement is demanded to a Joint Commission, which meets at least every two years and defines details, instruments and priority sectors where collaboration should focus on.

Within the Agreement, the bilateral funding of joint research and innovation projects is foreseen and implemented through Executive Programmes (EP), which are renewed every three years.

Governing bodies for the Executive Programmes are the Italian Ministry of Foreign Affairs and International Cooperation and the Chinese Ministry of Science and Technology.

Within the framework of the Agreement, on November 17th 2015, an MoU on cooperation on Science and Technology has been signed between the Italian Ministry of Foreign Affairs and International Cooperation and the National Natural Science Foundation of China (NNSFC).

At present two Executive Programmes are in force:

- EP 2018-2020 (extended until 2021), between MAECI and NNSFC;
- EP 2019-2021 (extended until 2022), between MAECI and MOST.

Bilateral collaboration at National Research Institutes level

1. Italian Aerospace Agency (ASI)

   Agreement with the China National Space Administration (CNSA) on the participation of Italy to CSES I Programme (2013, China Seismo-Electromagnetic Satellite), for the study of earthquakes from the space has been signed by the Italian Space Agency and the China National Space Administration. CSES I was launched in 2017 with two Italian payloads on board. The agreement with CNSA renewed in 2019 for collaboration on CSES II.

2. National Council of Research (CNR)

   Agreement CNR – Chinese Academy of Cultural Heritage (CACH) - Triennial call for joint research projects

   Agreement CNR – National Natural Science Foundation of China (NSFC) - Biennial call for joint research projects

   Agreement CNR – Chinese Academy of Sciences (CAS) - Triennial call for joint research projects

   Agreement CNR – Ministry of Science and Technology (MOST) - Biennial call for joint research projects

3. Council for Agricultural Research and Economics (CREA)

   Memorandum of Agreement between the Institute of Plant Nutrition and Resources and the Beijing Academy of Agriculture and Forestry Sciences (BAAFS) (2020-2025)

Memorandum of Understanding between CREA and the Huazhong University of Science and Technology (HUST) (2019-2024)

Memorandum of Agreement between CREA and Jiangzu Academy of Forestry (JAF) (2018-2023)

Memorandum of Scientific Cooperation between CREA and the Shanghai Academy of Agricultural Sciences (SAAS)(2016-2021)

Memorandum of Agreement between CREA and the Academy of Agricultural Sciences, Jiangsu Nongken (JNAAS)(2016-2021)

Memorandum of Agreement between CREA and the China Agricultural University (CAU) (2016-2021)

Memorandum of Understanding between CREA and the Chinese Academy of Forestry (CAF RIF) (2019-2024)

Memorandum of Understanding between CREA and the Chinese Academy of Forestry (2019-2024)

Memorandum of Cooperation between CREA and the Chinese Academy of Inspection and Quarantine (AOSIQ-CAIQ) until termination requested by one of the party.

Memorandum of Technical and Scientific Cooperation between CREA and the Chinese Academy of Agricultural Sciences (CAAS) (2016-2021)

Agreement on rice breeding and genomics between CREA and the Academy of Agricultural Sciences, Jiangsu Nongken (JNAAS) (2016-2021)

Agreement on rice crops between CREA and the China Agricultural University (CAU) (2016-2021)

4. Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)

Memorandum of Understanding between ENEA and the Chinese Academy of Sciences (CAS), Cooperation in Nuclear Fission and Fusion (2018-2023)

Memorandum of Understanding between ENEA and the Hefei Institutes of Physical Science, Chinese Academy of Sciences (CASHIPS), Technologies for nuclear applications of heavy liquid metals (2017-2022).

Memorandum of Understanding between ENEA and the Institute of Food Science and Technology, Chinese Academy of Agricultural Sciences (IFST), Promotion and expansion of research skills on food science and technologies (2015-2020

5. National Institute of Nuclear Physics (INFN)

General Framework Agreement between CAS and INFN (2020-2025)

Memorandum of Understanding between INFN and Institute of High Energy Physics (IHEP) of CAS (2016-2020)

Memorandum of Understanding between the ShanghaiTech University and INFN (2019-2024)

Memorandum of Understanding among Purple Mountain Observatory (PMO, Nanjing, China), Geneva University (DPNC), Institute of High Energy Physics (IHEP, Beijing, China) and INFN for the DAMPE experiment (2019-2024)

Memorandum of Understanding between IHEP and all Member Institutions of the JUNO Collaboration on the JUNO experiment (2017 onwards)

Agreement between IHEP-CAS and INFN on IHEP-INFN Electronic Devices Joint Projects within the Doctoral School in Electronics of Politecnico di Torino (2018-2023)

Implementation Agreement on Payloads Cooperation onboard CSES between INFN, delegated by ASI, and China Space Administration (CNSA) to the Memorandum of Understanding between China National Space Administration (CNSA) and the Agenzia Spaziale Italiana (ASI) concerning Cooperation on the China Seismo-Electromagnetic Satellite (CSES) (2014 onwards)

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VIS-À-VIS CHINA

Three main documents represent the references for the Science and Technology strategy agreed between Italy and China:

"Science & Technology: for an Italian strategy in China", Ministry of Foreign Affairs, Directorate General for the Promotion of International Cooperation, MAECI Rome, May 2015.

"Action Plan for the strengthening of economic, commercial, cultural and scientific-technological cooperation between Italy and China 2017-2020", adopted in Beijing on 16 May 2017.

In December 2019, the Directorate General for the Promotion of International Cooperation of the Italian Ministry of Foreign Affairs, after a concerted action together with other relevant Italian Ministries, Italian bodies, agencies and universities, has delivered the final version of the "Italy-China Science and Technology Collaboration: Action Plan toward 2025", available at the URL: https://innovitalia.esteri.it/notizia/italia-cina-collaborazione-scientifica-e-tecnologica-piano-dazione-verso-il-2025, based on the following eight key areas:

PRIORITY AREAS OF COOPERATION

Italy is engaged with China in the following 8 key areas:

- Physics, Geophysics, Space and Aerospace
- Advanced Materials
- Green Growth and Renewable Energies
- Sustainable Urbanisation
- New Technologies for Cultural Heritage
- Agriculture and Food Safety
- Life Sciences, Healthcare
- ICT, Intelligent Manufacturing

FRAMEWORK CONDITIONS FOR COOPERATION

Within the general framework conditions for cooperation, Italy is giving a particular emphasis on the following:

- Sustainable co-funding mechanisms in joint research projects and laboratories: making sure that each research action is equally sustained by both parties
- Efficient IP system: by protecting, and guaranteeing ownership to the researchers involved in joint research projects
- Conditions for mobility: facilitating the applications for mobility of researchers and young entrepreneurs
- Access to public procurement: putting effort in facilitating the participation and access to public procurement in China, as well as in Italy
- Cooperation on research ethics: by the application of fundamental ethical principles to scientific research of both parties.

INSTRUMENTS OF COOPERATION WITH CHINA

Executive Programme MAECI-MOST

Executive Programmes entail a number of joint research projects to be developed in the time frame of three years typically. Upon renewal the Joint Commission agrees on the priority sectors (four to six) the new Executive Programme has to focus on as well as on evaluation criteria and financial availability for the entire duration of the programme.

A joint call for proposals is published by both governing bodies. Submission of the proposal requires also a joint agreement on IPR. Proposals are thus first evaluated at Country level and then at bilateral level reaching consensus on which projects are to be funded.

A joint Mid Term Review (MTR) is carried out at bilateral level after one and half-two years from projects start.

At present (2020) the Executive Programme for the years 2019-2021 is in course. By a joint decision, its duration has been extended until the end of 2022. Ten joint research projects have been founded in the following sectors: Artificial Intelligence, Technologies related to Astrophysics, Innovative biomedical devices and Innovative processes for biomass conversion into energy and other added value products.

Executive Programme MAECI-NNSFC

The Executive Programme (EP) between MAECI and NNSFC follows the same scheme of the MAECI-MOST one. At present (2020) the EP for the years 2018-2020 is in course. By a joint decision, its duration has been extended until the end of 2021. Ten joint research projects have been founded in the following sectors: New Materials, with particular reference to 2D systems and graphene; Environment, with particular reference to urban circular economy; Physics, with particular reference to quantum technology; Health, with particular reference to chronic diseases.

Italy Science & Technology Working Group on China at MAECI

The Working Group at Ministry of Foreign Affairs operates since 2013. Every year about 100 participants, representing the main italian research institutions and agencies, meet together with Ministries and Governmental Bodies. The Working Group set the collaboration priorities in Science & Technology from the Italian perspective.

