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Newsletter

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CAST

The 2022 World New Energy Vehicle Congress (WNEVC) held in Beijing and Hainan



The Beijing venue of the 2022 World New Energy Vehicle Congress (WNEVC)

On August 25-28, 2022, the 2022 World New Energy Vehicle Congress (WNEVC) took place in Beijing and Hainan in hybrid mode. Over 1,500 Chinese and international participants from 14 countries attended the on-site events held at the two venues.

The congress released the “2022 World New Energy Vehicle Congress Consensus”, which called for more global cooperation and a switch to electrification to help the industry respond to climate change, accelerate transformation and upgrading, and achieve sustainable development. The congress also announced the recipients of the “2022 Cutting-Edge and Innovative Technologies of World New Energy Vehicle”.

China has become the world’s biggest market for new energy vehicles. According to statistics, out of 6.5 million new energy vehicles sold worldwide in 2021, 3.521 million were sold in China, which accounted for 13.4% of the country’s new car sales. As of the end of 2021, the global sales of new energy vehicles had exceeded

16 million, over half of which came from China.

2022 World Robot Conference showcases cutting-edge robotics developments

On August 18-21, 2022, the 2022 World Robot Conference took place in Beijing in hybrid mode. Supported by 23 international organizations, the conference brought together over 300 leading industry players from 15 countries and regions to showcase cutting-edge technologies and visions for the future.

The World Robot Conference is currently the most influential platform for the global robotics industry to exchange ideas and network. This year’s event featured the release of several important documents and findings including *the China Robotics Industry Development Report (2022)*, *A Collection of Papers on Advanced Robotics and Automation*,

the top ten frontier robotics technologies, and top ten robotics applications. Another highlight was the World Robotics Competition, held on the sidelines. Known as the “Olympics” of the robotics world, the competition set a record this year in terms of the number of events and participants, with an average of 4,000 robots competing each day.



2022 World Robot Conference showcases cutting-edge robotics developments

Springer Nature gives CAST-CCLH' s book “China New Development Awards”

On August 1, 2022, the globally prestigious academic publisher Springer Nature announced the winners of this year's China New Development Awards. Prevention and Control of Infectious Diseases in BRI Countries, a book edited by Yang Weizhong, vice chairman of the CAST UN Consultative Committee on Life Science and Human Health (CAST-CCLH) and vice president of the Chinese Preventive Medicine Association, was among those honored. Each year, the China New Development Awards recognize 10 English-language academic books to highlight significant contributions made by Chinese scholars towards advancing the United Nations Sustainable Development Goals (SDGs).

Yang's book examines the importance of international cooperation on infectious disease prevention and

control under the Belt and Road Initiative, reviews the history of cooperation between China and other countries of the Initiative, analyzes the risks, prevention and response methods of 21 major infectious diseases in these countries, and ends with the risk assessment results and suggestions.

Local associations for science and technology

Beijing plans to become a hub of science and technology museums

On August 3, 2022, representatives from the Beijing Association for Science and Technology (BAST) and the China Science and Technology Museum met to discuss ways of building China's capital city into a hub of modern science museums.

Under the plan, BAST will get multiple players

involved in the expansion of the city's museums, encourage research institutes, colleges and universities, key labs, and businesses to open their science resources to the public, and incentivize museums, libraries, and cultural centers to organize more technology exhibitions, to offer people more convenient options to acquire science knowledge. More efforts will also be made to integrate the city's popular science resources and set up more thematic educational bases in different areas and sectors of the city. Beijing Economic-Technological Development Area has achieved some initial success in this regard. It has incorporated the first group of 50 enterprise-based and community-based museums and cultural centers in the build-up plan and is ready to launch five themed tours for the public to explore science, culture and art.

Chengdu on track

to become China's favorite host of academic conferences

Chengdu is now well on its way to be the "best venue" for academic conferences, according to an article published on August 5, 2022, on CAST's conference portal Guide to Important Academic Conferences. In 2022 alone, Chengdu hosted 25 academic conferences, becoming the fourth favorite conference venue in China, after Beijing, Shanghai, and Nanjing.

