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# CAST Newsletter

Chinese Anti-Cancer Association and  
Brazilian National Academy of Medicine  
host first bilateral academic symposium



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## Headlines

### CAST President Wan Gang meets with Swiss Academy of Engineering Sciences President Benoit Dubuis



Group photo of the meeting participants  
Photo credit: Official website of CAST

On July 23, 2024, CAST President Wan Gang met in Beijing with a delegation led by Benoit Dubuis, President of the Swiss Academy of Engineering Sciences (SATW) and the Sino-Swiss Institute of Advanced Technology (SSIAT) at Shanghai University. They discussed ways to strengthen scientific, technological and cultural exchange and cooperation between China and Switzerland. Luo Hui, Director General of the International Affairs Department of CAST, also attended.

During the discussions, Wan Gang expressed hope that the two sides would work together closely to promote in-depth exchange and dialogue between engineers and young scientists from China and Switzerland. He stressed the importance of promoting “people-centered” technological innovation to improve the well-being of people in both countries and contribute to the welfare of all humanity.

Benoit Dubuis reviewed the main initiatives of SATW in its partnership with Shanghai University. He empha-

sized that the advancement of science and technology should benefit society and humanity. With new challenges in artificial intelligence, aging populations, and other technological areas, global collaboration is essential. Dubuis also highlighted SATW’s commitment to international cooperation and encouraged researchers and engineers to engage in global exchange. He expressed a desire for future China-Switzerland cooperation in science and technology to expand and produce tangible results.

(Source: Official website of CAST)

### CAST-UN Consultative Committee on Sustainable City, Community, and Heritage hosts side event at the 2024 High-Level Political Forum on Sustainable Development

On July 17, 2024, the CAST-UN Consultative Committee on Sustain-

Prioritizing Actions to Advance City  
Climate Resilience in Bay Areas

A side event at the 2024 High-Level Political Forum

Theme of the side event  
Photo credit: Official website of CAST

able City, Community, and Heritage (CCSC), in collaboration with the International Society of City and Regional Planners (ISOCARP) and the Urban Planning Society of China (UPSC), hosted a side event themed “Prioritizing Actions to Advance Climate Resilience in Bay Areas” during the 2024 High-Level Political Forum on Sustainable Development. Approximately 3,000 experts and representatives from international organizations, research institutions, universities, and businesses attended the event.

Keynote speakers included Pietro Elisei, President of ISOCARP; Ali A. Alraouf, Professor at Hamad Bin Khalifa University in Qatar; Annerudha Paul, Professor at the Kamla Raheja

Vidyanidhi Institute for Architecture and Environmental Studies (KRVI) at the University of Mumbai; and M.K. Leung, Director of Sustainable Design at Ronald Lu & Partners in Hong Kong. These experts shared insights on enhancing the resilience of Bay Area cities and discussed how such efforts can contribute to dialogue on the Sustainable Development Goals (SDGs) in the face of climate change.

(Source: Official website of CAST)

### Academic Exchange

## Chinese delegation attends 77th IIW Annual Assembly and International Conference on Welding and Joining



Participants of the East Asia Leaders Forum of Welding and Joining  
Photo credit: Official WeChat account of the Welding Institution of the Chinese Mechanical Engineering Society

From July 6 to 12, 2024, the 77th IIW Annual Assembly and International Conference on Welding and Joining was held on Rhodes Island, Greece. The event attracted over 1,000 representatives from 50 countries. The Chinese welding delegation, comprising 112 experts from 27 Chinese organizations, was invited and attended.

During the Assembly, 18 IIW technical committees

organized nearly 500 presentations. Chinese scientists contributed 42 of these presentations, covering more than 20 research areas including brazing and diffusion welding, micro-nano joining, high-energy beam processing, additive manufacturing, surface and thermal cutting, arc welding processes and production systems, health, safety, and the environment, and pressure vessels, boilers, and pipelines.

At the opening ceremony, 11 awards were presented to 20 experts and engineering professionals from China, the United States, Germany, Canada, Austria, Hungary, Finland, Australia, Japan, and South Korea. Wu Yixiong from Shanghai Jiao Tong University and Wu Chuansong from Shandong University received the FELLOW of IIW Award. Yu Rui of Xi'an University of Technology was honored with the Henry Granjon Award, and Liu Zheny-

ing of Beijing ARC Xinxing Science and Technology Co., Ltd. received the IIW 10-Year Award.

The Assembly featured 21 concurrent sessions on various topics including welding education and certification, welding standardization, regional conferences, and organization of IIW Annual Assemblies. These meetings highlighted IIW's global leadership in welding and advanced management capabilities. On the sidelines of these events, the welding societies of China, Japan, and South Korea hosted the East Asia Leaders Forum of Welding and Joining, where they agreed on regular exchange among industry organizations and to work on the revitalization of the East Asia Symposium on Technology of Welding. The Chinese delegation also held extensive discussions with IIW CEO Luca Costa and prominent welding experts from around the world.