MAIN INITIATIVES AND PROGRAMMES

Joint institutes

Several Sino-Italian centers and joint laboratories have been activated, in recent years, and co-signed at the National level, with Chinese authorities and bodies:

Sino-Italian Innovation Centre for Technology Transfer (Beijing)

The China-Italy Technology Transfer Centre (CITTC) is a bilateral center whose main role is to promote economic synergies, cooperation and interaction among organizations and the commercialization of Sino-Italian innovative technologies.

Managing partners: China-Beijing Municipal Science and Technology Office (MOST), Italy-University of Bergamo, Fondazione CittàdellaScienza of Napoli.

Sino-Italian Green Energy Laboratory (Shanghai)

Sino-Italian Green Energy Laboratory was inaugurated in 2014, built with the contribution of the Italian Ministry of Environment. Currently, it hosts the researchers of the new Sino-Italian Joint-Lab on Energy Transition, founded by Shanghai Jiao Tong University and Politecnico Torino. This Joint-Lab interconnects in real time the laboratories of the two universities, to model and simulate the systems energy in the emerging energy transition.

Sino-Italian Centre for Environmental Sustainabiliy (Shanghai)

The Sino-Italian Center for Environmental Sustainabiliy (SICES) is a joint center of Tongji University with 15 Italian Universities having long term collaboration agreements with Tongji. The Center is managed in coordination with the Italian Ministry of Environment. The Center is hosted in a building of Tongji Campus, whose renovation was co-financed by the Italian Government to offer a physical place for the collaboration of Italian researchers.

Sino-ItalianInstitute Galileo Galilei (Chongqing)

Established in 2007 within the premises of Chongqing University, the GGII aims at strengthening of joint research projects on areas of expertise shared by Sant'Anna University (Italy) and Chongqing University. The topics of collaboration include: Innovation Management, Health and Well-being Management, Augmented Reality and Bio-robotics, Photonics, Software Engineering and Telecommunication Engineering, Biotechnology, Economics, Legal and Institutional Systems.

Sino-Italian Multifunctional Polymers Biopolymers Research Center (Chengdu)

The MPBRC was established in 2013 as a joint research center between the State Key Lab of Polymer Materials Engineering (SKLPME), Sichuan University, and the Institute of Polymer Composite and Biomaterials of the National Research Council of Italy (IPCB-CNR). The center conducts a research activity on advanced materials: 2D materials and biopolymers for applications in a variety of sectors such as prosthetics, tissue engineering, environmental protection, cultural heritage.

In addition, about 900 agreements have been signed between Italian and Chinese Universities for collaboration in education and research. Some of these collaborations have reached the level of joint centers, such as:

- Sino-Italian Base Innovation Camp (Chongqing). A spillover of Galileo Galilei Institute and founded by the Government of the District of Bishan (Chongqing), with six other Italian Universities

- Sino-Italian Lab of Cultural Heritage preservation (Guangzhou). Set-up by the University of Padua and the University of Guangzhou

- South China-Turin Joint Laboratory (Guangzhou), founded by SCUT and Politecnico Torino, focused on architecture and urban planning

- Venice-Suzhou Office (Suzhou). Set-up by Ca'Foscari University and Soochow University on language and culture; water science; business management

- Sino-Italian Design Center (Shanghai). Founded by Politecnico Milano with the Tongji University

- Nanjing University Center for Sino-Italian Cultural Studies (Nanjing). Established by the Nanjing University and the University of Turin

Various other joint centers are already operating, or under constitution, though the list will be further implemented.

INNOVATION-RELATED ACTIVITIES

China-Italy Innovation Week

Promoted by the respective governments, China-Italy Science Technology Innovation Week is coordinated by the Ministry of University and Research. So far, in ten editions since 2010, the Innovation Week has involved more than 10.000 experts in cooperation projects, and 5.500 entrepreneurial entities, assisting about 5.200 technology transfer actions and 620 scientific cooperation agreements. The China-Italy Innovation Week is the Europe's largest networking event and business matching in research and innovation.

TRILATERAL OR MULTILATERAL ACTIVITIES

Europe-China Clean Energy Center - EC2

The Europe-China Clean Energy Centre (EC2) was a five-year cooperation project funded by the European Union and founded in April 2010 by the European Commission, the National Energy Administration of China and the Ministry of Commerce of China, with the support of the Italian Ministry for the Environment. The Centre was managed by a consortium of nine partners - six European and three Chinese - led by Politecnico di Torino (Italy).

EU Project Innovation Center - EUPIC

EUPIC, since 2017 Center for Europe-China Cooperation – CECC, is a non-profit organization established in Chengdu (China) in 2006 under the Asia Invest II Project, an European Union initiative promoting and supporting business cooperation between the EU and Asia. With headquarters in Chengdu and Qingdao, CEEC promotes technology innovation and technology transfer among enterprises, universities, science and technology parks, industrial clusters and governmental organization.

SKAO – Square Kilometre Array Telescope Organisation

The Square Kilometre Array (SKA) project is an international effort to build the world's largest radio telescope, SKAO is the intergovernmental organisation with Headquarters in UK (Australia, China, Italy, the Netherlands, Portugal, South Africa and the United Kingdom) responsible for building and operating the SKA telescopes, which will enable scientists to study the universe in more detail than ever before.

The People's Republic of China has been taking part in SKA pre-construction, initially through the National Astronomical Observatories of the Chinese Academy of Sciences (NAOC) and since 2012 through the Ministry of Science and Technology (MOST).

LATVIA

BILATERAL AGREEMENTS

Agreement between the Government of the Republic of Latvia and the Government of the People's Republic of China on Cooperation in the field of Science and Technology was signed in Beijing on 18th September, 2018.

1st Session of Latvia-China Joint Scientific and Technological Cooperation Committee (hereinafter referred to as the Committee) was held in Riga on October 25, 2019.

Both countries reached an agreement on the working mechanism of the Latvian-Chinese Joint Committee for Scientific and Technological Cooperation and The committee will hold meeting in China and Latvia every two years.

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VIS-À-VIS CHINA

Increased international collaboration in research is one of our main research policy priorities and the need to increase research collaboration is clearly defined in our planned research funding instruments for the next planning period (2021 – 2027).

PRIORITY AREAS OF COOPERATION

Ongoing priorities:

Our main areas for co-operation are based on our research policy priorities (from 2014 – 2020) that are based on research areas where we have the strongest capacity and future potential. They are defined in our Smart Specialization Strategy where 5 Latvian specialization priority areas are:

Bio-economy

Biomedicine, bio-pharmacy, biotechnology

Smart materials and technology, engineering systems

Smart energetics

Information and communication technology.

Priorities for the years to come:

Currently main research priorities for the next planning period (2021 – 2027) are being defined. Main 5 Smart Specialization Strategy priority areas will remain unchanged and the goal is to further specialize and create functioning research and innovation ecosystems within these 5 priority areas (e.g. Smart Cities, Genetic research, Smart materials and photonics etc.). Within these ecosystems large role for their development will be based directly on how open they are for international collaboration.

INSTRUMENTS OF COOPERATION WITH CHINA

Horizon 2020 and Horizon Europe from 2021.

Latvia also has successful ongoing projects with Chinese partners in Horizon 2020 programme (Latvian partners in brackets)

Sustainable, Accessible, Safe, Resilient and Smart Urban Pavements - **SAFERUP** (Riga Technical University and "Ceļueksperts")

Sino-EU Soil Observatory for intelligent Land Use Management - **SIEUSOIL**, (Baltic Open Solutions Centre)

A safe DIVA vaccine for African Swine Fever control and eradication – **VACDIVA**, (BIOR)

TRILATERAL OR MULTILATERAL ACTIVITIES

Horizon 2020 and Horizon Europe from 2021.

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

https://izm.gov.lv/en

LITHUANIA

BILATERAL AGREEMENTS

Agreement between the Government of the Republic of Lithuania and the Government of the People's Republic of China on scientific-technological cooperation was signed on 22 April, 1992.

Agreement of the Ministry of education and Science of the Republic of Lithuania and the Ministry of Education of the People's Republic of China on the Mutual Recognition of Qualifications Concerning Higher Education was signed 27 April, 2015.

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VIS-À-VIS CHINA

R&D&I potential in the Lithuanian economy lies within emerging high technology sectors, such as biotechnology and pharmaceuticals, information technology (both manufacturing and services) and engineering industry.
Lithuania has the largest **Information and Communication Technologies** industry among the Baltic States. 14 out of 20 largest IT services companies in the Baltic States are based in Lithuania. Lithuania boasts some of the fastest and most affordable internet connections in Europe, and its IT-fluent population ranked the 4th globally for their IT skills.
Lithuania's **life sciences** sector has developed strongly during recent decades and is now regarded as one of the most advanced in Central and Eastern Europe.
Laser Technologies- previously focused on the scientific laser niche, the activities of the recent years helped to enter the industrial market, where a quarter of total sales is currently made. Presently, Lithuania holds 10% of the global scientific laser market. Successful entering into the global industrial laser market has been observed recently. Major part of the production, over 90%, is exported. The average yearly growth of the sector is more than 10% per year.
Lithuania has a ***special tax incentive scheme*** for R&D that aims at boosting the high value-added generating industries and encouraging business to invest in the R&D and new technologies. The financial support through specific state funds is available too.
Co-operation between China and Lithuania results in concrete actions. The Agency for Science, Innovation and Technology (MITA) signed The Memorandum of Understanding with Shanghai Commission for Science and Technology.
We look forward to continuing our co-operation with China, and we anticipate that Lithuanian companies will have an opportunity to accelerate in public and private accelerators, functioning in China.

