



● While 2023 witnesses impressive sci-tech advancements, 2024 is expected to bring an open, inclusive, clean and beautiful world.

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Growing Sci-tech Support for Rural Revitalization

By ZHONG Jianli

To advance Chinese modernization, China must spare no effort to strengthen the foundation of the agricultural sector and advance rural revitalization across the board. That's the message conveyed at the annual Central Rural Work Conference held in Beijing from December 19 to 20, which outlined priorities of rural work in 2024.

Chinese President Xi Jinping made important instructions on work related to agriculture, rural areas and farmers.

Xi said that despite facing some challenges in 2023 such as severe natural disasters, the country witnessed a historic high in grain production and a relatively rapid growth in farmers' income, and maintained stability and harmony in rural society.

He stressed the importance of safe-

guarding food security by stabilizing the land acreage for grain production and increasing the yields per unit, along with the necessity to establish a diversified food supply system and construct high-standard farmland.

To inject momentum and vitality into agricultural modernization, it is important to strengthen the driving forces of science and technology as well as reform, intensify efforts to achieve breakthroughs in core technologies, and improve work mechanism for agriculture, rural areas and farmers, said Xi.

He also highlighted the imperative of enhancing agricultural disaster prevention, reduction and relief capabilities, and called for ongoing efforts to avoid a resurgence of large-scale poverty.

To better do work related to rural development in the next year, the conference underscored the need to apply the

development philosophies, work procedures and promotion mechanisms drawn from the Green Rural Revival Program, focus on issues that farmers are strongly concerned about, and pinpoint key areas for advancing rural revitalization.

It should remain a priority to stabilize the production of grain and other vital agricultural produces, and ensure a grain output of over 650 billion kilograms in 2024, said the conference.

Efforts should also be made to support the establishment of agricultural sci-tech innovation platforms and expedite the revitalization of the seed industry.

In addition, a call was made to develop rural factories and perfect mechanisms to connect and support farmers to increase their incomes, improve the rural living environment, and promote integrated development of urbanization and rural revitalization.



Tourists enjoy the beautiful scenery of 10,000-hectare of rapeseed flowers in Baozi town, Huaihua, Hunan province, March 1, 2023. (PHOTO: XINHUA)

International Cooperation

China, ASEAN Focusing on Digital Cooperation

By LIU Hao & LIANG Yilian

In recent years, China and the Association of Southeast Asian Nations (ASEAN) countries' cooperation in the digital economy has yielded rewarding results.

Under the framework of the Belt and Road Initiative, the construction of China-ASEAN Information Harbor, a major supplier of information and communications technologies, was officially launched in 2015.

It has since promoted the digital connectivity and cooperation between China and ASEAN, and achieved initial results, Lu Dongliang, chairman and president of the China-ASEAN Information Harbor Co. Ltd., told *S&T Daily*.

With the help of the China-ASEAN Information Harbor, three international

submarine optical cables and 12 international land optical cables have been built to connect ASEAN countries, while a trans-boundary optical cable has been built across the Indo-China Peninsula, improving connectivity between China and ASEAN.

Last year, China's digital economy reached 50.2 trillion RMB (roughly 7 trillion USD), ranking second globally. Southeast Asia's digital economy, despite economic headwinds, "remains on course to reach nearly 200 billion USD in gross merchandise value in 2022" with 20 percent increase, according to the latest e-Conomy SEA report by Google, Temasek and Bain & Company, acknowledging that was three years earlier than they had expected.

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2023 Chinese Top 10 Sci-tech News

In 2023, China has made major original achievements in basic research with breakthroughs in key technologies while scientific and technological self-reliance has supported high-quality development. Let's take a look at the top 10 science and technology news selected by *Science and Technology Daily*.

1. New central commission to drive sci-tech work

The Central Commission of Science and Technology has been established to enhance the Communist Party of China (CPC) Central Committee's centralized and unified leadership over science and technology work, according to a plan released by the CPC Central Committee and the State Council.

2. Crop gene linked to alkali tolerance discovered

Scientists from several Chinese research institutes discovered a crop gene that can enable plants to thrive in saline and alkaline soils. Modification of the gene has the potential to create new saline-alkaline tolerant crops.

3. C919 jetliner goes into commercial operation

The C919, a China-developed large passenger aircraft, completed its inaugural commercial flight from Shanghai to Beijing on May 28, embracing the massive civil aviation market with great potential.

