中国科学院
CHINESE ACADEMY OF SCIENCES

Introduction to

Chinese Academy of Sciences

Sept. 16, 2024

Who We Are

CAS is China's national science agency and the highest advisory body in the field of science and technology.

Three in one

CAS comprises three major components

A comprehensive research and development network

A traditional merit-based academic society

A system of higher education

CAS in Figures

106 Research Institutes

11 Branches

1 Press and Publication Agency

- Physics
- Medical Sciences
- Chemistry
- Life Sciences
- Earth Sciences
- Information
- Interdisciplinary
- Mathematics

Embracing all disciplines in natural sciences

74,000 Regular Staff

63,000 Scientists

3 Universities

105,000 Students

38 Large Research Infrastructures (Accounting for 57% Nationwide)

104 Key Laboratories

286 Field Stations

20 Herbaria

16 Botanical Gardens

10 Overseas Institutions

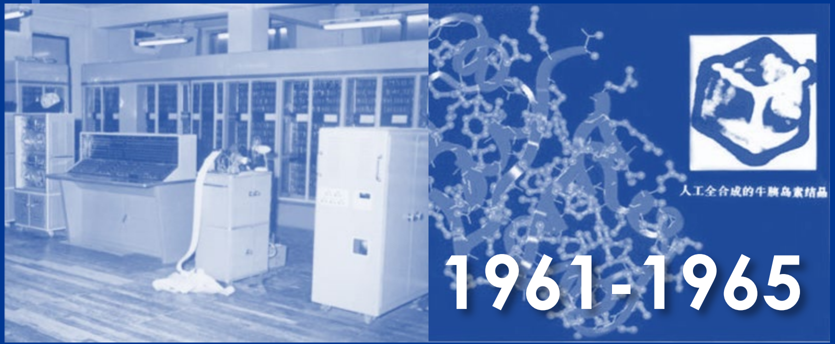
151 International Members

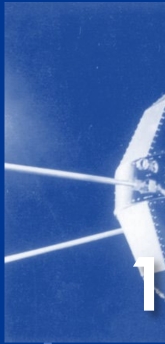
1009 CAS Members

Innovation Lies at Center of CAS History

- **Chinese Academy of Sciences is founded.**
- Chloramphenicol synthesis method and production technology are developed.

- **China's first self-designed, large-scale general-purpose computer (Model 119) is developed.**
- The collaboration of CAS and Peking University achieves the world's first artificial synthesis of bioactive proteins.





- University of Science and Technology of China is established.
- China's first large-scale, high-speed digital electronic computer (Model 104) is developed.

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Recent Highlights in Basic and Frontier Sciences

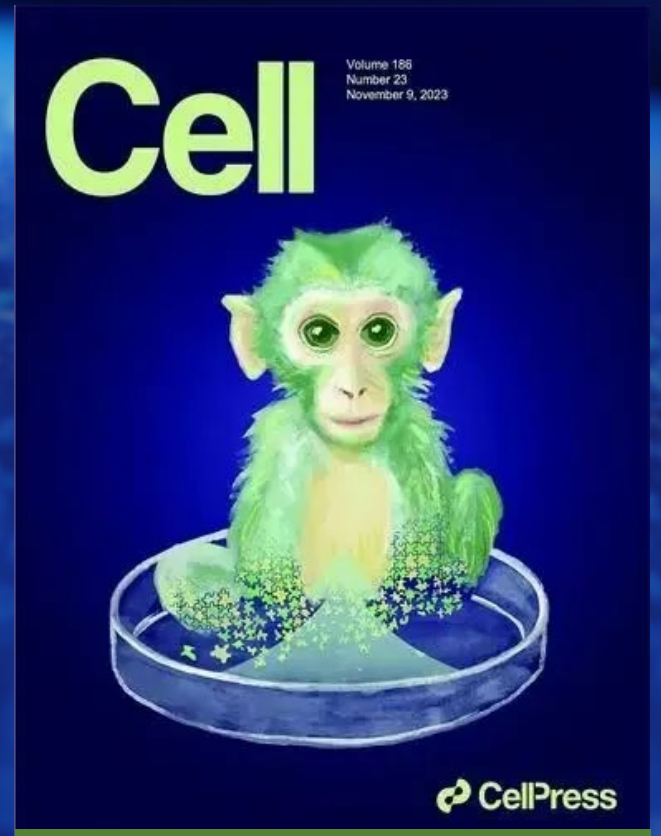
The Advanced Space-based Solar Observatory (ASO-S), nicknamed Kuafu-1 in Chinese, was launched. (2022)

Deep-sea manned submersible Fendouzhe, set a national diving record of 10,909 meters in the Mariana Trench in the western Pacific Ocean. (2021)

FAST: dozens of new pulsars discovered. (2021)

CAS scientists translate carbon dioxide and water into glucose and fatty acids, proposing a new strategy for artificial food production. (2022)

Steady High Magnetic Field Facility (SHMFF), a steady field of 45.22 Tesla, the highest steady magnetic field by a working magnet in the world. (2022)



CAS scientists generatea live-birth chimeric monkey using a high contribution of embryonic stem cells.