PRIORITY AREAS OF COOPERATION

Ongoing priorities

- Optics and optoelectronics
- ICT
- Life sciences

INSTRUMENTS OF COOPERATION WITH CHINA

International Partners Search Programme – Agency for Science, Innovation and Technology

The international partner search financing instrument is designed to create favourable conditions for Lithuanian companies to find international partners to participate in R&D programs (e.g. Horizon Europe, Eureka, , to attend international consortium meetings and to organize international consortia meetings in Lithuania, to present and develop innovative products, services and technologies, to enhance collaboration and to expand internationally. Programme is explicitly aimed at finding international partners for participation in international R&D programs, therefore grants can be issued only if specific calls with China are foreseen.

International Acceleration Programme - Agency for Science, Innovation and Technology

The aim of the programme is to provide individually tailored support to the most promising Lithuanian start-ups to promote their growth, innovative products, services and technologies development (hereinafter referred to as products), expansion into international markets, cooperation with foreign partners, participation in international research, experimental development and innovation programs. Programme can be implemented with partners from China, among others. Programme was implemented with acceleration partner from China in 2017-2019.

New Opportunities LT Programme - Lithuanian Business Support Agency

The main aim of the programme is to encourage very small, small and medium enterprises to look for new markets abroad and to develop existing markets. Programme supports group presentation of SMEs and their products at international exhibitions, fairs and business missions abroad and/or in Lithuania.

MAIN INITIATIVES AND PROGRAMMES

Cooperation is encouraged under EU Framework Programmes.

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

https://eimin.lrv.lt/en/sector-activities/innovation
https://mita.lrv.lt/en/
https://www.smm.lt/web/en/science1
https://esinvesticijos.lt/en/

MALTA

BILATERAL AGREEMENTS

In 2019, the Government of Malta and the Government of the People's Republic of China (PRC) signed a bi-lateral Agreement on Science and Technological Cooperation, together with subsequent agreements by Joint Commission on Science and Technology between the Ministry of Science and Technology (MOST) of the PRC and the Malta Council for Science and Technology (MCST).

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VIS-À-VIS CHINA

N/A,cooperation is mostly guided by Memorandum of Understanding (MoU) with the main aim being the launch of bi-lateral calls.

PRIORITY AREAS OF COOPERATION

Ongoing priorities

Marine/maritime research (2019 and 2020)
Transport (2019 and 2020)
Digital technology (2020)

Priorities for the years to come

In 2019, the two parties agreed on Marine and Maritime Research and Transport as the main topics for collaboration. In 2020, it was decided to keep the same topics and add Digital Technology to the list of topics.

FRAMEWORK CONDITIONS FOR COOPERATION

Each party to the Bi-lateral call has its own National rules for their respective researchers.

INSTRUMENTS OF COOPERATION WITH CHINA

MoU and the joint Sino-Malta Fund calls.

MAIN INITIATIVES AND PROGRAMMES

Sino-Malta Fund (refer to above).

INNOVATION-RELATED ACTIVITIES

The aim of this science and technology cooperation – the Sino-Malta Fund – is to intensify scientific collaboration between the two countries to strengthen research and development (R&D) activities, technology transfer, and to carry out comprehensive, steady and long-term cooperation through support of researchers' mobility and the networking of industries, universities and research institutions to generate mutual-beneficial and win-win research. Innovation activities in the bi-lateral call are encouraged.

POLAND

BILATERAL AGREEMENTS

- Agreement on cooperation in science and technology between the Government of the Republic of Poland and the Government of the People's Republic of China (1995)
- Agreement between the Minister of Science and Higher Education of the Republic of Poland and the Ministry of Education of the People's Republic of China on cooperation in the area of higher education (2011)
- Letter of Intent for Cooperation in Joint Research and Development between China and Poland (2016)

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VIS-À-VIS CHINA

The Polish Ministry of Science and Higher Education is currently working on the "State's Scientific Policy". The "Constitution for Science" adopted in 2018 determines that the "State's Scientific Policy" is a strategic document indicating the priorities in the functioning of the higher education and science system. Scientific policy defines the most important development challenges for the Polish economy and society, which should be answered by scientific research conducted at the highest level as well as education as part of higher education and doctoral schools of high class specialists with the most advanced competences. Scientific policy also sets out the basic principles on which policies in higher education and science should be based. These principles form general guidelines on how to formulate laws and policy instruments related to science and higher education.

PRIORITY AREAS OF COOPERATION

Ongoing priorities (2019/2020)

1. Life Sciences, including biology, biotechnology, genetics, diagnostic tools, therapies and public health
2. Medical and health sciences
3. ICT
4. Environmental technology, including environmental engineering, water resources management, pollution and deforestation
5. Agricultural sciences
6. Energy technology, including new energy development, clean coal utilization, sustainable energy use
7. Material science, including biomaterials, nanomaterials, inorganic non-metallic materials.
8. Engineering and technology
9. Chemical sciences

Priorities for the years to come (2022)

1. Mathematical and physical sciences, including mathematics, fundamentals constituents of matter, condensed matter physics, astronomy and space science

2. Information sciences, including computer science and informatics, system and communication engineering
3. Earth sciences
4. Management sciences

FRAMEWORK CONDITIONS FOR COOPERATION

- Educating students and participants of doctoral schools, as well as improving skills of academic teachers.
- Scientific research and promotion of teaching of the Polish and Chinese languages.
- Supporting direct cooperation between higher education institutions, including exchange of academic teachers.
- Exchange of experience, information and didactic materials in the field of planning, development and management of the higher education, as well as other issues concerning organisation of the educational process in higher education institutions.

INSTRUMENTS OF COOPERATION WITH CHINA

- The Poland-China Scientific and Technological Cooperation Committee – convenes every two years. The 38th session of the Committee is scheduled to take place in 2020 in Warsaw.
- Polish-Chinese Funding Initiative "Sheng" organised by the National Science Centre (NCN) and the National Natural Science Foundation of China (NSFC) – the second edition (SHENG 2) to be announced in December 2020.

  https://ncn.gov.pl/aktualnosci/2020-01-02-zapowiedz-sheng2-sheng3?language=en
- Joint research call of the National Centre for Research and Development (NCBR), Poland and the Ministry of Science and Technology of the People's Republic of China – announced in October 2019.

  https://www.ncbr.gov.pl/fileadmin/Miedzynarodowe/Chiny/konkurs/1._Joint_call_announcement_CHINA-POLAND.pdf
- Joint call for applications under bilateral exchange of scientists between the Republic of Poland and the People's Republic of China, organized by Polish National Agency for Academic Exchange – NAWA (Poland) and Department of International Cooperation, Ministry of Science and Technology (China) – announced in October 2019.

  https://nawa.gov.pl/images/users/629/Bilateral-exchange-new-call-China_en_2.pdf
- Individual agreements between universities and research institutions.

MAIN INITIATIVES AND PROGRAMMES

- Further active participation of the Ministry of Science and Higher Education in meetings within the framework of Educational Dialogue China - Central and Eastern European

Countries (17+1) and meetings of ministers of higher education of EU member states and China.

- Continuing cooperation in the scope of: implementation of joint projects, organization of conferences, symposia, workshops, promotion of direct scientific and technical cooperation between institutions, agencies, universities, research and development centres.
- Promotion of Polish higher education and Polish universities in China.

INNOVATION-RELATED ACTIVITIES

Current scientific and innovation cooperation is based on conducting joint research projects as part of calls co-organized by the National Science Centre and the National Centre for Research and Development.

TRILATERAL OR MULTILATERAL ACTIVITIES

- Active participation of the Ministry of Science and Higher Education in meetings within the framework of Educational Dialogue China - Central and Eastern European Countries (17+1) and meetings of ministers of higher education of EU member states and China.
- Active participation in meetings of SFIC (Strategic Forum for International S&T Cooperation) – opinion body of the EU Commission.

