



中国科学技术协会

China Association for Science and Technology

NO.17

CAST Newsletter

» Headlines «

- ◎ 20th CPC National Congress highlights the principal role of innovation in driving China's growth
- ◎ CAST seizes the opportunity of World Engineering Day 2023 to foster closer exchange and cooperation with the international engineering community
- ◎ Chinese biophysicist Shi Yigong wins UNESCO life sciences prize
- ◎ CAST National Communication Center for Science and Technology breaks new ground in technological collaboration with Russia on digital economy
- ◎ China's trailblazer in free electron laser technology

Headlines

20th CPC National Congress highlights the principal role of innovation in driving China's growth

Technology serves as the bedrock of a strong nation, and innovation fuels its advancement. It was stressed in the report to the 20th National Congress of the Communist Party of China (CPC) that China must prioritize innovation as the primary driver of growth and the central mission of China's modernization drive. The report listed strategies for China to improve its scientific and technological innovation system and accelerate innovation-driven development. If "innovation" is to be a powerful accelerator of socialist modernization, all government efforts must center on fostering innovation.

CPC's unwavering commitment to innovation

Scientific and techno-

logical innovation has always been at the heart of the CPC's mission. The 18th CPC National Congress proposed the strategy of driving development through innovation. The 19th CPC National Congress declared innovation as the primary driving force for development, with technological innovation leading comprehensive innovation. And the 20th CPC National Congress emphasized the need to build China's self-reliance and strength in science and technology. As China sets out to implement a new development philosophy, foster a new pattern of development, and promote high-quality development in the new era, Wang Zhigang, China's Minister of Science and Technology, said that prioritizing scientific and technological advancements and embracing innovation as key to growth is more crucial now than ever.

Technological innovation is the engine for

economic and social growth. As China grows stronger, leveraging the pioneering role of scientific and technological innovation, seeking technological innovation and institutional reform as twin drivers of growth, and enhancing the country's innovation capacity are imperative.

(Source: *People's Daily*)

CAST seizes the opportunity of World Engineering Day 2023 to foster closer exchange and cooperation with the international engineering community

On March 4, 2023, the World Engineering Day (WED) for Sustainable Development was celebrated for the fourth time, sponsored by the World Federation of Engineering Organizations (WFEO). Since 2019, the day has been marked on March 4 every year as a UNESCO international day

promoting public awareness of the role of engineering and engineers in sustainable development.

This year's celebrations took place from March 2 to 4 in Madrid, Spain. Led by CAST, a delegation of Chinese engineering experts attended and shared their research with international colleagues, demonstrating China's commitment to providing innovative engineering solutions on a global scale.



World Engineering Day logo
Photo credit: Official website of CAST

WIDA co-organizes its first overseas exchange event in Madrid

While in Madrid, CAST organized “CAST-WFEO-WIDA Exchange” with support from the World Federation of Engineering Organizations (WFEO), the Institute of Engineering of Spain (Instituto de la Ingeniería de España), and the World Industrial Design Association (WIDA). The event was also the first international exchange hosted by WIDA, of which CAST is an important member.

José Vieira, President of WFEO, commended the role of CAST as an important member and partner of WFEO and lauded the contributions of Chinese scientists in WFEO's work. He anticipated further collaboration with China's engineering and technology experts to foster a brighter future for the global

community. Mustafa Shehu, WFEO President Elect, commented that the exchange organized by CAST demonstrated Chinese friendship. He expressed optimism about more fruitful cooperation between WFEO and the engineering organizations and institutions in China.

As a newly established international organization, the World Industrial Design Association (WIDA) is dedicated to promoting worldwide cooperation and communication, theoretical development, and capacity building in the field of industrial design. It was launched by the China Industrial Design Association (CIDA).

Chinese experts share insights at key WED conference

From March 2 to 3, as a warm-up celebration for World Engineering Day 2023, the Institute of Engineering of Spain organized a special conference themed “Engineering the

Cities of the Future” in Madrid. Over 50 engineering experts from Asia, Africa, Europe, and the Americas attended and discussed how engineering and technology can better promote urbanization and global sustainable development.

He Jing, Deputy Chief Architect of the China Institute of Building Standard Design & Research and Observer of the Committee on Engineering Capacity Building (CECB) of WFEO, gave a speech on women architects from Asia. She discussed the significant impact that Asian women, particularly female Chinese architects, have exerted on architecture throughout the past century, emphasizing their contributions to construction innovation and the unique skills and appeal they possess.

