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WEEKLY EDITION

2023 World 5G Convention Seeks Deepening Industrial Applications

By ZONG Shihan

The opening ceremony of the 2023 World 5G Convention, themed "5G+ By All For All," was held in Zhengzhou, central China's Henan province, on December 6.

"China has built the world's largest and technologically advanced 5G network, and 6G technology will also gradually develop on the basis of 5G technology," vice minister of Science and Technology Chen Jiachang said at the opening ceremony. Calling 2023 the fifth year of 5G commercialization and an important stage of continuity and transition, he added that it is urgent to deepen application and expand international cooperation.

According to Lou Yangsheng, secretary of the Henan Provincial Committee of the Communist Party of China, Henan has built 187,000 5G base stations, taking the lead in achieving full 5G network coverage in all its urban areas above township level in China. The showcasing of technological progress and application of 5G technology at the convention will not only strengthen the development of the digital industry in Henan, but also promote its development globally, Lou added.

China is one of the global leaders in 5G development, and has made positive contributions to application services, including finance, healthcare and education, said John Hoffman, chief executive officer of Global System for Mobile Communications Association, adding that 5G technology is also helping people around the world better cope with natural disasters and climate change, and improving the quality of life.

Wu Hequan, an academician of the Chinese Academy of Engineering, pointed out that there are still issues in 5G market applications, which cannot meet the large bandwidth, high reliability and precise positioning needed for industrial application. To address these issues, it is necessary to introduce 5G+ before the commercialization of 6G. Wu added that 5G-Advanced can be seen as an upgraded version of 5G.

Martin Hirzel, president of the Swiss association of mechanical and electrical engineering industries, said traditional mechanical and electrical engineering industries must embrace intelligent manufacturing to remain competitive in the global market. Also, for data exchange and security, both technical support and open relationships are necessary.

Co-hosted by the Chinese Ministry of Science and Technology and the People's Government of Henan, the three-day event features forums, exhibitions and a 5G-based application design competition. The objectives are to create a world-class industrial exchange platform, help tap Henan's core advantages in 5G, link global 5G innovation resources, and empower the establishment of a national innovation hub in central China.



The 2023 World 5G Convention is held in Zhengzhou, Henan province from December 6 to 8. (PHOTO: ZHOU Weihai / S&T Daily)

Editor's Pick

Agricultural Data Revolution Empowers Food Security in Developing Countries

By LIANG Yilian

The CropWatch system, a China's revolutionary cutting-edge remote sensing based crop monitoring system, was developed by the Aerospace Information Research Institute, Chinese Academy of Sciences. Though it was initially developed in 1998 for domestic use, CropWatch has now broken down the challenges of global agricultural conditions and come up with a set of timely comprehensive solutions.

Applications from home to abroad

In 2013, CropWatch expanded its reach by introducing a participatory cloud platform for remote sensing monitoring, enabling users worldwide to engage in agricultural conditions analysis.

Quarterly and annual reports in both Chinese and English have been regularly released, garnering significant global attention. According to Wu Bingfang, the team leader, the system's impact is evident, with over 170 countries downloading and utilizing the reports for analysis.

From domestic to global use, the R&D team has been put through its paces. The development journey involved dividing the world into 105 agroecological regions, each tailored to specific agricultural characteristics. Over 15 years of international cooperation, Wu's team has continually improved models to enhance the system's adaptability to diverse regional conditions.

Facilitating int'l collaboration

Mongolia is one of the countries

that benefit from CropWatch. "One of the biggest problems facing Mongolian agriculture is drought, and how to monitor drought is a big challenge for the country. With the support of the United Nations Economic and Social Commission for Asia and the Pacific, we have successfully customized a drought monitoring system for Mongolian conditions. Now, along with carrying out independent drought monitoring, they can also help other countries," said Wu.

While food price fluctuations sometimes are due to "market speculation," in some developing countries, the lack of accurate national and global agricultural information increases the risk of making wrong food decisions.

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Sci-tech Evaluation Flourishing in China

By YONG Li & LIANG Yilian

According to a newly released report, sci-tech evaluation institutions in China have achieved rapid growth since 2016. The number of institutions carrying out science and technology evaluation related business had exceeded 120,000 by 2021. Thirty-one provincial regions have established sci-tech evaluation institutions, of which enterprise institutions account for 93 percent of the total, with an average registered capital of 5.4 million RMB.

Regionally, the provinces with the largest number of assessment agencies are Guangdong, Shanghai and Hunan. The report showcases the diverse business landscape of sci-tech evaluation institutions, with primary activities revolving around science and technology information consultation, project evaluation, and achievement appraisal.