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

https://scienceinpoland.pap.pl/en

https://www.gov.pl/web/science

https://www.ncn.gov.pl/

https://www.ncbr.gov.pl/

https://nawa.gov.pl/

PORTUGAL

BILATERAL AGREEMENTS

- Agreement on Scientific Cooperation between the National Natural Science Foundation of People's Republic of China and the Junta Nacional de Investigação Científica e Tecnológica, 1992
- Agreement between the Government of the Portuguese Republic and the People's Republic of China on Cooperation in the fields of Culture, Science and Technology, 1993
- Memorandum of Understanding in Science, Technology and Innovation between the Ministry of Education and Science of Portuguese Republic and the Ministry of Science and Technology of People's Republic of China, 2012
- Implementation Agreement for China-Portugal Joint Innovation Centre for Advanced Materials between the Department of International Cooperation, Ministry of Science and Technology of the People's Republic of China and the Foundation for Science and Technology (FCT) of the Portuguese Republic, 2014
- Protocol between the Ministry of Education and Science of the Portuguese Republic and Ministry of Science and Technology of the People's Republic of China on Co-operation in Research and Innovation in the field of Marine Sciences, 2014
- Memorandum of Understanding between the Fundo para o Desenvolvimento das Ciências e da Tecnologia of the Macau Special Administrative Region of the People´s Republic of China and the Fundação para a Ciência e a Tecnologia, Ministry of Science, Technology and Higher Education of the Portuguese Republic, 2017
- Memorandum of Understanding between the Ministry for Science, Technology and Higher Education (MCTES) of Portuguese Republic and the Ministry of Science and Technology (MOST) of the Peoples' Republic of China on the promotion of cooperation activities towards the implementation of China – Portugal Science & Technology Partnership 2030, 2018
- Memorandum of Understanding between The Portuguese Science and Technology Foundation, Ministry of Science (FCT), Technology and Higher Education and Institutes of Science and Development, Chinese Academy of Sciences (CASISD), 2018
- Memorandum of Understanding between Science & Technology Commission of Shanghai Municipality (STCSM-China) and the Portuguese Foundation for Science and Technology (FCT-Portugal), 2019
- Memorandum of Understanding between the Government of the Macau Special Administrative Region of the People's Republic of China and the Ministry for Science, Technology and Higher Education (MCTES) of the Portuguese Republic leading to the Automatic Recognition of Diplomas and Academic Degrees, 2019

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VIS-À-VIS CHINA

In 2016 a Resolution of the Council of Ministers set up general guidelines for the articulation of the internationalization policy of higher education, science and technology with other public internationalization policies, including the strengthening of bilateral ties with our main partner countries, such as China. From the institution side, Foundation for Science and Technology (FCT

- the main research funding agency) implements that strategy, promoting the internationalisation of the Portuguese scientific and technological ecosystem, namely through:

- Increase and support institutional visibility and cooperation at a global level;

- Assure national and institutional representation in relevant fora of R&I, science policy and international R&I organisations;

- Foment and implement bilateral and multilateral initiatives and cooperation agreements in R&I in Europe and beyond;

- Support and stimulate the participation of the national scientific and technological community in the pallet of international instruments and initiatives promoted by FCT;

- Promote scientific diplomacy and the cooperation with the scientific diaspora.

Portugal and China cooperate in S&T for more than 30 years. The recently signed agreement to enhance the R&I component of the Portugal Science & Technology Partnership 2030 is the more recent sign of the importance to cooperate with China. The participation of Chinese and Portuguese research teams in the several joint calls in several science domains, launched in the last decade, is a sign of the already existing cooperation between science communities from both sides.

PRIORITY AREAS OF COOPERATION

Ongoing priorities

Cellular and Molecular Biology, Biotechnology; Materials Science, including Nanotechnology; Health Sciences; Agricultural Sciences; Chemistry; Engineering; Software and Computing Sciences; Energy, Ecology and Environment; Culture heritage, history of science and technology and emerging contemporary interactions

Priorities for the years to come

Space Science and Technology for Earth Observation and Space-Climate-Ocean interactions; Advanced computing and nanoscience and technology; Human Language-translation and digital analysis of written and spoken languages; Culture heritage, history of science and technology and emerging contemporary interactions.

FRAMEWORK CONDITIONS FOR COOPERATION

Bilateral agreements above-mentioned

Mobility Bilateral Projects:

Since 1993, the cooperation between Portugal and China (MOST) has been operational through joint Calls for Proposals in scientific and technological areas to fund mobility bilateral projects to develop and strength the networking between researchers from both countries

Research Collaborative Projects:

Since 2013, after the establishment of the Portugal-China Joint Innovation Centre for Advanced Materials (JICAM), FCT and MOST fund research collaborative projects in Advanced Materials field, which result from the launch of joint Call for Projects

Since 2016 FCT and the National Science Foundation of China (NSFC) fund research collaborative projects in priority areas through the launch of joint Call for Projects

Jointly Seminars:

China and Portugal chaired the "Eureka meets Asia", which took place in Macau in March April 1998

There were 2 workshops on Collaborative Research of Marine Sciences between FCT and NSFC in Marine Sciences in 2014, one took place in Shanghai and the other in Lisbon

There were three editions of the Sino-Portugal Advanced Materials Innovation Forum, organized jointly between MOST and FCT in May 2014, July 2016 and in June 2018

INSTRUMENTS OF COOPERATION WITH CHINA

Individual bilateral agreements between Portuguese Higher Education Institutions and Chinese counterparts and other institutional organizations

Portugal-China Joint Innovation Centre for Advanced Materials was established on 28 February 2013 at Zhejiang University. With the support of joint entities in China and in Portugal, the Centre aims to strengthen R&D activities and technology transfer, as well as the market uptake of innovations in the fields of advanced materials. Resulted from the Memorandum of Understanding between the Ministry for Education and Science of the Portuguese Republic and the Ministry of Science and Technology of the People's Republic of China

(https://news.cgtn.com/news/3d3d774e7967444d31457a6333566d54/share_p.html)

MAIN INITIATIVES AND PROGRAMMES

Joint institutes

Portugal-China Joint Innovation Centre for Advanced Materials, above-mentioned

INNOVATION-RELATED ACTIVITIES

Portugal-China Joint Innovation Centre for Advanced Materials, above-mentioned

TRILATERAL OR MULTILATERAL ACTIVITIES

Strategic Forum for International Cooperation on Science & Technology (SFIC), is a dedicated configuration of ERAC (European Research Area and Innovation Committee) that facilitates the further development, implementation and monitoring of the international dimension of the European

Research Area, with focus on European Union and Member States' research and innovation activities outside the EU and Associated Countries. SFIC is set-up as an advisory group where representatives of the EU Commission, EU Member States (Members) and Associated Countries (Observers) are participating. The Secretariat is provided by the General Secretariat of the Council of the EU and SFIC is chaired by an EU Member State, designated for a period of 3 years.

Since 2009, SFIC has launched a Strategic Working Group targeting China, 2015-2018, where PT participated. The main objective was information sharing on STI between EU MS/AC and the EC in connection with UE Delegation in China and Ambassadors and/or Science Counsellors from UE MS in China. Given the recent developments with China, in 2020, SFIC induced a new survey on China within al MS/AC. Based upon the results, the EC launched a new exercise: the **EU Research &Innovation Knowledge Network on China (EU-KNOC)**, with the Core China Group (CCG), representing the Science, Technology and Innovation ministries of EU Member States, where PT participates

ROMANIA

BILATERAL AGREEMENTS

- Romania was the third country to recognize the People's Republic of China and the second country to sign an Agreement on the Scientific and Technological Cooperation, on January 1953, which is renewed periodically.
- A new agreement between the Government of Romania and the Government of the People's Republic of China on scientific and technological cooperation is being negotiated and will be signed.
- The Romanian-Chinese Joint Committee for Scientific and Technological Cooperation has been meeting every 2 years since 1953. Last meeting was held in Bucharest, on April 24th, 2018, and represented the 43rd Regular Session of the China-Romania Inter-governmental Committee on Science and Technology Cooperation. The meeting in 2020 in Beijing could not take place.

PRIORITY AREAS OF COOPERATION

- No specific priority fields in relation to the calls for proposals for the Romanian-Chinese cooperation in Science and Technology.
- Most of the joint research projects and programs are in the fields of: agriculture (genetic reproduction and molecular culture, quality of the agri-products and food safety, rural economy, information technology applications in agriculture), forestry, machine engineering, energy and environment.

FRAMEWORK CONDITIONS FOR COOPERATION

INSTRUMENTS OF COOPERATION WITH CHINA

Governmental funded programs

1. Bilateral researchers mobility program (based on competition – allocation from the national research budget):

- For mobilities of staff/researchers researching common topics with Chinese counterparts
- Project duration: 1-2 years
- Eligible institutions: Research institutes and universities

In the last call (2018), 29 projects were funded out of 86 applications and the total allocated budget by the Romanian authorities was of 1.5 million RON (320,000 Euro).