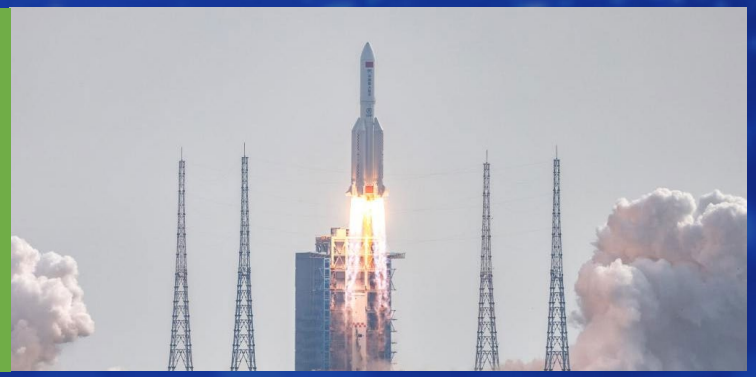
A recent study published in Cell (2023)

Major Breakthroughs in Advanced Technological Sciences

-271℃ Superfluid Helium Large-scale Cryogenic Refrigeration Equipment (2021)

World's Largest Flow Battery Energy Storage Station Connected to Grid (2022)

China's Space Station to Support Large-scale Scientific Research (2022)



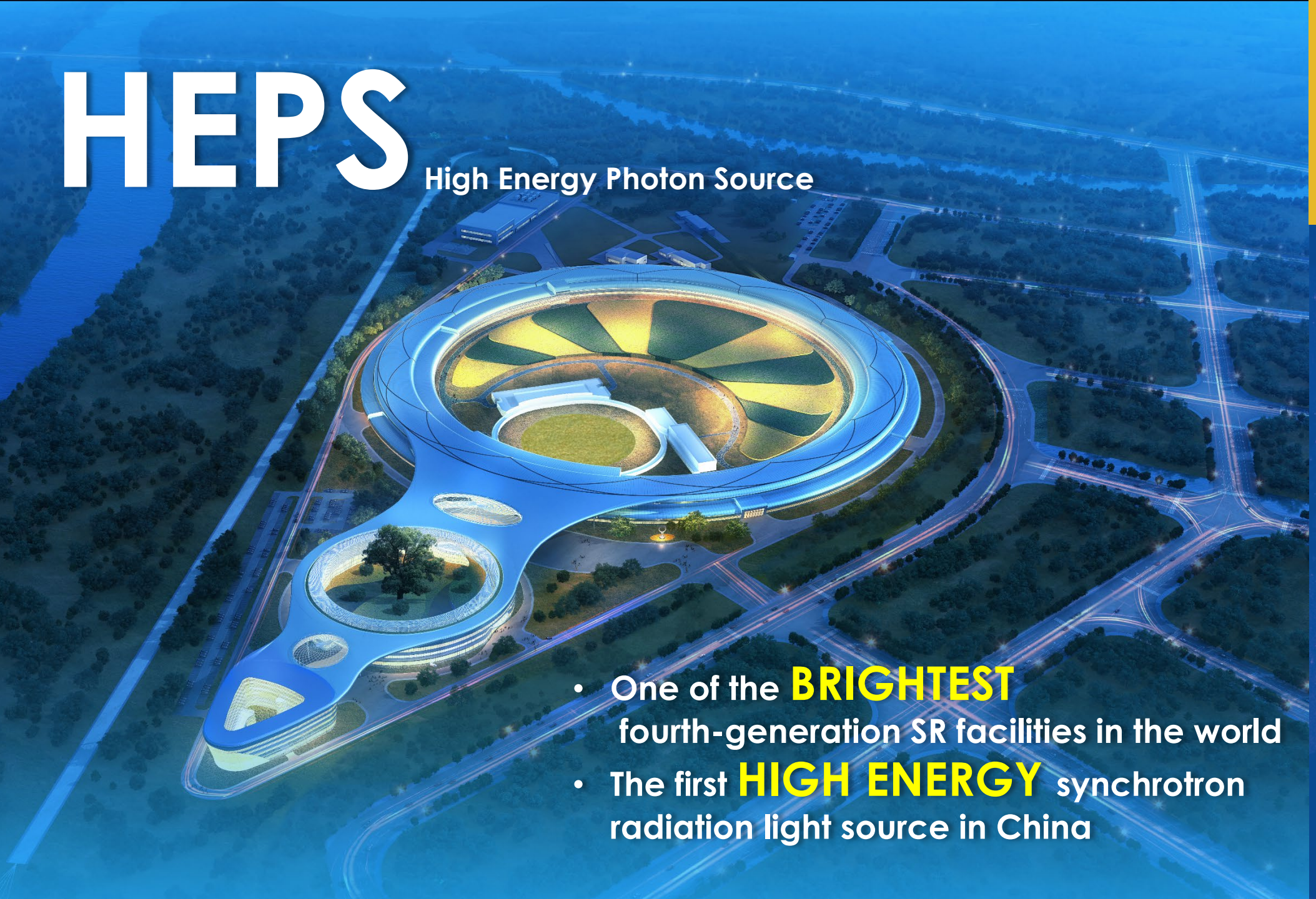
World's First 100-MW Advanced Compressed Air Energy Storage Plant Connected to Grid for Power Generation (2022)