The report, compiled by more than ten units led by the National Cen-

ter for Science & Technology Evaluation (NCSTE) and China Society of Technology Evaluation and Result Management (CSTERM), was released at the 7th National Collaborative Development Seminar of Science and Technology Evaluation Institutions in Chongqing on November 30.

"As a modern governance tool and method, sci-tech evaluation is playing an increasingly important role in promoting science and technology innovation in the whole society, improving the level of science and technology management, optimizing resource allocation, supervision and accountability," said Guo Xiangyuan, chairman of the CSTERM.

He pointed out that after years of development, various activities of sci-tech evaluation in China are making continuous progress in the direction of specialization and standardization, while evaluation ability and quality are constantly improving.

Nie Biao, director of the NCSTE, pro-

posed several suggestions to promote sci-tech evaluation, including strengthening the evaluation of major national scientific and technological tasks to promote the guiding and exemplary role of the evaluation, enhancing the assessment of cutting-edge technologies to correctly judge the opportunities and challenges that emerging technologies may bring; and making full use of modern information technology to provide efficient support for science and technology evaluation.

The report, themed "China Science and Technology Evaluation Development Report 2022," summarized the development process of science and technology evaluation in China, and analyzed the development of establishing structures such as science and technology evaluation systems, theoretical methods, standardization, information, organization and team building, along with deep diving into the development trend of science and technology evaluation.

International Cooperation

Water Technology Helps Build Sustainable Future

Edited by TANG Zhexiao

Transferring over 60 billion cubic meters of water since November 2013 from major rivers in the south to the drought-prone north including metros like Beijing and Tianjing, the first phase of the East Route of China's South-to-North Water Diversion (SNWD) project officially celebrated its tenth anniversary on November 15.

From the world's longest artificial river Jinghang Grand Canal, to the Three Gorges Dam and the SNWD project, China's mega water conservancy projects are famous worldwide.

Besides domestic projects, China is stepping up efforts in assisting global water infrastructure projects, developing the water resource and improving people's lives.

The Karot Hydropower Project is one of the China-aided power projects being built in Pakistan under the framework of the China-Pakistan Economic Corridor.

Besides alleviating energy shortage and optimizing Pakistan's energy structure, the project has benefited Pakistan people in both economic and social ways since it broke ground in April 2015.

Official data shows that it can generate 3.2 billion kilowatt-hours of clean electricity annually, reducing 3.5 million tons of carbon dioxide emissions per year.

As the largest stadium in Qatar and the Middle East in terms of capacity, the Lusail Stadium hosted ten matches of the FIFA World Cup Qatar 2022 including the final.

When Lionel Messi and his team won the tournament for Argentina, few fans would have known that the turf was planted by CRCC using the underground infiltration irrigation technology. See page 3

WEEKLY REVIEW

Oilfield with 100-mln-tonne Reserves Discovered

The Changqing Oilfield branch of PetroChina has discovered an oilfield with geological reserves of over 100 million tonnes in Huanxian County in Gansu province, northwest China, according to Niu Xiaobing, deputy general manager of the branch.

"Plain Scan CT + AI" Makes Early Pancreatic Cancer Screening Possible

Researchers from Alibaba's Damo Academy and a number of top medical institutions in three countries successfully used medical AI technology and CT scans to detect pathological changes in a large number of screenings. This is a breakthrough in early screening of pancreatic cancer on a large scale. The study was published in *Nature Medicine*.

Logistics Sector Sees Faster Expansion

China's logistics sector registered rapid expansion in November. The index tracking the country's logistics market performance stood at 53.3 percent last month, up 0.4 percentage point from October, according to the China Federation of Logistics and Purchasing.

Fresh Findings on Nanometal

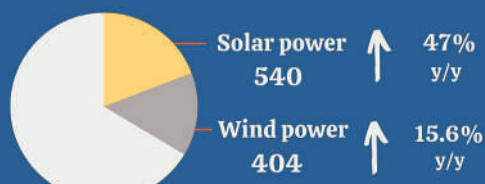
Scientists from Chongqing University and collaborators created the world's first 3D microscopy technique system and tracked the rotations of individual grains in a nanograin nickel before and after in situ nanomechanical testing. The new study, published on December 1 in *Science*, is expected to help improve material design and engineering applications.

New Graphic

RAPID DEVELOPMENT OF CHINA'S RENEWABLE ENERGY



The country's installed power generation capacity (million kilowatts)



Source: National Energy Administration
Designed by SONG Ziyani/S&T Daily

WECHAT ACCOUNT



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