2. Projects funded by Chinese authorities:

- Project 111 ***Modern Construction Engineering Equipment and Technology Innovation Team***
- Research activities of Romanian scientists in China.

Institutionally funded programs

Projects funded by Romanian and Chinese institutions (academies, universities, research institutes):

- Short term visits/research activities based on bilateral agreements
- PhD scholarships (experimental activities or full program)
- Scholarships for visiting professors or young researchers

MAIN INITIATIVES AND PROGRAMMES

Joint Parks and Laboratories

- International Joint Laboratory project: ***Modern Construction Engineering Equipment and Technology.*** Partners: Shenyang Jianzhu University (China) and Transilvania University of Brasov (Romania). Implementation period: 2017 - 2020.
- ***Romania-China Agriculture Science and Technology Demonstration Park***, inaugurated on May 16th, 2019, jointly created by the Chinese Academy for Agricultural Sciences and the University of Agronomic Sciences and Veterinary Medicine of Bucharest (Romania).
- ***Romanian-Chinese Research Laboratory of Excellence on Chinese Jujube***, inaugurated in 2018. Partners: Hebei Agricultural University (China) and University of Agriculture and Veterinary Medicine Bucharest (Romania).

Joint Workshops

- ***The Fourth China-Romania Workshop on Science and Technology Cooperation*** was held in Bucharest, in May, 2019. The theme of the Workshop was ***Horticulture***.
- ***The Third China-Romania Workshop on Science and Technology Cooperation*** was held in Brasov in April, 2018. The theme of the Workshop was ***Green Buildings and Building Industrialization.***

Joint International Conferences

- ***Computing and Solutions in Manufacturing Engineering COSME2020*** (7-10 October 2020): Transilvania University of Brasov and Shenyang Jianzhu University.
- ***Civil Engineering and Building Services CIBv2019*** (1-2 November 2019): Transilvania University of Brasov and Shenyang Jianzhu University.
- ***3rd China-Romania Science and Technology Seminar*** co-chaired by the Chinese Vice-Minister for Science and Technology (24-27 April 2018): Transilvania University of Brasov and Shenyang Jianzhu University.

TRILATERAL OR MULTILATERAL ACTIVITIES

Erasmus+ annual exchange programs (funded by the National Agency based on competition – EU allocation):

- For staff: 1-2 weeks
- For students (including PhD students): 1-2 semesters

In the academic year 2020-2021 funding was approved for exchanges between 21 Romanian universities and their Chinese partners (164,115 Euro).

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

Webpage of the Ministry of Research, Innovation and Digitization:
https://www.research.gov.ro/

The complete list of the institutions of Higher Education of Romania (for the institutionally-funded programs): https://www.edu.ro/institutii-invatamant-superior

SLOVENIA

BILATERAL AGREEMENTS

- Agreement on Scientific and Technological Cooperation between the Government of the Republic of Slovenia and the Government of the People's Republic of China (signed 13.09.1993)

- Memorandum of understanding between the Ministry of Education, Science and Sport of the Republic of Slovenia and the Ministry of Science and Technology of the People's Republic of China on joint funding of research and development projects (signed 17.05.2019).

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VIS-À-VIS CHINA

- The "Research and Innovation Strategy of Slovenia 2011-2020" aims to exceed only mobility in the framework of bilateral cooperation and upgrade it by 2020, with special regards to the priority countries defined in Slovenia's foreign policy. It as well explicitly states that bilateral cooperation will be directed towards BRIC countries (Brazil, Russia, India and China), that are becoming new world centres of R&D.

- Slovenia strongly supports the set priorities of the Strategic Forum for International S&T Cooperation- SFIC (Configuration of EU Council) which defines a strategic way to approach China in the domain of R&D.

- In recent years there was a successful bilateral cooperation in the area of Karst (limestone region) research – re-cultivation of the karst regions in Chinese provinces of Yunnan, Guangxi and Guizhou.

PRIORITY AREAS OF COOPERATION

Ongoing priorities:

The joint Chinese-Slovenian Scientific and Technological Cooperation Committee meets every two years and is responsible for approving jointly funded projects for the following two years (biannual cooperation program). The funding in most cases covers only the exchange of personnel for up to 14 days. The last, 12th meeting of the joint committee was held in Ljubljana in March 2018. The counterparts on both sides are the Ministry of Education, Science and Sport of the Republic of Slovenia and the Ministry of Science and Technology of the People's Republic of China; both parties co-finance 24 bilateral research projects for the period 2018-2020. **Both Ministries also agreed to upgrade cooperation in the form of research projects where the Parties, along with mobility, could finance research activities.**

The first call for proposals based on MoU was announced in October 2019 in both countries, priority areas are: Biomedical sciences, Material Technologies and Karst research.

Priorities for the years to come:

Both Ministries agree to continue the scientific cooperation with mobility and research projects in next years.

FRAMEWORK CONDITIONS FOR COOPERATION

- Beside the agreement between both governments on S&T cooperation, Slovenian and Chinese researchers are jointly collaborating in several projects of the EU Framework programme HORIZON 2020.

- Although China is not a member o the EU programme COST (European Cooperation in Science and Technology), Chinese researchers may participate in COST actions on institutional basis (via their research organisations that are invited to join) and have collaborated in few 7 COST actions with Slovenian researchers.

INSTRUMENTS OF COOPERATION WITH CHINA

Bilateral mobility and research projects.

SPAIN

BILATERAL AGREEMENTS

- Agreement on S&T Cooperation between the Kingdom of Spain and the People's Republic of China was signed in 1985.
- Joint declaration on industrial, technological cooperation and cooperation in the fields of Telecommunications and Information Society, signed in 2002.
- MoU between China's TORCH and Spain's CDTI signed in December 2003, to develop technological cooperation between companies in Spain and China, through common projects led to promote the competitiveness of Spanish and Chinese companies.
- Joint declaration on facing new challenges in the bilateral relationships which includes promoting further S&T cooperation, signed in 2005.
- MoU between the Ministry of Science and Technology of China (MOST) and the former Ministry of Science and Innovation (Spain) on scientific and technological cooperation, signed in 2011. From December 2011 to May 2018, the responsibilities in science, technology and innovation in Spain have been taken over by the Secretariat of State for Research, Development and Innovation of the Ministry of Economy and Competitiveness (MINECO). From June 2018 there is a Ministry of Science, Innovation and Universities (MICIU) in Spain.
- MoU on Science, Technology and Innovation Cooperation in the Field of Advanced Materials signed by the Ministry of Science and Technology of China and the Ministry of Science, Innovation and Universities of Spain in November 2018.
- MoUs between research and technological Institutions from China and Spain (Spanish Research Council – CSIC, the Spanish Oceanographic Institute – IEO, Spanish Centre for Energy, Environment and Technology Research – CIEMAT, Astrophysical Institute of Canary Islands – IAC, Spanish National of Agricultural Research and Technology – INIA, Carlos III Health Institute – ISCIII).
- MoUs between several Universities and Technology Centres. Governmental agreement signed by the Spanish Ministry of Industry, Energy and Tourism (MINETUR) on renewable energies.
- A MoU was signed in 2011 between the Academy of Mathematics and Systems Science, the Beijing International Center of Mathematical Research, the Chern Institute of Mathematics and the Instituto de Ciencias Matemáticas (ICMAT-CSIC) for cooperation in the field of Mathematics and its Applications.

PRIORITY AREAS OF COOPERATION

Ongoing priorities & Priorities for the years to come

After the signature of the MoU in the Field of Advanced Materials in November 2018, a Joint Committee Meeting held in Madrid on 15th November 2019, and the signature of the MoU in Priority Fields signed in June 2020, the on going priority fields on going and for the years to come are:

- Smart Cities
- Production Technologies, including Smart Manufacturing
- Biomedicine and Technologies for Health, including Medical Devices, Biotechnological applications or Pharma, that may address diseases with global prevalence
- Clean Technologies, including technologies for the environment, Renewable Energies or Water Treatment.
- Modern Agriculture including Fishery Technologies, Food Processing and Food Safety.
- Advanced Materials.

Actions are foreseen to launch annual Joint Calls to select and finance joint research, technology and innovation projects in the above mentioned fields, to strength exchanges among research personnel, support the development of scientific research and innovation platforms and networks, and promote the sharing of large research facilities.

INSTRUMENTS OF COOPERATION WITH CHINA

- Innovation program – CHINEKA – between CDTI (Centre for the Development of industrial Technology) and TORCH (Chinese institute for High Industrial Technology). Both organizations stem from their respective Ministries with responsibilities in science and technology in each country. 40 projects have been developed since 2006 under this scheme. A CDTI office was opened in Shanghai in 2002.

  In October 2020, the Second Joint Spanish-Chinese Call for Priority Areas was launched under the framework of CHINEKA and 20 projects were presented.