Song Yonghua, a member of the Standing Committee of CAST and Rector of the University of Macau (UM), delivered a speech titled “Building Carbon-Neutral

Energy Systems for Sustainable Smart Cities Through International/Institutional Cooperation.” He reviewed CAST’s support for the work of WFEO, especially its efforts to promote engineering capacity building in China.

(Sources: Official website of CAST, and chinanews.com.cn)

CAST leads a delegation to visit the Bologna Children’s Book Fair

Upon an invitation from the Bologna Children’s Book Fair and the World Academy of Sciences for the Advancement of Science in Developing Countries (TWAS), Wang Jinzhan, Executive Secretary of the Secretariat of CAST, led a delegation to visit Italy from March 5 to 9, 2023.

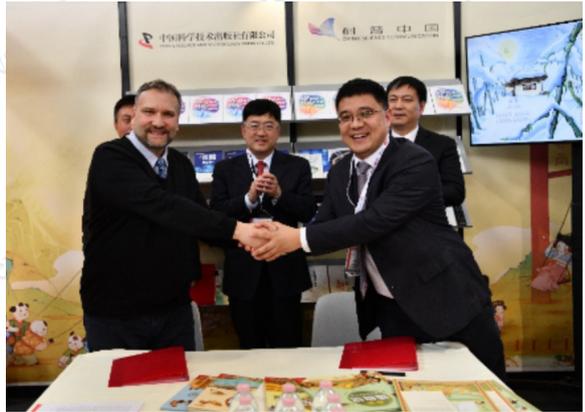


Photo credit: Executive Secretary of the Secretariat of CAST Wang Jinzhan meets a foreign book publisher representative at the Bologna Children’s Book Fair
Source: Official website of CAST

The delegation attended the Bologna Children’s Book Fair and participated in a series of activities organized by the China Science and Technology Press. The Chinese publisher brought over 100 carefully

selected original science popularization books and Chinese traditional culture books to the fair. It inked cooperation deals with about two dozen well-known children's book publishers and honored its international partners with the "best business partner" award. It also donated over 200 original books to the Confucius Institute at Sapienza University of Rome and conducted in-depth discussions with the institute on book planning, sharing science popularization resources, and designing special science popularization courses.

Audrey Lorenzini, a publisher representative from Padova, Italy, went to the fair to buy Chinese books. "Many Italians want to learn about China and Chinese, but it's very difficult for people in Italy, especially children, to access books about Chinese culture." According to Zhu Weina, senior project manager with the book fair organizer's Chinese subsidi-

ary, the event has always considered Chinese exhibitors tremendously important. In the past, China was generally seen by industry insiders as a major buyer of content and copyright in the global market. Now, as China grows stronger in content creation, it is attracting more buyers worldwide. Impressed by the way Chinese history was presented in books and illustrations, Carlos Eduardo Cavaleiro Filho, chief executive of Bom Bom Book's LTDA of Brazil, said his team was excited about publishing the books in Portuguese. "Brazil has many Chinese-Portuguese bilingual schools, and many children are learning Chinese, so these books are sure to be popular," he said.

The delegation also traveled to Trieste to visit TWAS and the Abdus Salam International Centre for Theoretical Physics (ICTP). During meetings with leaders of the two organizations, they shared

experiences in running international organizations and discussed a wide range of issues including methods to raise public science literacy, ways to build more academic exchange platforms, how to promote the exchange of talented professionals, particularly young and female researchers, in the developing countries, and how to deliver more science education to young people.

(Sources: news.cn, Official website of CAST)

CAST leads a delegation to the 2023 AAAS Annual Meeting

From March 2 to 5, 2023, CAST led a delegation to attend the 2023 American Association for the Advancement of Science (AAAS) Annual Meeting and co-organized one of its scientific sessions titled "Female Sci-Tech Talent Capacity Building on Entrepreneurship."