Researchers Design AI-Chemist System to Facilitate Chemical Experiments (2022)

China's Computational Power Gains New Strength with 255-Detected-Photon Quantum Computer (2023)

HEPS

High Energy Photon Source



- One of the **BRIGHTEST** fourth-generation SR facilities in the world
- The first **HIGH ENERGY** synchrotron radiation light source in China

33

Large Research Infrastructures

Accounting for 57% Nationwide

CAS Think Tank Translates Expertise into Advice

Founded in June 1955, the Academic Divisions of the Chinese Academy of Sciences (CASAD) conducts strategic studies and provides advice on various topics.

CASAD consists of 6 divisions

- Mathematics and Physics
- Chemistry
- Life Sciences and Medical Sciences
- Earth Sciences
- Information Technical Sciences
- Technological Sciences

A Natural Fusion: Integration of Science and Education

CAS is also a higher education center to train next-generation of scientists and engineers. Supported by over a hundred of related institutes, CAS has always adhered to the principle of integrating scientific research and higher education.

University of Science and Technology of China

University of Chinese Academy of Sciences

ShanghaiTech University

A university jointly built by the Shanghai Municipal Government and CAS

A Collaborative Landscape

Effort to Promote International Cooperation

CAS attaches much importance to international cooperation.
We view it as an effective means to maximize our and global potentials and resources to advance science and address global challenges.

Numbers of Agreements with Int'l Partners

86 Europe

58 America and Oceania Regions

38 Asia and Africa

11 Other Regions

ANSO: Alliance of National and International Science Organizations

78 Member Organizations

52 Countries

8 International Organizations

- Chinese President XI Jinping extended a letter, confirming the significant role of ANSO
- Rooted in "joint consultation, joint effort, and joint sharing," drives Green & Sustainable BRI development and UNSDGs progress

| Asia
| Africa
| South America

10 Overseas Centers

- UNSDGs
- Ecology & Environment
- Life & Health Sciences
- Earth Sciences
- Biodiversity Conservation
- Space Science and Astronomy

Overseas Institutions

IPP: International Partnership Program

For Grand Challenges (Hub)

We support our scientists to collaborate with global partners on common and major challenges to sustainable development.

For Future Network (Cooperation)

We support researchers at their earlier career stage to establish cooperative partnership with their counterparts to conduct breakthrough research.

For Mutual Interest (Partnership)

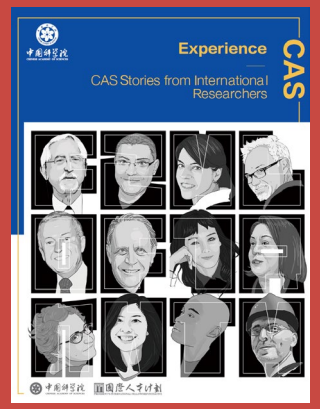
We also establish joint funding programs with some of our partner institutions.

For Big Science (Community)

We support our scientists to initiate international science program in science frontiers.