  In October 2019, the First Joint Spanish-Chinese Call for Advanced Materials was launched under the framework of CHINEKA. Five projects were approved to be financed by China under the framework of MOST Key National Projects and by CDTI under its PID scheme. These calls have been managed by MOST in China and CDTI in Spain.

- Cooperation agreements for joint research & expert's mobility between the Spanish Research Council (CSIC) and the Chinese CAS and NSFC.

- Under an agreement signed by the Spanish Ministry of Industry, Energy and Tourism (MINETUR), the IDAE (Institute for the Diversification and Energy Saving, depending on MINETUR) has signed the Sino-Spanish Cooperation Working Plan on Renewable Energies with the Energy Research Institute of China (ERI), involving the IDAE, the CENER (linked to the MINECO through CIEMAT) and the Spanish Electric Network.

- In 2011 two Forums were celebrated in Beijing: the Sino-Spanish Forum on Renewable Energy, as a joint activity of CIEMAT and the MOST, and the Forum on Technological Cooperation, under the agreement TORCH-CDTI, on biotechnology, food, and tool-machinery.

- Important agreements have been signed to mutually recognize the academic degrees and diplomas issued by the Education ministries of both countries, this measure can help in fostering expert mobility and educational exchanges between research institutions, universities and enterprises

MAIN INITIATIVES AND PROGRAMMES

Joint Institutes

- More than forty Spanish universities have developed bilateral relations with key Chinese universities and organizations, among the most active ones in S&T cooperation we could mention: Universidad Politécnica de Valencia, Universidad Politécnica de Madrid and Universidad Politécnica de Cataluña.

- CIEMAT has signed several agreements with different Chinese institutions such as the Institute for Electrical Engineering of the Chinese Academy of Sciences to cooperate in solar energy facilities in Dahan or agreements with companies and institutions to enable the Chinese parties to use applications developed by CIEMAT.

- The Sino-Spanish Centre for the Promotion of Renewable Energies created with the participation of the Chinese Renewable Energy Society (CRES) and the Association for Sino-Spanish cooperation in Technology and Innovation (CSETI) received the support of MINECO in 2011.

- Related to the Mathematics field, the International Centre for Numerical Methods in Engineering (CIMNE, based in Barcelona, Spain) has created an extension office in Beijing, with the support of the Ministry of Economy and Competitiveness.

- Spain also has active collaboration in the field of veterinary research, animal health and epidemiology. Collaboration between High Biosafety Laboratories at the Animal Health Research Centre of INIA (CISA) and National Diagnostic Center for Exotic Animal Diseases of the China Animal Health and Epidemiology Center (CAHEC), both as FAO reference laboratories, to provide service related to African Swine Fever.

- The National Research Center on Human Evolution (CENIEH), as unique scientific and technical infrastructure, collaborates since 2013 with the Institute of Vertebrate Paleontology and Palaeoanthropology (IVPP CAS), in visits, research exchanges, training of students, research activities.

- Framework collaboration agreement, since 2013 for the Spanish research infrastructure ALBA synchrotron with SINAP (Shanghai Institute of Applied Physics, CAS).

- Cooperation with China under the Antarctic Treaty System and Arctic Council for the 2 Spanish research infrastructures related to Antarctic Stations.

- A MoU was signed in signed 05-09-2016 between the Canary Islands Great Telescope GTC/IAC and NAOC (National Astronomical Observatories, CAS) signed on 05-09-2016.

- MoU with Calar Alto Astronomical Observatory (CAHA) and University of Beijing covering the use of the CAHA 2,2m telescope to develop an intensive study of supermassive black holes located in the central regions of the galaxies. MoU between CAHA and Nanjing University covering the use of the CAHA 2,2m and 3,5m telescopes for the observations with BUSCA, PPAK and OMEGA2000 instruments.

- On 15th September 2018, nine units from China and Spain (Beijing University of Chemical Technology, Beihang University, The Going Global Confederation of China Petroleum & Chemical Industry from China, the Technical University of Madrid, IMDEA Materials Institute, the Department of Innovation, Investigation & University of the Government of Aragon; and the Spanish companies SANZ Clima and Repsol) reached an agreement on the joint establishment of the "Sino-Spanish Joint Research Center of Advanced Materials" on the principles of complementary advantage, equality and mutual benefit and long-term cooperation.

- The Centro de Biotecnología y Genómica de Plantas (CBGP, UPM-INIA) signed a Memorandum of Understanding with the Institute of Genetics and Developmental Biology (IGDB) of Beijing and the Shanghai Centre for Plant Stress Biology (PSC) to establish a joint international Centre of Excellence on Plant Nutrition and Adaptation to Stress.

INNOVATION-RELATED ACTIVITIES

- In April 2011, CDTI and TORCH agreed to organize exchange visits between companies from both countries to promote participation in technology cooperation projects within the CHINEKA Program. This is how the first, the second and the third Hispanic-Chinese Innovation Forum were held, the last one in October 2014.

- In October 2017 CDTI signed with the Shanghai Science & Technology Development and Exchange Centre (SSTDEC) a Letter of Intent for the creation of the CHINEKA Yangtze Delta Workstation. This centre, dependent on the municipality of Shanghai, has formed a union of Technology Parks with all the parks of these characteristics that are on the banks of the Yangtze River, which include a total of 60 Technology Parks.

TRILATERAL OR MULTILATERAL ACTIVITIES

- Regarding the cooperation of Chinese and Spanish entities in Horizon 2020, the global figures are: Cooperation in 89 financed projects, in which 158 Chinese and 156 Spanish partners have collaborated. In these projects, leadership has been provided by a Spanish partner in 17, and without coordination on the part of Chinese partners. The lines of greatest cooperation have been in food security, sustainable agriculture and forestry, maritime and marine research and inland waters and bio-economics (29 collaborations), Marie Skłodwska-Curie actions (21 collaborations) and Action for climate, environment, resource efficiency and raw materials (11 collaborations).

- The Spanish Centre for Renewable Energies CENER (Centro Nacional de Energías Renovables) took part in the feasibility study, carried out under the leadership of RISO Denmark, on the creation of the national Centre for Renewable energy of China (CNREC). CENER is a member of the International Advisory Committee, together with Denmark and USA.

- The Spanish Centre for Renewable Energies CENER (Centro Nacional de Energías Renovables) took part in the feasibility study, carried out under the leadership of RISO Denmark, on the creation of the national Centre for Renewable energy of China (CNREC). CENER is a member of the International Advisory Committee, together with Denmark and USA.

- CENER takes part in the Sino-Spanish cooperation Working Plan on renewable Energies, an agreement signed between IDEA and ERI.

- The Astrophysical Institute of Canary Islands (IAC) is cooperating with the National Astronomy Observatories of the Chinese Academy of Sciences (NAOC-CAS) under the international agreement SONG (Stellar Observations Network Group), led by the Stella Astrophysics Center of the Aarhus University (Denmark).

- NAOC is one of the collaborating institutions of the future giant telescope TMT (Thirty Meter Telescope), which could be installed on La Palma, if it should be unfeasible in Hawaii.

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

- The Carlos III Health Institute (ISCIII) collaborates with entities from the People's Republic of China in the initiative “International Consortium for Research on Rare Diseases” (IRDiRC), launched in 2011, set the goal of contributing to the development by 2020, extended to 2027, of new therapies and methods to diagnose a large part of rare diseases.

- Concerning opportunities for cooperation with China on international research infrastructures, in relation to the development of a new robotic telescope (NRT), there is a collaboration of Canary Islands Astrophysics Institute (IAC) with the National Astronomical Observatories of China (NAOC) in the conceptual design of a 4m robotic telescope, European Solar Telescope (the largest in its class) for installation in the Roque de los Muchachos Observatories (La Palma, Canary Islands).

- China is currently a member of the SKA (Square Kilometre Array) observatory, and Spain has committed to formalize its membership in 2021. China has led the Disk Structures design consortium and Spain has expressed interest in participating in the construction of Disk Structures.

NORWAY

BILATERAL AGREEMENTS

On 30th August 2017 Norway and China signed a joint Action Plan to increase cooperation in science, technology and innovation in the period 2017-2020.RøeIsaksen signed the action plan at the 2nd Joint Science and Technology Meeting with the Chinese Minister of Science and Technology, Dr. Wan Gang.

Collaboration under this Action Plan builds on the bilateral agreement on cooperation in science and technology between China and Norway, which was signed in 2008.

Some of the goals of the Action Plan are to strengthen industry-academic research collaboration, promote knowledge transfer between research organizations and industries, and improve the research capacities of both countries by making optimal use of existing resources.

STRATEGY FOR INTERNATIONAL COOPERATION AND STRATEGY VIS-À-VIS CHINA

Both China and Norway will promote various kinds of collaborative activities, including long-term partnerships through research cooperation, academic exchanges and joint cultivation of human resources, and multilateral cooperation, for instance within the European Framework Programme for Research and Innovation, Horizon 2020.