The delegation, featuring

members from CAST's Department of Strategic Development, the China Research Institute for Science Popularization, the China Center for International Science and Technology Exchange, and the journal *Science & Technology Review*, held fruitful talks with AAAS representatives on the sidelines of the meeting. Participants reviewed the history and achievements of cooperation, which dates back to 1978, and exchanged views on topics of mutual interest such as publishing successful science journals, science popularization, science communication, promotion of women in science, and young scientist exchange. They discussed initiatives to move towards the goals of the Memorandum of Understanding signed between CAST and AAAS in March 2022. *Science & Technology Review* also signed a strategic academic cooperation memorandum of understanding with

AAAS.

(Source: Official WeChat Account of the China Center for International Science and Technology Exchange)

Chinese biophysicist Shi Yigong wins UNESCO life sciences prize



Photo credit: thepaper.cn

On February 21, 2023, UNESCO announced Chinese biophysicist Shi Yigong as one of four laureates of the 2023 UNESCO-Equatorial Guinea International Prize for Research in the Life Sciences. He was nominated by CAST and recommended by the National Commission of the People's Republic of China to UNESCO for the prize.

UNESCO said in its announcement that by decoding the atomic structure of yeast and human spliceosomes

and elucidating the molecular basis of pre-mRNA splicing, Shi's research opened the door to the design of innovative therapeutics for treating debilitating genetic disorders.

Shi Yigong is Vice President of CAST, a member of the Chinese Academy of Sciences, and founding President of Westlake University.

(Source: Official website of CAST)

Academic Exchange

19th International Congress on Luobing Theory in Beijing



19th International Congress on Luobing Theory
Photo credit: Official website of CAST

On February 25, 2023, the 19th International Congress on Luobing Theory was held in Beijing. The event was jointly organized by the China Association of Traditional Chinese Medicine, the World Federation of Chinese Medicine Societies (WFCMS), the Chinese Geriatrics Society, and the China Rural Health Association. At the congress, experts shared

innovative clinical applications of Luobing Theory and discussed ways to modernize traditional Chinese medicine.

One highlight of the congress was a series of presentations by members of the Chinese Academy of Engineering. The four keynote speeches, titled *Constructing and Innovating Luobing Theory: Examining the Efficacy of Bazi Bushen Capsule in Anti-Aging Research*, *New Clinical Application of Precision Oncology*, *Carotid Artery Plaque Intervention with Tongxinluo Capsule (CAPITAL): A Multicenter Randomized Double-Blind Parallel-Group Placebo-Controlled Study*, and *Using Jinlida to Treat Abnormal Blood Glucose Fluctuation*, presented innovative applications of Luobing theory and its value in preventing and treating diseases.

The congress also offered themed presentations on the role of meridian

drugs in treating major cardiovascular and cerebrovascular diseases such as myocardial infarction, arrhythmia, chronic heart failure, cerebral infarction, and respiratory diseases.

An important event hosted by the China Association of Traditional Chinese Medicine, the International Congress on Luobing Theory promotes academic exchange and cooperation in traditional Chinese medicine, showcases the research achievements of Luobing theory, and plays a positive role in promoting the inheritance, innovation, and development of traditional Chinese medicine.

(Source: Official website of CAST)

Chinese Chemical Society signs cooperation agreement on the 2025 Pacific Chemical Conference (PACIFICHEM 2025)

On March 3, 2023, the Canadian Society for

Chemistry (CSC), the American Chemical Society (ACS), the Chemical Society of Japan (CSJ), the Chinese Chemical Society (CCS), the Korean Chemical Society (KCS), the New Zealand Institute of Chemistry (NZIC), and the Royal Australian Chemical Institute (RACI) jointly held an online signing ceremony for the 2025 International Chemical Congress of Pacific Basin Societies (PACIFICHEM 2025).

Shuai Zhigang, Vice President of CCS, outlined CCS' academic exchange activities, membership development, and journal operations in his speech at the signing ceremony.

As co-organizer of the PACIFICHEM since 2010, CCS has actively supported and encouraged Chinese scholars' participation in the congress and maintained good cooperation and communication with all co-organizers. Amid complex world challenges and an urgent need for scientific and technological cooperation,

Shuai expressed hope for joint efforts to make the congress a platform of exchange and friendship for chemical scientists.

(Source: Official website of CCS)

Chinese scientist wins SCEJ Award for Outstanding Asian Researcher and Engineer



Photo credit: Official WeChat Account of the China Center for International Science and Technology Exchange

Chinese chemical scientist Wei Wei from the State Key Laboratory of Biochemical Engineering (SKLBCE), Institute of Process Engineering, Chinese Academy of Sciences, was recently awarded the 2022 SCEJ Award for Outstanding

Asian Researcher and Engineer.