4. FAST finds evidence of nanohertz gravitational waves

Through the Five-hundred-meter Aperture Spherical Radio Telescope (FAST), Chinese Pulsar Timing Array (CPTA) found key evidence of the existence of nanohertz gravitational waves. This is an important breakthrough in the search for the waves, indicating that China's nanohertz gravitational wave research has reached a leading level.

5. New milestone in quantum computing

Chinese scientists set a new world record for generating genuine entanglement, with 51 superconducting qubits prepared and verified. This is of major importance for the study of multi-body quantum entanglement,

the realization of large-scale quantum algorithms and quantum computing based on measurement.

6. China's space lab starts formal operation

China's Tiangong space station, which is also the national space laboratory, has been put into operation, pushing forward space applications and achieving results, according to the China Manned Space Agency in August.

7. Development of human immune system mapped

Researchers from the Shenzhen Institute of Advanced Technology and other institutions successfully mapped the development of the human immune system with the widest tissue coverage, the longest time span and the highest sampling density. This is expected to promote the development of the global field of immunology and developmental biology.

8. World's first memristor computing-in-memory chip developed

The world's first fully system-inte-

grated memristor computing-in-memory chip was developed by Tsinghua University, which supports efficient on-chip learning and is also energy-efficient. The chip is expected to promote the development of AI, autonomous driving, wearable devices and other high-tech fields.

9. First homegrown large cruise ship delivered

China's first domestically made large cruise ship, the Adora Magic City, was formally delivered on November 4, marking a breakthrough in China's high-end cruise ship manufacturing.

10. World's first 4th-generation nuclear plant begins commercial operation

The world's first fourth-generation nuclear power plant, China's Shidaoan high-temperature gas-cooled reactor (HTGR) nuclear power plant, officially went into commercial operation on December 6, symbolizing China's global leadership in the field of HTGR nuclear power technology.

2023 International Top 10 Sci-tech News

Despite global uncertainties and turbulence, the pace of innovation has never slowed, and new scientific breakthroughs around the world are reshaping human knowledge. Science and Technology Daily editors pick the top 10 international sci-tech advances of 2023 (in chronological order).

1. Electrodes grown in the brain

Swedish researchers have successfully grown electrodes in living tissue using the body's molecules as triggers. The result paves the way for the formation of fully integrated electronic circuits in living organisms.

2. Generation of functional oocytes from male mice in vitro

Japanese scientists converted the XY chromosome set to XX in mouse pluripotent stem (PS) cells. This will promote fertility research.

3. Recreating the double-slit experiment in time dimension

British physicists recreated the famous double-slit experiment in time rather than in space. The materials applied can change their optical properties in fractions of a second, which could be used in new technologies or to explore fundamental questions in physics.

4. Clamor of gravitational waves 'heard' for first time

Scientists from NANOGrav have "heard" the perpetual chorus of gravitational waves rippling through our universe for the first time, which is louder than expected, after 15 years of data collection in a galaxy-sized experiment and closely observing pulsars.

5. World's first X-ray of a single atom

Scientists from the U.S. have taken the world's first X-ray SIGNAL of just one atom. This groundbreaking achievement could revolutionize the way scientists detect materials.

6. Assembly and analysis of human Y chromosomes

A research team of more than 100 scientists worldwide has revealed the assembly and analysis of the human Y chromosome. It helps identify links of traits with Y-chromosomal variants, and garner insights into the evolution and function of the human genome.

7. Neural network helps design new proteins

Scientists from MIT combined attention neural networks with graph neural networks to better understand and design proteins. The approach couples geometric deep learning with language models, not only to predict existing protein properties but also to envision new proteins that nature has not yet devised.

8. China's space lab starts formal operation

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9. Most complete brain cell map released

In October, scientists from multiple countries revealed the characteristics of more than 3,000 types of brain cells, which will deepen our understanding of the characteristics of the human brain and advance research into brain diseases and cognitive abilities.

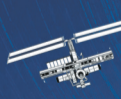
10. Gemini AI outperforms both GPT-4 and expert humans

Google launched a new AI model in December, dubbed Gemini, which it claims can outperform both OpenAI's GPT-4 model and "expert level" humans in a range of intelligence tests.

Major Events of China's Space Station



Tianhe Core Module Launched
On April 29, 2021



Construction Completed On
December 29, 2022



Shenzhou-16 Launched on May 30, 2023, the First Manned Mission at the Application and Development Stage of the Station

Designed by LIN Yuchen / S&T Daily

WECHAT ACCOUNT



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