PIFI: CAS President's International Fellowship Initiative

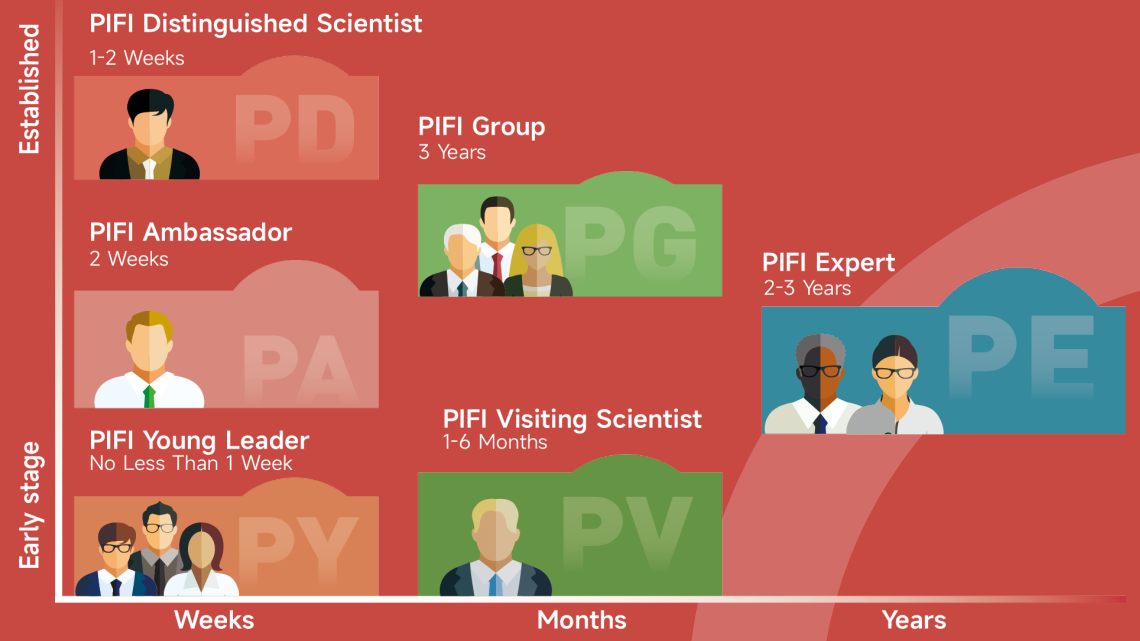
CAS launched its international exchange initiative, the CAS President's International Fellowship Initiative (PIFI) in 2009. This initiative aims to promote communication between worldwide researchers and CAS by funding outstanding international scientists to conduct substantive scientific and technological collaboration with CAS.



Since the initiation of the program in 2009,

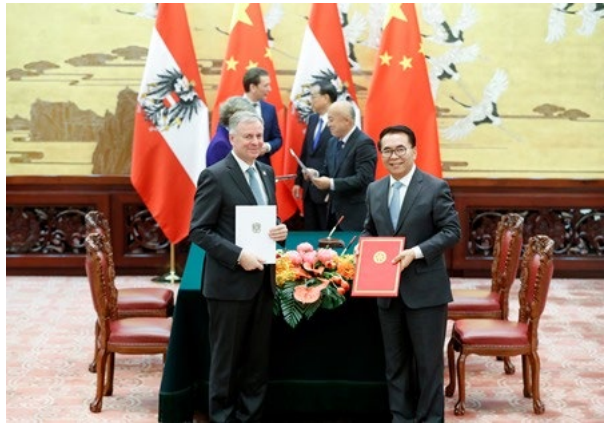
Nearly **5,400** International scholars from over

100 countries have been sponsored to visit CAS.



Cooperation with Austrian Counterparts

- **MOU with Austrian Academy of Sciences(OEAW)**
- **Annually joint call with FFG, Austria**
  - ✓ Innitiated from the discussion between CAS and BMK;
  - ✓ Firstly signed MOU to joint sponor research in 2015,
  - ✓ extended in 2019 in the presence of then Chinese Premier Li Keqiang and then Austrian Chancellor;
  - ✓ Have joint call for 9 consecutive years, with 27 projected funded so far;
  - ✓ Nano technology, ICT, Material science



