



Special Issue:

The 24th Annual Meeting of CAST

Headlines

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I. History of the Annual Meeting of CAST

Launched in 1999, the Annual Meeting of the China Association for Science and Technology (CAST) is the most prestigious science and technology event in China. It features a series of high-level forums and conferences and is the only event of its kind that gathers China's top scientists from a wide range of disciplines and connects the whole industry. Since 2006, CAST has organized the meeting partnering with a different provincial government each year to showcase the host's development and networking functions.

The most anticipated event in China's science and technology

community, the Annual Meeting of CAST, celebrated its 24th anniversary this year at an event in Changsha, Hunan Province.

II. The 24th Annual Meeting of CAST

News in Focus



The 24th Annual Meeting of CAST

The 24th Annual Meeting of CAST held in Changsha, Hunan Province



List of the top science, engineering, and industrial technology challenges of 2022 unveiled at the 24th Annual Meeting of CAST

From June 26 to 27, 2022, the 24th Annual Meeting of the China Association for Science and Technology (CAST) was held in Changsha, Hunan Province. The meeting was co-hosted by CAST and the Government of Hunan Province

under the theme “Innovation-led development and Self-reliance to Create a New Engine for the Rise of the Central Region.” It featured 35 special themed events grouped in 5 sessions:

Sci-tech innovation builds a new pattern of development;

‘Innovation China’ drives the rise of central China;

Carbon peaking and carbon neutrality goals lead the green development;

Opening up and cooperation build the highland for innovative talent;

Focus on sharing technology to serve the people.

More than 100 aca-

demicians from the Chinese Academy of Sciences (CAS) and the Chinese Academy of Engineering (CAE) with over 5,000 Chinese and foreign scientists, entrepreneurs, and industry representatives attended the meeting virtually or in person.

CAST unveils top science, engineering, and industrial challenges of 2022 at its 24th Annual Meeting

On June 27, 2022, CAST released the top 10 science, the top 10 engineering, and the top 10 industrial challenges of 2022 at the closing ceremony of its 24th Annual Meeting. The results were announced by You Zheng, Vice President of CAST, President of Huazhong University of Science and

Technology, and an academician with the Chinese Academy of Engineering (CAE). Since 2018, CAST has organized national societies, science alliances, and unions to make submissions each year; invited domestic and foreign science and technology organizations and experts to evaluate each proposal, with the result unveiled at its Annual Meeting. Out of 2,772 entries submitted so far, 160 have been selected over the past five years, with a total of 146 national societies, alliances, and unions taking part. The success of the event was built on the support of Chinese sci-tech professionals, which in turn drove them to explore new frontiers in science and technology. This year’s entire list includes:

The top 10 science challenges of 2022:



- 💡 Early diagnosis of asymptomatic Alzheimer' s disease;
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- 💡 Towards credible, reliable, and explainable use of artificial intel-
ligence technology;
-
- 💡 Using atomic-scale precision and structural modulation to build
future information functional devices;
-
- 💡 Problems and challenges in managing new pollutants;
-
- 💡 Towards automatic, intelligent, and precise synthesis of chem-
icals;
-
- 💡 Studying complex traits of organisms through multi-omics data
integration;
-
- 💡 Controlled material removal at the atomic scale;
-
- 💡 Towards the accurate and comprehensive evaluation of the
resilience of integrated urban transportation systems and in-
frastructure;
-
- 💡 Formation and evolution of black holes in-universe;
-
- 💡 Constraints on the extraction of uranium from seawater.

Top 10 engineering challenges of 2022:



- 1 Making technology breakthroughs in deep-sea aquaculture farms in China;
- 2 Low-cost storage and eco-environmental synergistic development of solid, liquid, and gaseous waste from China's coal mines;
- 3 Building an integrated rescue and treatment system for cardiogenic shock;
- 4 Industrial application of all-solid lithium metal batteries;
- 5 Building high-precision circuits on complex hard curved surfaces;
- 6 Overcoming technical challenges in the construction and maintenance of ultra-long tunnels buried deep in plateaus with complex geologies;
- 7 Thermo-mechanical-chemical coupling modeling at high temperature and related properties;
- 8 Extracting helium from low-grade helium-bearing natural gas;
- 9 Diagnosis, identification, and assessment of earth health through remote sensing technology;
- 10 In-orbit deployment, assembly, and construction of large-aperture satellite antennas.

Top 10 industrial challenges of 2022:



- 💡 Clinical translation of cell and gene therapy;
- 💡 Engineering and industrialized manufacturing of storage-computing integrated chips;
- 💡 Low-carbon development of the thermal power industry in the context of carbon neutrality;
- 💡 Towards building industrialization and lower energy consumption through standardized design, automated production, robotic construction, and prefabricated building construction;
- 💡 Developing independent and controllable industrial design software;
- 💡 Towards accurate forecasting of pests and diseases using multi-source data in agriculture;
- 💡 Synthesis of Adiponitrile from non-petroleum raw materials;
- 💡 Prevention and control of stem rot outbreaks in wheat-producing areas in China;
- 💡 Developing large-scale variable-speed pumped storage units;
- 💡 Removing manufacturing bottlenecks of high-quality para-aramids fiber used for high-end purposes.