(Source: Welding Institution of the Chinese Mechanical Engineering Society)

### Chinese Anti-Cancer Association and Brazilian National Academy of Medicine host first bilateral academic symposium



CACA and ANM host the first bilateral academic symposium. Photo credit: Official website of CACA



From July 8 to 9, 2024, Wang Ying, Vice President of the Chinese Anti-Cancer Association (CACA), led a delegation to visit the National Academy of Medicine (ANM) in Rio de Janeiro, Brazil. During the visit, both organizations signed a cooperation agreement and co-hosted their first bilateral academic symposium themed “Healthy Aging and Cancer Control.”

The symposium featured presentations by eight experts on recent academic developments. Brazilian experts focused on topics related to aging and health, while Chinese experts shared their experiences in basic research and clinical treatment of lung, liver, and breast cancer. The Brazilian experts then provided valuable feedback on the presentations, with three ANM members expressing praise for the achievements and research of the Chinese experts. They commended China’s progress on

cancer prevention and control and expressed strong interest in deepening academic exchange with Chinese oncology specialists to improve medical standards in both countries.

Following the symposium, CACA and ANM formalized their cooperation with an agreement. The agreement included hosting an annual bilateral academic conference, facilitating reciprocal exchange visits, strengthening scientific research cooperation, and participating in education and training initiatives.

(Source: Official website of CACA)

## Chinese Society for Rock Mechanics & Engineering sends delegation to 14th International Symposium on Landslides in France



Group photo of the Chinese delegation  
Photo credit: Official website of CSRME

From July 8 to 12, the 14th International Symposium on Landslides (ISL 2024) was held in Chambéry, France. The symposium, themed “Landslides across the Scales: From the Fundamentals to Engineering Applications,” covered a wide range of topics including landslide monitoring and early warning, experimental testing, numerical simulation, risk assessment, disaster prevention and mitigation, case studies, and engineering applications. The event drew over 350 scientists and

engineering professionals from 30 countries and regions including France, China, the United States, Germany, the United Kingdom, and Italy.

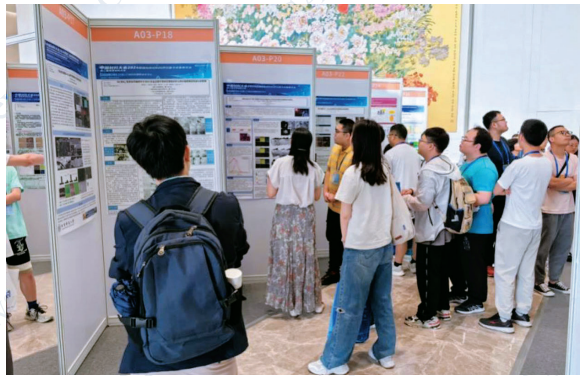
The Chinese Society for Rock Mechanics & Engineering (CSRME) gathered a delegation of 37 experts from 20 research institutions across China to attend the symposium. Among them, 14 representatives gave presentations and 31 others presented posters.

At the symposium, Professor He Manchao, President of CSRME and Chair of the China National Group of the International Society for Rock Mechanics and Rock Engineering (ISRM), gave a presentation titled “Possible Strategy for Landslide Prediction.” Professor Zhao Jidong from the Hong Kong University of Science and Technology gave an invited talk on “High-Fidelity Modeling of Debris Flow and Its Impact on Flexible

Barriers.” Following the presentations, international experts engaged in discussions with Chinese scientists on research related to earthquake-induced landslides, debris flows, and high-speed landslide dynamics.

(Source: Official website of CSRME)

## China Materials Conference 2024 & 2nd World Materials Conference kicks off in Guangzhou



“Frontiers of Young Scholars” flash talk area and poster exhibition  
Photo credit: Official website of C-MRS

From July 9 to 11, the China Materials Conference 2024 & the 2nd World Materials Conference, organized by the Chinese Materials Research Society (C-MRS), took place in Guangzhou, Guangdong Province. The event attracted over 20,000 leading scientists from 35 countries, as both a meeting of the Chinese materials science community and an international platform for global experts to collaborate and explore future opportunities.

The conference featured 92 sub-forums in five major areas: energy materials, environmental materials, structural materials, functional materials, and mate-



rials simulation, preparation and evaluation. It also included three Frontier Hotspot Youth Forums, eight Featured Materials Forums, two Frontier Flash Talk areas, a China Materials Education Conference, a Materials Journal Forum, and four training workshops, providing a wide range of opportunities for participants.