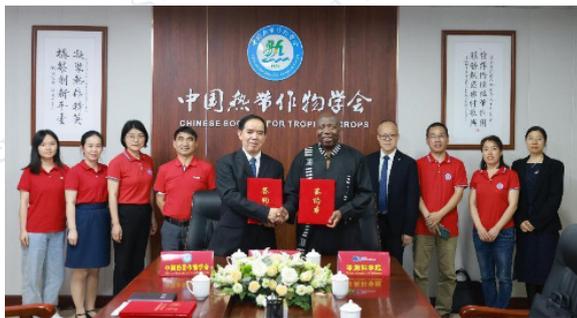
Wei was honored for his revolutionary contributions to biomimetic agent engineering by integrating chemical engineering and life sciences. He designs biomimetic carriers based on natural objects such as proteins, bacteria, and cells and develops new preparation processes to achieve precise delivery of drugs through inherent pathways in biomimetic carriers. This technology is now widely used in anti-tumor therapies, vaccines, and tissue repair.

Established by the Society of Chemical Engineers of Japan (SCEJ), the Outstanding Asian Researcher and Engineer Award recognizes individuals who have made significant contributions to the field of chemical engineering in Asia. The Chemical Industry and Engineering Society of China (IESC) nominates one candidate for the

award each year.

(Source: Official WeChat Account of the China Center for International Science and Technology Exchange)

Chinese Society for Tropical Crops signs cooperation agreement with African Academy of Sciences



Representatives of CSTC and AAS at the MoU signing ceremony
Photo credit: Official website of CAST

On February 14, 2023, representatives from the Chinese Society for Tropical Crops (CSTC) and the African Academy of Sciences (AAS) met in Haikou, Hainan Province, China. The two sides reached consensus on deepening cooperation in tropical agricultural technology and improving food security and signed a Memorandum of Understanding (MoU) on cooperation.

The two sides expressed strong interest in collaborating on agricultural technology, with focus on tropical agricultural technology innovation, academic exchange, science popularization, industry research, science investigation, technology consultation, exhibition, assessment, technology evaluation, standard setting, and human resources development. They

agreed to jointly hold a series of international conferences, academic exchange events, seminars, training programs, and on-site demonstrations to improve tropical agricultural productivity, promote tropical agricultural technology innovation, and support rural economic development.

CSTC is an important part of the tropical agricultural science and technology innovation system and a significant force promoting tropical crop technology. Dakora Felix Dapare, President of AAS, said that the signing of the MoU will deepen cooperation in tropical agricultural science and technology between Africa and China and build a platform for mutual understanding and exchange for young scientists. He expressed hope for more opportunities to engage in cooperation with China in the future.

(Source: Official website of CAST)

Recommended Case

CAST National Communication Center for Science and Technology breaks new ground in technology collaboration with Russia

The National Communication Center for Science and Technology is a CAST agency dedicated to the dissemination and transformation of China's scientific and technological achievements. Based on a Memorandum of Understanding (MoU) signed between CAST and the Russian Union of Scientific and Engineering Associations (RUSEA) in September 2019 on further strengthening science, technology, and humanities exchange and cooperation, the two countries agreed to promote a series of digital economy demonstration projects, establish multi-tiered cooperation mechanisms, and carry out more technology transfer and industrial cooperation in

5G wireless technology, artificial intelligence, and intelligent manufacturing. Since then, the center has taken concrete action to turn the visions of the MoU into reality.

1. Promoting cooperation on the digital economy through the China-Russia Digital Economy Summit

The center has made significant contributions to the comprehensive strategic partnership between China and Russia in the new era. For instance, in concert with the Russian, East European & Central Asian Studies Institute of the Chinese Academy of Social Sciences, it has organized the China-Russia Digital Economy Summit and more than 30 live technology broadcasting, roadshows, and matchmaking events that provide opportunities for Russian and Chinese technology companies to conduct in-depth exchange on the integration of digital and physical economies and

new forms of economic development. With assistance from the center, the Russia-China Fund for Strategic Investment (RCFSI) has successfully invested in MEL Science, the world's leading STEM education company in chemistry.