The status rise has at least in part been driven by the city's strong policy support. The Chengdu Association for Science and Technology, in particular, has made critical efforts in recent years to connect 48 of the city's industrial functional zones with 44 national societies and help 13 district/county industry sectors forge patronships with 20 national societies. Hosting academic conferences

has also contributed to the development of Chengdu's economy and innovation capabilities. Chengdu's GDP ranked seventh in China in 2021 and first among China's provincial capital cities, besides Beijing, Shanghai, Guangzhou, and Shenzhen. Three of the city's five pillar industries—electronic information, automobile manufacturing (smart manufacturing), and biomedicine—are driven by science and technology innovation, and the electronic information industry has become the first trillion-dollar industry cluster in Chengdu.

The 2022 World Sensors Summit opens in Zhengzhou to discuss the future of the global sensor industry

On August 21-23, the 2022 World Sensors Summit was held in Zhengzhou, Henan Province. The Summit brought together over 700 representatives

in academia, industry and governments. It also invited world-renowned Nobel laureates and academicians to speak on the industry's needs, weaknesses and potential solutions, current development, and applications.

Henan Province, now home to six sensor industrial parks, has formed a sensor industry worth 33 billion RMB. Since 2018, the Summit has been held in the province's capital Zhengzhou three times and has contributed significantly to the innovations and the high-quality development of China's sensor industry.

National societies

29th International Conference on Nuclear Engineering opens in Beijing and Shenzhen

On August 9, 2022, the

29th International Conference on Nuclear Engineering opened simultaneously in Beijing and Shenzhen. At the opening ceremony, Luo Hui, Director General of the Department of International Affairs of CAST, commended the Conference for providing a platform for experts from industry, governments, and academia to share ideas and highlighted the value of open science and trust in cooperation.

The rebound of the global nuclear power industry motivated China to implement a proactive, safe, and effective nuclear power development policy. Experts predict China will continue accelerating the expansion of its installed capacity from 2022 to 2025. By 2035, nuclear power will contribute 10% of the country's total power generation. As a non-profit organization contributing to and supporting nuclear science, nuclear technology, and nuclear engineering in China, the Chinese Nuclear Society (CNS) considers building a high-level platform for academic exchange tremendously important. The CNS will work hard to share China's experience and practice with the rest of the world.

Paulo Lopes, Country Head and Director of IET China, visits the Chinese Mechanical Engineering Society (CMES)



Paulo Lopes and his team pose for a photo with CMES representatives

On August 3, 2022, Paulo Lopes, Country Head and Director of the Institution of Engineering and Technology (IET) China, led a team to visit the Chinese Mechanical Engineering Society (CMES). The two sides exchanged views on international mutual recognition of engineers, education and training, membership services, and science and technology awards schemes. They agreed to sign a memorandum of cooperation based on further communication to consolidate and develop the relationship between the two organizations.

Paulo Lopes briefly surveyed IET China's progress in recent years on international recognition of engineering qualifications, education certification, publication, training, and membership services. He expressed hope for more in-depth cooperation in areas of interest to both sides. Lu Daming, Vice President of CMES,

expressed hope that both sides would continue their long-term friendly cooperation and create regular exchange mechanisms.

3rd Workshop on Minimally Invasive Thoracoscopic Surgery for Central Asian Countries in Urumqi



In-person workshop venue at the Eighth Affiliated Hospital of Xinjiang Medical University



Participants from the National Tuberculosis Control Center of the Kyrgyz Republic attend the workshop online

On August 5, 2022, the 3rd Workshop on Minimally Invasive Thoracoscopic Surgery for Central Asian Countries took place in Urumqi in a hybrid mode. The workshop, hosted by the Eighth Affiliated Hospital of Xinjiang Medical University, the Chinese Antituberculosis Association, and the Joint Training Center on Tuberculosis Prevention and Control under the Belt and Road Initiative, aimed to strengthen the

academic exchange, clinical practice and research, and tuberculosis prevention and control capabilities of participating countries.