In addition, discussions on China-Europe, China-Japan, and China-South Korea materials cooperation were held alongside the main conference. These discussions marked a significant step forward on cooperation between C-MRS and the European Materials Research Society (E-MRS), the Society of Materials Science, Japan (JSMS), and the Korean Institute of Materials Science (KIMS). C-MRS is committed to promoting win-win cooperation and working with all parties to advance the field of materials science and contribute to global

progress and prosperity.

Other highlights included the “Frontiers of Young Scholars” flash talk area and poster exhibition, which provided a special opportunity for young materials scientists to showcase their work.

(Source: Official website of C-MRS)

### *International Awards*

#### **Peking University Professor Liu Ruochuan wins 2024 Ramanujan Prize**



Photo of Professor Liu Ruochuan  
Photo credit: Official website of Peking University

On July 22, the International Centre for Theoretical Physics (ICTP) and the International Mathematical Union

(IMU) announced the winner of the 2024 Ramanujan Prize. Professor Liu Ruochuan of the Beijing International Center for Mathematical Research and the School of Mathematical Sciences at Peking University received the prize for his pioneering contributions to  $p$ -adic Hodge theory, in particular his fundamental study of relative  $p$ -adic Hodge theory and his remarkable work on rigidity and Riemann-Hilbert correspondence for  $p$ -adic local systems.

(Source: Official website of Peking University)

#### **Westlake University Professor Jin Yaochu receives IEEE Frank Rosenblatt Award**



Photo of Professor Jin Yaochu  
Photo credit: Official website of Westlake University

Professor Jin Yaochu, an artificial intelligence expert at Westlake University, was recently awarded the IEEE Frank Rosenblatt Award. Established in 2004 by the Institute of Electrical and

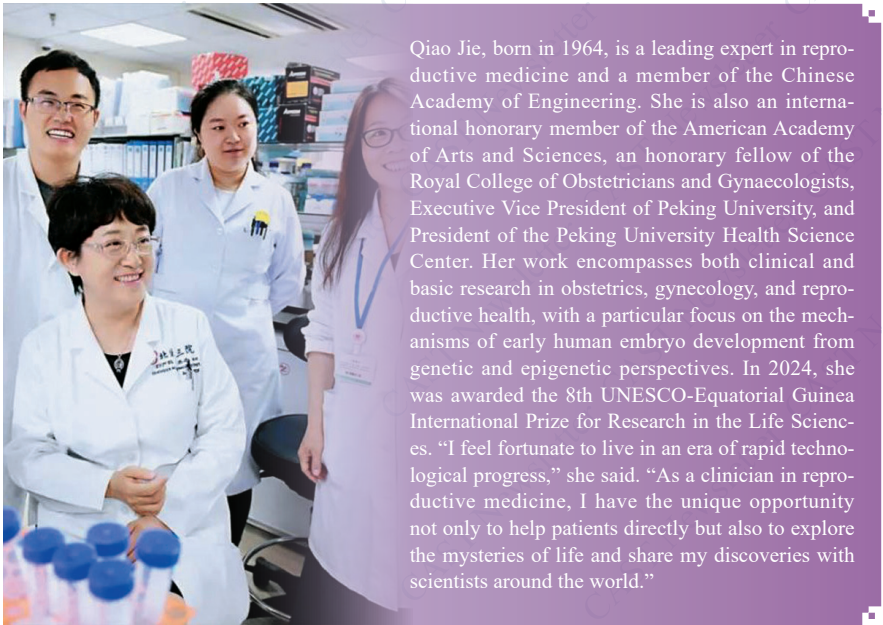
Electronics Engineers (IEEE), this prestigious award honors the contributions of Frank Rosenblatt, a pioneer in the field of neural networks. It is awarded annually to a single scientist world-

wide for outstanding contributions to biologically and linguistically motivated computational paradigms and systems.

(Source: Official website of Westlake University)

## Scientist Profile

### Qiao Jie: Promoting healthy reproduction as a “gatekeeper” of life



Qiao Jie, born in 1964, is a leading expert in reproductive medicine and a member of the Chinese Academy of Engineering. She is also an international honorary member of the American Academy of Arts and Sciences, an honorary fellow of the Royal College of Obstetricians and Gynaecologists, Executive Vice President of Peking University, and President of the Peking University Health Science Center. Her work encompasses both clinical and basic research in obstetrics, gynecology, and reproductive health, with a particular focus on the mechanisms of early human embryo development from genetic and epigenetic perspectives. In 2024, she was awarded the 8th UNESCO-Equatorial Guinea International Prize for Research in the Life Sciences. “I feel fortunate to live in an era of rapid technological progress,” she said. “As a clinician in reproductive medicine, I have the unique opportunity not only to help patients directly but also to explore the mysteries of life and share my discoveries with scientists around the world.”