PRIORITY AREAS OF COOPERATION

In particular, the Action Plan encourages collaboration within these areas:

- Environment, Climate and Low-emission Societies
- Renewable Energy, Low Carbon Energy Technologies
- Polar Research
- Marine and Maritime Research (including Fishery Science and Technology)
- Life Sciences (including Health & Care, and Agriculture, Food Safety and Food Security)
- Materials
- ICT

The Joint Committee of Chinese and Norwegian representatives may also agree on other areas of collaboration during the term of the Action Plan.

SWITZERLAND

BILATERAL AGREEMENTS

- First bilateral agreement on technical and scientific cooperation in 1989
- MoU on the cooperation on Science and Technology in 2003
- Political dialogue between the Swiss State Secretariat for Education, Research and Innovation (SERI) and the Chinese Ministry of Science and Technology (MoST) since 2003

PRIORITY AREAS OF COOPERATION

The cooperation is in principle open to all scientific disciplines with ongoing priorities in environmental sciences and engineering, material sciences, surface earth system science, air quality and health (related).

FRAMEWORK CONDITIONS FOR COOPERATION

Ongoing collaboration:

Swiss National Science Foundation (SNSF) and National Natural Science Foundation of China (NSFC) offer Joint Research Projects (JPRs).

In the context of Sino-Swiss Science and Technology Cooperation both parties regularly issue calls for JRPs. The costs covered by the grants are comparable to those covered in national SNSF projects (equipment, research funds, salaries). The next call is currently in preparation.

Further Information: http://www.snf.ch/en/funding/programmes/bilateral-programmes/china/Pages/default.aspx#Supplementary%20measures

MAIN INITIATIVES AND PROGRAMMES

ETH Zurich is the Leading House for the bilateral Science and Technology cooperation programme of Switzerland with China, Japan, South Korea and the ASEAN region. Mandated by the State Secretariat for Education, Research and Innovation (SERI), ETH Zurich is in charge of promoting and fostering scientific cooperation with key institutions in the region by setting up various instruments to support bilateral cooperation in the areas of research and innovation. Since 2017, these instruments have included, in particular, small grants for bilateral innovation projects and scholarships for mobility of young researchers from both countries.

More information:

https://ethz.ch/en/the-eth-zurich/global/global-research-platforms/swiss-bilateral-programme.html

INNOVATION-RELATED ACTIVITIES

Innovation collaboration between Switzerland and China:

- CHIC (China Hardware Innovation Camp)
  Initiative from EPFL Master program. Product design in Switzerland, fast prototyping in Shenzhen, student teams consisting of students in university and UAS
- Venture Leaders China Program
  Business Development trip for 10 selected start-ups to China
  Venture Leaders Fintech Program
  Business development trip for 10 fintech startups to Hongkong
  New programs " Venture Leaders Biotech " and " Venture Leaders Deeptech" will be replacement of above two programs and become new editions of Swiss tech startups market validation and entry in China.
- Innosuisse market entry camp run by swissnex China
  Residence program for Swiss startups interested in developing the China market
- Various delegations from academia and private industries focusing on innovation in China
- Corporate Innovation scouting: Swiss Corporates take on innovation tour that is organized by swissnex China to get connected with startups, companies, universities and research institutes, and dive into China innovation ecosystem.
- Swisstech exhibitions : 2017-2019 CES Asis Swiss country Pavilions with +30 startups showcase Swiss Innovation and technology, 2020 Swisstech Pitchinar with 20 startups virtually pitch to Chinese investors & partners, 2021 three innovation showcase under the name of SwissTech series will be curated and organized in Shanghai and Shenzhen.

TRILATERAL OR MULTILATERAL ACTIVITIES

Switzerland is fully associated to the 8th EU Framework Programme for Research and Innovation, Horizon 2020 (2013-2020). Negotiations regarding Switzerland's participation in Horizon Europe (2021-2027) are expected to start in early 2021. Switzerland is committed to continuing its participation in the next generation of EU Programmes for Research and Innovation, further enabling collaborations with China in the framework of these measures.

More information: Horizon Europe

FURTHER INFO ON SCIENCE, RESEARCH AND INNOVATION

Research and Innovation in Switzerland
Swiss National Science Foundation SNSF
Innosuisse - Swiss Innovation Agency
Swiss Academy of Sciences
Switzerland Innovation Park

EUROPEAN UNION

BILATERAL AGREEMENTS

- The EU-China Science & Technology Agreement was signed in **1998**. The agreement is implemented through the Joint Steering Committee that meets on a regular basis at DG (European Commission) / vice-minister (ministry of Science and Technology - MOST) level, alternatively in Brussels and Beijing with the objective of reviewing the S&T cooperation and of making strategic decisions to move the S&T cooperation with China forward.
- The EURATOM-China Agreement for R&D Cooperation in the Peaceful Uses of Nuclear Energy (R&D-PUNE Agreement) was signed in **April 2008**. It is implemented by a steering committee co-chaired by the Commission representing EURATOM and MOST.
- The EU-China Joint Declaration on Innovation Cooperation Dialogue (ICD) was signed in **September 2012** to create an official platform for exchanges and cooperation on innovation between both sides. It meets on a regular basis at Commissioner (European Commission) / Minister (PRC) level, alternatively in Brussels and Beijing.
- In **June 2015**, the National Natural Sciences Foundation of China (NSFC) and the European Research Council (ERC) signed an Implementing Arrangement to facilitate the use of the ERC-funded projects to host Chinese researchers, holders of NSFC grants.
- The Collaborative Research Agreement between EC Joint Research Centre and the Chinese Academy of Science (CAS) signed in **2017**, builds upon the existing longstanding and successful cooperation with a number of CAS institutes, particularly the Institute of Remote Sensing and Digital Earth – Chinese Academy of Sciences (CAS-RADI) with which the JRC signed a collaborative arrangement during the EU-China Summit in 2015.
- A Joint Statement between the EU and the Government of the People's Republic of China on the implementation of the EU-China Cooperation on Energy was signed in **April 2019**, establishing the EU-China Energy Cooperation Platform (ECECP) as a practical tool to support and operationalise the Energy Dialogue and to deliver on the specific objectives of EU-China bilateral energy cooperation.
- In **December 2020**, the EU and China concluded in principle the negotiations for a Comprehensive Agreement on Investment (CAI), which has a bear on the framework conditions discussed in the context of the EU-China Joint Roadmap for Future Science, Technology and Innovation Cooperation (see below). It seeks to create new investment opportunities for European companies by opening China's market and eliminating discriminatory laws and practices that prevent them from competing on an equal basis with Chinese companies and companies from other third countries.

STRATEGY FOR INTERNATIONAL COOPERATION WITH CHINA

- EU and China are key partners in cooperation in science, research and innovation. However, this cooperation must be balanced in nature and characterised by reciprocity, transparency, openness, high ethical and research integrity standards and a level-playing field between the two parties. On 12 March 2019, with the Joint Communication to the European Parliament and the Council "EU**-China – A strategic outlook**", the European

Commission re-defined its approach towards China. China is now considered, simultaneously, in different policy areas, a cooperation partner with whom the EU has closely aligned objectives, a negotiating partner with whom the EU needs to find a balance of interests, an economic competitor in the pursuit of technological leadership, and a systemic rival promoting alternative models of governance. Following the 2012 EU's strategic approach to enhancing EU international cooperation in research and innovation and its implementation reports, the European Commission is preparing a new strategy for international cooperation. The acceptance of level playing field in the framework conditions is essential to upgrading the cooperation in innovation with China beyond SDG related areas.

- The **Strategic Forum for International Scientific and Technological Cooperation** (SFIC) is an advisory body to the Council and the Commission to implement and monitor the international dimension of the European Research Area, and to identify areas for coordinated or joint initiatives with countries and regions outside the EU. Within the SFIC, the Commission and the Member States have been working on the identification of common challenges and priorities to be pursued with and vis-à-vis China (among other countries). In particular, it contributes to the development of activities to enhance the EU/MS-China STI cooperation, through, for instance
  - Advising on targeted joint and coordinated actions (within Horizon or MS-China activities);
  - Promoting the organisation of and input to EU/MS-China workshops and conferences in the priority areas of common interest.

- The "EU**-knowledge network on China**" (EU-KNOC) has been launched by DG RTD in 2020 with the aim of creating a knowledge network to discuss and tackle a wider array of issues linked to R&I cooperation with China. The creation of EU-KNOC also stemmed from a top-down political decision to rebalance EU-China relations. EU-KNOC will chart a set of issues, which will then translate to implementation of concrete actions. It will work with the SFIC and identify European and Chinese expertise networks and think tanks. It will include one representative and one expert from each MS, plus representatives from the Commission and the EU DEL. The main idea of EU-KNOC is to connect and share resources for a unified strategy for STI vis-à-vis China.