2. Improving working mechanisms for closer exchange and cooperation

In September 2019, the China-Russia Joint Committee on Science and Technology Cooperation and Cultural and People-to-People Exchange was set up to support science and technology societies and local associations in both countries to carry out various forms of cooperation. The Committee has since then launched a series of digital economy demonstration projects. Based on the initial success, CAST streamlined the committee's working mechanism in 2022 and adopted a flexible "1+N" operation

model to foster more connections and collaborations between the two countries.

3. Promoting new patterns of development in the digital economy

To leverage CAST's organization strength and the geographical advantages of Heilongjiang Province, in early 2022, CAST and the Heilongjiang Provincial Government officially added the organization of the China-Russia Digital Economy Summit as an essential piece of their comprehensive strategic cooperation agreement. The Summit, which is permanently based in Heilongjiang, will make the province a nexus between China and Russia in scientific and technological exchange and cooperation. It promotes open science, open innovation, and open cooperation and is expected to bring together scientists and businesses of the two countries to conduct in-depth exchange on digital economy, promote the digital economy in Heilongjiang, and advance comprehensive collaboration between China and Russia.

(Source: *Selected Cases on CAST International Cooperation and Exchange for the 13th Five-Year Plan*)

© National Communication Center for Science and Technology, CAST



国家科技传播中心
NATIONAL COMMUNICATION CENTER
FOR SCIENCE AND TECHNOLOGY, CAST

Photo credit: Official website of the National Communication Center for Science and Technology, CAST

Scientist Profile

China's trailblazer in free electron laser technology



Zhang Weiqing is executive director and a research fellow at the Dalian Institute of Chemical Physics, Chinese Academy of Sciences. In 2022, he was named Most Beautiful Science and Technology Worker in Liaoning Province. "I put my heart and soul into research, as if it were my child," said the scientist, recalling time he spent on free electron laser (FEL) technology.

Photo Credit: Official WeChat account of KEXIEGAIGEJINXINGSHI

Creating the brightest extreme ultraviolet light

Driven by a desire to find advanced light sources, Zhang Weiqing started researching FEL in 2012. He led his team to build Dalian Coherent Light Source (DCLS), the first FEL user facility in China and the only FEL facility operating exclusively in the extreme ultraviolet (EUV) wavelength region in the world.

By generating coherent short-wavelength radiation with ultra-high



Linear accelerator of DCLS
Photo credit: China Science Daily

brightness, DCLS can dramatically improve the temporal and spatial resolution of scientific research. It opens an unexplored microscopic world by making electronic dynamic motion, molecular structure and evolution, and material phase transition directly visible.

Global teamwork in scientific discovery

Zhang Weiqing and his team have published a series

of high-impact research articles on molecular photochemistry, water structure evolution mechanisms, energy catalysis-related mechanisms, and ultraviolet dissociation of biological macromolecules in interstellar space. The findings captured the interest of the global scientific community. Professor Alec Wodtke from the Max Planck Institute for Multidisciplinary Sciences at the University of Göttingen, for example, obtained a 2-million-euro grant to build a catalytic interface dynamics lab for joint research. Through international conferences and visits, DCLS has built a

reputation in the field and reached internationally advanced levels in terms of the facility's total operating time, user time, and user time ratio.

Dalian, the next global photonics center

Zhang Weiqing is now working with a team to build Dalian Advanced Light Source (DALs), a high-repetition rate FEL facility that can take enhancement of light sources using superconducting accelerators to the next level. Based on a framework agreement between the Chinese

Academy of Sciences and the Dalian Municipal Government, DALs will become a comprehensive scientific and technological research and development platform with international importance.

DALS also endeavors to build Dalian into a talent and exchange hub in photon science. Zhang Weiqing's team has already made key technology breakthroughs in construction.

(Sources: *China Science Daily*, Official WeChat account of KEXIE-GAIGEJINXINGSHI, and people.com.cn)

Editor: Ying Wenqi
Proofreader: Wei Yumeng
Designer: Zhang Shan

CAST is the largest non-governmental organization of scientific and technological professionals in the world. Through its 211 member societies and local branches all over the country, CAST maintains close ties with millions of Chinese scientists, engineers, and other professionals working in fields of science and technology.

<http://english.cast.org.cn/newsletter@cast.org.cn>