Source: news.pku.edu.cn

Infertility and birth defects are significant challenges for many families hoping to have healthy children. The technology of assisted reproductive genetic diagnosis offers new hope. After years of extensive research in reproductive technology, Qiao Jie's team has identified two major epigenetic reprogramming events in human reproductive cells. This breakthrough has deepened understanding of reproductive development regulation, provided diagnostic insights into conditions such as abnormal embryonic development, and provided crucial scientific support for improving fertility and the health of future generations.

### Identifying causes of infertility at the earliest stages of life formation

Over 30 years ago, Qiao Jie joined Peking University Third Hospital, following in the footsteps of Zhang Lizhu, a

renowned Chinese medical scientist and pioneer in modern reproductive medicine, through the early, challenging stages of the field.

From a cell biology perspective, primordial germ cells differentiate into eggs or sperm. After fertilization, the egg becomes an embryo, which then develops into tissues, organs, and eventually a complete individual. In her clinical practice, Qiao Jie noticed that some patients with complex cases often encountered abnormal embryonic development. Even after years of treatment, they were unable to achieve a successful pregnancy, and the causes remained unclear.

Qiao Jie realized that human understanding of the molecular mechanisms behind reproductive cells and embryonic development was still limited, particularly regarding the diverse regulatory mechanisms of epigenetic modifications, which differ

significantly between species. Human reproductive cells were rare and valuable, and effective technical methods to study them were lacking. Therefore, over the past decade, she and her team have been exploring new avenues of basic research to uncover the genetic and epigenetic causes of reproductive developmental disorders and birth defects from the earliest stages of life formation.

### Unlocking the “black box” of early embryonic development

In 2013, the advent of single cell sequencing technology opened new avenues for the study of biological development. This technology allowed researchers to analyze the transcriptional and epigenetic features of the entire genome at the single-cell level, providing new perspectives on developmental mechanisms. It also sparked a long-term research collaboration between

Qiao Jie and Professor Tang Fuchou at Peking University.

Ultimately, based on their independently developed single-cell epigenomics sequencing technology, the team overcame technical barriers in analyzing multi-dimensional epigenetic information at the single-cell level. They elucidated how epigenetic mechanisms regulate the fate transition of human reproductive cells, identified the source of cell-free DNA in non-invasive clinical embryo diagnosis, and simulated the establishment of an in vitro human embryo implantation system, overcoming a bottleneck in long-term in vitro embryo culture technol-

ogy. This breakthrough has effectively unlocked the “black box” of early embryonic development.

### Safeguarding women’s reproductive health

Qiao Jie’s team has developed several new embryo diagnostic technologies to address various complex clinical diseases, significantly expanding the scope of genetic disease diagnosis. These technologies, which are fully protected intellectual property, have been successfully implemented in clinical practice. To date, the team has performed embryo diagnosis for hundreds of diseases, helping thousands of

families realize dreams of having a healthy child.

Over the years, Qiao has led a team focused on obstetrics and reproductive health, driving research in women’s reproductive well-being. As a result, she has become an important advocate for life and health after helping many families achieve optimal birth outcomes. “We hope that through relentless efforts and continuous innovation, we can produce more groundbreaking scientific research and provide valuable evidence to address reproductive challenges,” she said.

(Source: Official WeChat account of Beijing Association for Science and Technology)

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## Upcoming Conferences

 **11th China International Conference on Electricity Distribution (CICED 2024)**

 **Dates:** September 12-13, 2024





**Location:** Hangzhou, Zhejiang Province, China



**Host:** The Chinese National Committee of the International Conference on Electricity Distribution (CIRED), the Chinese Society for Electrical Engineering (CSEE), and the State Grid Corporation of China (SGCC)



A regional event under the International Conference on Electricity Distribution (CIRED), CISED 2024 will bring leading scholars and experts from around the world together to discuss and exchange ideas on various aspects of electricity distribution. Topics will include planning, design, construction, operation, management, and equipment manufacturing for power distribution systems. The conference will feature keynote speeches, roundtable seminars, paper presentations, and technical visits as well as an exhibition showcasing power technology and equipment.



**For more information, check out:** <https://ciced2024.csee.org.cn>.



**2024 International Conference of Electrical, Electronic and Networked Energy Systems (EENES 2024)**



**Dates:** October 18-20, 2024



**Location:** Xi'an, Shaanxi Province, China



**Host:** The China Electrotechnical Society (CES), the China Highway & Transportation Society (CHTS), and Chang'an University



EENES2024 aims to offer a platform for researchers, engineers, and industry experts to present their latest research and innovative ideas on power, electrical, and energy engineering. The conference will address a broad array of topics including power, power electronics, smart grids, renewable energy, transportation energy integration, advanced power technology, and energy internet.



**For more information, check out:** <https://www.eenes.net/index/home>.

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