INSTRUMENTS OF COOPERATION AND PRIORITY AREAS OF COOPERATION WITH CHINA

- China was one of the EU's key international partners in research and innovation in the **Seventh EU Framework Programme** for Research and Technological Development. The majority of EU-China scientific co-operation that took place through FP7 involved almost all thematic priority areas (e.g. space, ICT, health, transport, etc.). China was third, after the US and Russia, in terms of global participation of third countries in FP7.

- With a total budget of nearly 80 billion EUR (640 billion RMB) over seven years (2014-2020), **Horizon 2020** was the largest multinational programme of this kind. Being 'open

to the world', International Cooperation was an important cross-cutting priority of Horizon 2020. The European Commission aimed at a more balanced approach for cooperation focussing on mutual interest and common benefit. In Horizon 2020, Chinese entities, and those of other BRIC countries as well as Mexico, participating in Horizon 2020 projects were no longer systematically funded. Hence, the Chinese government set up co-funding mechanisms (CFM) to support financially the participation of Chinese entities in Horizon 2020 projects.

- The **general opening** of Horizon 2020 allowed China to cooperate with Europe in almost all sectors and areas. Also several Horizon 2020 topics targeted cooperation with China.
- In addition to the general opening, some topics were specifically flagged for targeted cooperation with China, the **flagship initiatives**, co-funded by the Chinese government:
    1. Food, Agriculture and Biotechnology (FAB) (co-funded by MoST);
    2. Environment and Sustainable Urbanisation (co-funded by MoST);
    3. Surface Transport (co-funded by MoST);
    4. Aviation (co-funded by MIIT);
    5. Biotechnology for Health and the Environment (co-funded by NSFC).

In these five Flagship Initiatives, the participation of Chinese partners was strongly encouraged to add value to the proposals.

- In 2021 the next framework programme, **Horizon Europe**, will start. To prepare our collaboration with China under Horizon Europe, it was agreed in the fourth ICD meeting of April 2019 to prepare a **Joint EU-China Roadmap** (JR) for future Cooperation in Science and Technology. The JR is being discussed under the guiding principles of openness, reciprocity, transparency, high ethical and research integrity standards, level playing field and mutual benefits. The EU-China Joint Roadmap for Future Science, Technology and Innovation Cooperation will:
    - Map the **priorities** where EU and China intend to intensify their research and innovation cooperation and focus the future Chinese CFM, in particular to contribute meeting the objectives of the Paris Agreement and the Sustainable Development Goals. The acceptance of level playing field in the framework conditions is conditional to upgrading the cooperation in innovation with China beyond SDG related areas. With China being an important international partner country for the EU, both sides are working together in a **targeted strategic way** on a selected number of areas for mutual interest and common benefit.
    - Deal with the **framework conditions** (see below) to contribute to a thriving global innovation ecosystem. After reaching an agreement on the EU-China Joint Roadmap for Future Science, Technology and Innovation Cooperation, this JR will be reviewed on a regular basis (rolling roadmap) to take account of EU-China research and innovation collaboration results and of the overall political context.

- A particularly important area of research and innovation cooperation between the EU and China forms the peaceful uses of nuclear energy. Four sub-committees under the R&D-PUNE Agreement (see above) work together on the following priority subjects:
    - Subcommittee on "Nuclear Security and Safeguards" between the Chinese Atomic Energy Authority (CAEA) and the Joint Research Centre (JRC).

  - Subcommittee on "Fission Coordinated Actions" between CAEA and the DG Research and Innovation (RTD).
  - Subcommittee on "Fusion Energy Research" between the MOST and RTD.
  - Subcommittee on "Nuclear Safety" between the National Nuclear Safety Administration (NNSA) of the Chinese Ministry of Environmental Protection, and Joint Research Centre.

- The sector of **information and communication technologies** (ICT) is another area for research and innovation of priority for both sides. The ICT High-Level Dialogue falls under the responsibility of DG Information Society on the European Commission side.

- DG Education and Culture and the Chinese Ministry of Education (MoE) are responsible for the High-Level People to People Dialogue (HPPD), which was established with a Joint Declaration in April 2012. It covers education, culture, youth, multilingualism and **mobility of researchers**. Short- and long-term mobility of researchers both ways is an important driver of the EU China research and innovation partnership.

FRAMEWORK CONDITIONS FOR COOPERATION

Following the conclusions of the Fourth Innovation Cooperation Dialogue (ICD) the EU is looking to deepen and increase cooperation with the People's Republic of China through a joint Roadmap for future Cooperation in Science, Technology and Innovation (STI) under the guiding principles of openness, reciprocity, high ethical and research integrity standards, level playing field and mutual benefits. The EU and China aim, through the following framework conditions, to create a level playing field for their STI cooperation based on reciprocity and transparency in order to contribute to a thriving global innovation ecosystem:

- Intellectual Property Rights
- Pre-normative research, conformity assessment and Standardisation
- Open science, Open access to scientific publications and research data, Research infrastructures
- Research ethics and integrity
- Access to Research and Innovation programmes
- Mobility of researchers
- Gender equality in research
- Access to finance and venture capital
- Access to Government Procurements
- Movement of materials and equipment across borders
- Fair and transparent regulatory frameworks
- ICT & Cybersecurity measures
- Innovation and SMEs

MAIN INITIATIVES AND PROGRAMMES

- With 570 participation of Chinese entities in 269 Horizon 2020 projects, China ranked second among non-associated third countries participating in Horizon 2020.
- The EU and China intend to use their future programmes to further support international research collaborations in the spirit of mutual openness. They intend to enhance communication and develop synergies as to be agreed in the EU-China Joint Roadmap, between their respective plans and programmes: Horizon Europe (2021-2027) from the EU side and the Medium and Long Term Science & Technology Development Plan (2021-2035) and the 14th Five-Year Plan from the Chinese side.
- Europe-China Clean Energy Centre (EC2), Beijing: provides a platform to support the clean energy sector in China, using clean energy technologies and the promotion of regulations.
- Euro-Chinese Institute of Clean and Renewable Energies (ICARE), Wuhan: provides a Master degree and acts as a research platform.
- China-Europe School of Law, Beijing (CESL): provides Master degrees and conducts research in law and legal sciences
- China Europe International Business School, Shanghai (CEIBS): is a business education provider with strong research centres on economic disciplines as well as innovation

INNOVATION-RELATED ACTIVITIES

The High Level Economic Dialogue and a number of sectoral dialogues, including on IPR issues and standardization cover several innovation-related issues. A number of EU programmes and activities to support innovation co-operation, such as the Enterprise Europe Network, the IPR-SME helpdesk, and the EU-SME centre, provide support and services to science and business activities in China.

The EU-China **Innovation Cooperation Dialogue** creates an official platform for exchanges and cooperation on innovation between both sides. Under this mechanism, the two sides will discuss innovation strategies, jointly encourage and support cooperation on research and innovation activities, and fully mobilize industry, universities and research institutes, to complement mutual strengths and deliver win-win results on human resources, technology, research infrastructures, exploitation of research findings, and framework conditions for innovation. The first China-EU Innovation Cooperation Dialogue was held in Beijing in November 2013, back to back with the 16th China-EU Summit. The latest ICD was held in its fourth occurrence in April 2019 in Brussels, giving the mandate to the two sides to prepare the Joint Roadmap for Future Science, Technology and Innovation Cooperation, including the framework conditions, on which depends the upgrade of the cooperation in innovation with China beyond SDG related areas.

TRILATERAL OR MULTILATERAL ACTIVITIES

In general every EU funded project needs to fulfil the minimum requirement of at least 3 partners from EU Member States or Associated Countries. EU China collaboration under the EU Framework Programme encourages hence a 'multilateral' cooperation.

Some areas of common interest are addressed between EU and China through international undertakings, e.g. clean energy RI through Mission Innovation (global initiative working to accelerate clean energy innovation. see http://mission-innovation.net).

The EC is trying to attract China to participate in more international efforts, e.g. health (GLOPID-R Global Research Collaboration for Infectious Disease Preparedness https://www.glopid-r.org)

FURTHER INFORMATION ON SCIENCE, RESEARCH AND INNOVATION

EU Delegation to China, Science & Technology Section
https://eeas.europa.eu/delegations/china/15394/china-and-eu_en#Research+and+innovation

Brochures and Guidelines:

Funding Guide for European Researchers in China:
https://euraxess.ec.europa.eu/worldwide/china/guide-european-researchers-funding-and-grants-china-published
IPR in China: Guidance for Researchers:
https://ec.europa.eu/research/iscp/pdf/sfic/ipr-in-china-guidelines_en.pdf