FFG-CAS Cooperative R&D Project

Smart CERIum dioxide-based nanocomposites for AntimicrobiaL Surface applications

Smart CERIALS

Austria

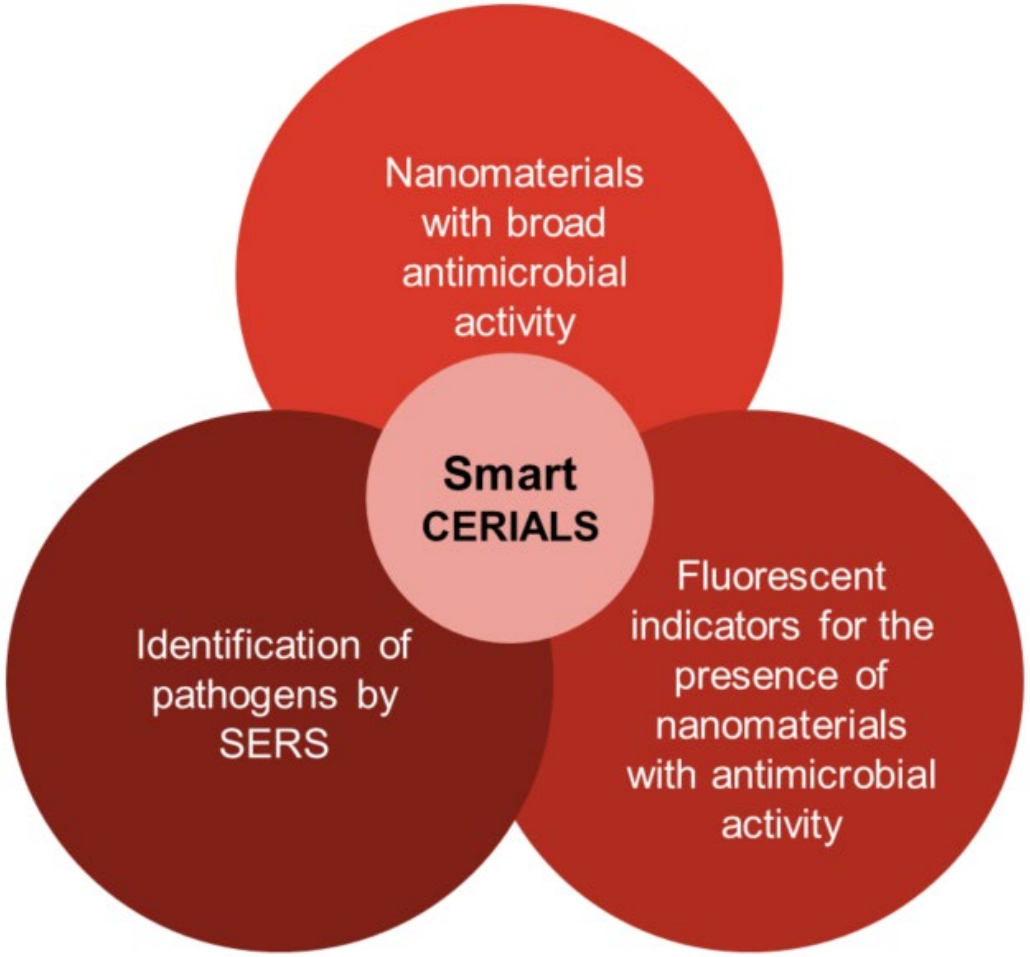
Prof. Martin Himly

University of Salzburg

China

Prof. Yang Li

Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences



SmartCERIALS combines antimicrobial nanomaterials with two smart applications

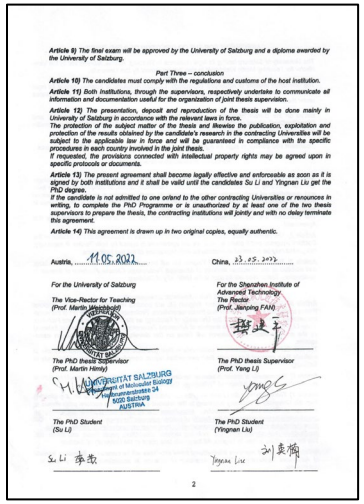
FFG-CAS Cooperative R&D Project

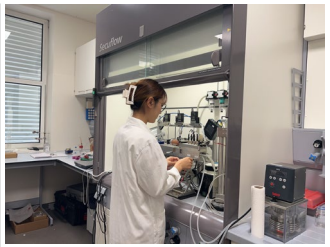
Visit and exchange

ChinaNanomedicine 2023

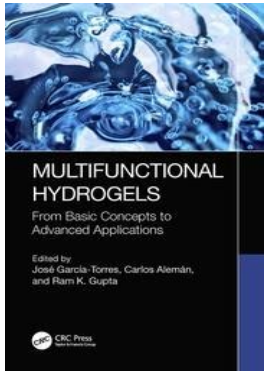
Visit SIAT

Co-direction of PhD Project





Publication



Chapter

1. Hydrogels for Anti-Pathogen Applications

Paper

1. Nano Today, 2024,102183
2. Chemical Engineering Journal, 2024, 490:151437
3. Advanced Functional Materials, 2023, 2312941

etc.

Igniting the Future with CAS

Thank you!