CAST releases the 2022 Science & Technology Society Development Index (STSDI 2022) at the 5th World Forum on the Development and Governance for Science and Technology Societies



The 5th World Forum on the Development and Governance for Science and Technology Societies

On June 25, 2022, the 5th Forum on the Development and Governance for Science and Technology Societies was held as part of the 24th Annual Meeting of CAST. Sudip Parikh, CEO of the American Association for the Advancement of Science (AAAS), noted in his speech that “The COVID-19 pandemic has highlighted the need for scientists to work together to solve global problems.”

The forum drew top experts from science and technology associations and societies, both in-person and virtual, to discuss opportunities for exchange and cooperation and methods of adaptation and innovation under the theme “Joint Development for a Shared Future.”

One highlight of the forum was the release of the 2022 Science & Technology Society Development Index (STSDI 2022), which assesses the global influence, status, and capacity of science and technology associations worldwide. It provides a reference for the public to understand their development trajectory and how they will explore further growth and innovation.

The Index, now in its third year, has widened its pool by including more than 3,000 science and technology associations from 73 countries in the assessment. It is the first of its kind, seeking to provide an accurate profile of each selected science and technology association in terms of organi-

zational structure, membership services, academic publications, and science and technology awards.



At the forum, Mu Rongping, President of the Chinese Association of Science and S&T Policy Research, explains the creation of the 2022 Science & Technology Society Development Index (STSDI 2022)

Highlights of the 24th Annual Meeting of CAST

The 5th Forum for World STM Journals: Open science is becoming a global practice



The 5th Forum for World STM Journals

From June 24 to 25, 2022, the 5th Forum for World STM Journals was held in Changsha as part of the 24th Annual Meeting of CAST. The forum focused on trends and influence of STM journals, both established and new, in the context of open science and invited representatives from the international scientific community and publishers to conduct an in-depth discussion under the theme “Open Science for an Open Future.”

Zhang Yuzhuo, Executive Vice President and Chief Executive Secretary of the Secretariat of CAST, delivered a video speech at the opening ceremony. He emphasized the importance of building open scientific facilities, first-

class data platforms, and service platforms to disseminate sci-tech achievements and transform them into productive forces. Geoffrey Boulton, former president of the Committee on Data for Science and Technology, former council member of the Royal Society of the UK, and former vice-principal of the University of Edinburgh, said in his speech that “scientific and technological research serves as a special intellectual force, rather than some special luxury, and plays a vital role in our scientific progress.” He urged all science and technology workers to make their findings public goods and promote open access research.

Roundtable Dialogue of Science

and Technology Workers from Hong Kong, Macao, and Taiwan held



Science and technology workers from Hong Kong, Macao, and Taiwan pose for a group photo at the roundtable dialogue

On June 26, 2022, the Roundtable Dialogue of Science and Technology Workers from Hong Kong, Macao, and Taiwan was held in Changsha as part of the 24th Annual Meeting of CAST. The roundtable focused on the provision of better conditions and services for science and technology workers in Hong Kong, Macao, and Taiwan to help them make scientific and technological innovations. It was attended virtually or in-person by about 40 representatives of science and technology workers from the three areas of China, from the departments of CAST, and national societies and regional science associations. Luo Hui, Director General of the Department of International Cooperation (Hong Kong, Macao, and Taiwan Exchange Office) of CAST, chaired the roundtable and delivered a speech.

The 2022 China (Changsha) Overseas Talents Innovation and Entrepreneurship Competition and the Overseas Entrepreneurs China Tour kick-off

On June 27, 2022, the 2022 China (Changsha) Overseas Talents Innovation and Entrepreneurship Competition and the Overseas Entrepreneurs China Tour were launched at the closing ceremony of the 24 Annual Meeting of CAST.

The China Overseas Talents Innovation and Entrepreneurship Competition was organized in 2016 by CAST and local governments to serve those who choose China as a destination for innovation and business. It has now

been held six times. Teams that make the finals in this year's competition will start their Overseas Entrepreneurs China Tour in eight cities in Hunan Province including Changsha, Zhuzhou, Xiangtan, Hengyang, Yueyang, Huaihua, Shaoyang and Chenzhou to promote and showcase the area's innovation and entrepreneurship environment and economic and social development.



The launching ceremony of the Overseas Talents Innovation and Entrepreneurship Competition and the Overseas Entrepreneurs China Tour

Photo Stories



Wan Gang, Vice-Chairman of the National Committee of the Chinese People's Political Consultative Conference (CPPCC) and President of CAST, meets with university students on the sidelines of the 24th Annual Meeting of CAST





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.

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