A joint undertaking by China, Kazakhstan, Pakistan, Tajikistan, and Uzbekistan, the Joint Training Center was opened in 2022 by the Chinese Antituberculosis Association with support from CAST. So far, the Center has organized a series of academic exchange events and conferences.

S&T News

China's Stable Strong Magnetic Field Experimental Device sets a new world record

On August 12, 2022, a major breakthrough was achieved by the Stable Strong Magnetic Field Experimental Device developed by the Hefei Institute of Physical Science under the Chinese Academy of Sciences. The device successfully created a new field strength of 452,200 gauss, setting a new world record for the type of magnet to support scientific research on a global scale.

A strong magnetic field is an extreme experimental condition for exploring the frontiers of science. It plays an irreplaceable role in discovering new phenomena and generating new technologies. In 2016, the High Magnetic Field Laboratory of Hefei Institute of Physical Science independently developed a hybrid magnet with a central field strength of 400,000 gauss, which ranks second in the world.

The device has been running for more than 500,000 machine hours since it began operation. It has provid-

ed experimental conditions for more than 170 research teams on over 3,000 topics and yielded significant results.

Professor Yao Ke takes up functions as the President of the Asia-Pacific Association of Cataract and Refractive Surgeons (APACRS)

On August 27, 2022, at the executive board meeting of the Asia-Pacific Association of Cataract and Refractive Surgeons (APACRS), Professor Yao Ke, chief of the Eye Center of the Second Affiliated Hospital of Zhejiang University School of Medicine (SAHZU) and the Zhejiang University Eye Hospital, took up his functions as the President of APACRS. It marked the first time for a Chinese expert to head the association in its history.

APACRS was founded in 1987 by Prof. Arthur Lim to replace the Asia-Pacific Intraocular

Implant Association (APIIA). Its key mission is to reflect and advance the dynamic developments in cataract and refractive surgery in the Asia-Pacific region.

Researchers report the first solar energetic particle event observed by China's Tianwen-1 mission in transit to Mars

A team of Chinese researchers recently reported a Solar Energetic Particle (SEP) event observed by the Mars Energetic Particle Analyzer (MEPA) on board China's Tianwen-1 (TW-1) spacecraft. The paper was published in *The Astrophysical Journal Letters* on July 26, 2022, and was chosen as the highlight of the American Astronomical Society (AAS).

The study, the first on MEPA, was a collaboration between the Macau University of Science and Technology, the Chi-

na University of Geosciences (Beijing), the Institute of Modern Physics (IMP) at the Chinese Academy of Sciences, the Science and Technology on Vacuum Technology and Physics Laboratory at Lanzhou Institute of Physics, the University of Science and Technology of China, the University of Alabama Huntsville, and the National Space Science Center at the Chinese Academy of Sciences.

The MEPA is China's first scientific payload instrument to study the interplanetary and near-Mars space radiation environment. It was jointly developed by IMP and the Lanzhou Institute of Physics and launched with the TW-1 spacecraft in July 2020.

Researchers found that the SEP event showed high consistency with measurements made by MEPA and data captured by near-Earth satellites, which offered proof of the function and design of the analyzer. The study also laid the groundwork for the subsequent study of near-Mars exploration data, offered insights into the space-radiation environment of Mars, and could help design future missions to deep space.

China builds world's first maglev train using permanent magnets



The world's first permanent maglev air-rail (credit: China Railway Science and Industry Group)

On August 9, 2022, China completed the construction of a permanent magnetic levitation air rail in Xingguo County, Jiangxi Province, marking the official launch of the world's first permanent maglev system.

The train, jointly developed, designed, and manufactured by the Jiangxi University of Science and Technology, China Railway Liuyuan

Group, and China Railway Hi-Tech Industry with others, is the first magnetic levitation line to use a suspension system that is faster, safer, greener, and cheaper. It also promises more personalized and intelligent transport.

According to Xu Guoxue, general manager of the air-rail division of China Railway Science and Industry Group, the train's

bogie system uses permanent magnets instead of tires, which can lift the train and enable it to float on track with less friction and slide with minimal power. To control the variation of the levitation force, the R&D team developed floatable eccentric shaft guide wheels, making it safer and more intelligent.

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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