

INSIGHTS

Voice of the World

China's Space Dream on Track

Edited by GONG Qian

China's space exploration history and significant achievements in space technology have never made such a national and global impact as in 2022.

Among the achievements, China became the third country to discover new moon mineral in lunar samples, while Zhurong rover found evidence of water on Mars. The team behind Tianwen 1 Mars mission received the world's highest aerospace award from the International Astronautical Federation (IAF). The IAF said the mission offered an innovative option for successful Mars exploration and contributed to the advancement of deep space exploration technology.

Additionally, the Shenzhou-13 spacecraft took just eight hours to return to Earth. Two laboratory modules Wentian and Mengtian were sent to dock with the Tianhe core module. Meanwhile, the crew of Shenzhou-14 and Shenzhou-15 met at the Tiangong, where six taikonauts remained in orbit at the same time.

With the fruition of China's dream to build its first T-shaped Tiangong space station, the world is highly appreciative of China's efforts and achievements.

Building a space station is a massive undertaking and it has opened a new scientific arena for Chinese researchers, Paulo de Souza who develops space technologies at Griffith University in Australia told *Nature*, adding that, "It's outstanding."

China's space station is an achievement that solidifies the country's position alongside the U.S. and Russia as one of the world's top three space pow-



China launches Wentian laboratory module to join Tiangong space station on July 24, 2022. (PHOTO: XINHUA)

ers, Scott Shackelford and Eytan Tepper said in *Fortune* magazine. They are scholars of space law and space policy at leading Indiana University Ostrom Workshop's Space Governance Program.

They said, unlike the collaborative International Space Station, Tiangong is entirely built and run by China. The successful opening of the station is the beginning of some exciting science.

The ability to create and support such a fixture in orbit is often a reflec-

tion of a nation's total global power and influence, *Popular Science* reports.

Reviewing how China planned and executed its space program in the past 30 years, *The New York Times* said China has made big strides in space and its human spaceflight achievements, combined with recent space probes to the moon and Mars show that China is running a steady space marathon rather than competing in a head-to-head space race with the U.S.

"I think it's entirely possible [China]

could catch up and surpass us, absolutely," said Nina Armagno, staff director of U.S. Space Force, at a conference in November of 2022. "The progress they've made has been stunning, stunningly fast," said Armagno.

Previously, U.S. General David Thompson, vice head of space operations for U.S. Space Force also told CNN that China is building, fielding and updating its space capabilities at a speed twice that of the U.S., which means it will soon surpass the U.S.

Some people mistakenly thought that China is launching a space race against the U.S. But Tiangong will not compete with the International Space Station, and China won't compete with the U.S. China has consistently said that it is willing to work with other countries to jointly explore the mysteries of the universe, and make peaceful use of outer space.

Tiangong is open to all UN member states. Currently, China is conducting cooperation with other countries including Kenya, Russia, Mexico, Japan and Peru. More international researchers will also have access to do experiments on Tiangong.

What Zhou Jianping, chief designer of China Manned Space Program, said to *The New York Times* may explain why China has adhered to pursuing its space dream.

"Landing on the moon, landing on Mars, are very significant progress in the development of human civilization," Zhou said. "We may understand and realize its further value step by step. But its role in the development of our human civilization is huge, so it is worth our efforts - it's worth fighting for," said Zhou.

U.S. Digging Itself into A Hole by Tech Bullying

Opinion

By TANG Zhexiao

As the technology tensions escalate recently, the U.S. has seen the country step up efforts to ban the use of TikTok, the popular video-sharing APP owned by Chinese tech company ByteDance. The U.S. House of Representatives has approved a legislation bill to ban the APP use on government-owned devices.

The bill, passed by the Senate earlier in December 2022, will be signed into law by President Joe Biden shortly, according to Nikkei Asia.

Though Washington underlined that its restrictions were in the interest of its national security, experts like Georgetown University law professor Anupam Chander said there wasn't any concrete evidence that American TikTok users have had their data shared, or that the Chinese government is utilizing that information for political gain.

Ryan Calo, professor of law and information science at the University of Washington, said in a National Public Radio report that the proposed legislation is more about geopolitical tensions and less about TikTok specifically.

In fact, the U.S. has been accelerating suppressing and decoupling China in terms of science and technology. The previous Trump administration had started the tech war against China in the fields of export and investment, and created barriers to sci-tech exchanges.

Since Biden came to power, a series of tech blockades such as restrictions on selling semiconductors and chip-making equipment to China and signing the *CHIPS and Science Act* which aims to curb China's sci-tech development came out one after another.

Behind these tech bullying policies is the U.S.'s fear of losing its global leadership in science and technology, as well as the monopoly in economic interests.

On the one hand, the U.S. is losing

domination of global market. As an example, the global share of the U.S. semiconductor manufacturing, dropped from 37 percent in 1990 to about 12 percent in 2020.

On the other hand, with its development of science and technology in many fields, China has captured more and more orders and markets, and broken the U.S. dominant position of the global industrial chain.

"I think we're worrying about the wrong things," said Debra Ruh, CEO and Founder of Ruh Global IMPACT, noting that the U.S. thrust to remain No. 1 in everything is a dangerous geopolitical idea.

The Biden administration on December 15, 2022, added Chinese memory chipmaker YMTC and 21 Chinese entities in the artificial intelligence chip sector to a trade blacklist, broadening its crackdown on China's chip industry.

In the name of national security, the U.S. politicized sci-tech issues and advocated competition against China. The Chinese embassy in Washington said the U.S. was engaging in "blatant economic coercion and bullying in the field of technology," undermining normal business activities between Chinese and American companies and threatening the stability of global supply chains.

The arbitrary move would also hurt the interests of U.S. companies themselves, given that many have China as their largest market.

According to East Asia Forum, China comprises 27 percent of sales at Intel, 31 percent at Lam Research and 33 percent at Applied Materials. Both Applied Materials and Nvidia predicted the new export controls to cut 400 million USD from the fourth quarter's sales.

It is obvious that a forced decoupling from U.S. chip suppliers will encourage Chinese companies to speed up their own chip-making R&D, building an independent complete industrial chain faster.

Just as U.S. chip companies are concerned, the fact will be proved once again that tech blockading and bullying will eventually be a trap to the U.S. itself.

Rural Revitalization Powered by Sci-tech

Edited by QI Liming

Advancing rural revitalization and moving faster to build up China's strength in agriculture is part of the strategic plans to build China into a great modern socialist country in all respects.

The 2019 Global Food Policy Report by the International Food Policy Research Institute describes rural revitalization as a way of "positively transforming rural areas for present and future generations." It describes rural revitalization as a complementary endeavour to urbanization that benefits both rural and urban areas.

According to India's Observer Research Foundation (ORF), China's rural revitalization and development from a geographical perspective is explained as a "significant conceptual change that

both rebalances and reshapes the urban-rural relationship, and aims to create a new-type of urban-rural relationship characterized by mutual promotion of industry-agriculture, urban-rural mutual complementation, comprehensive integration, and common prosperity."

Both descriptions clearly state that the rural revitalization framework is based on solving the urban-rural contradictions and bridging the gap between the two. Indeed, China's strategy posits itself within the framework of these descriptions.

The Diplomat commented that China's push to advance rural revitalization is promoting a new vision to tackle long-standing problems like the rural-urban divide, food security, and poverty.

Kalpiti A. Mankikar, a fellow of Strategic Studies programme at ORF's Delhi

centre, considered that China's current rural revitalization strategy has three key features, namely the agri-tech factor, diversifying income resources, and a clean bill of health.

"Even though rural revitalization also presents challenges, such potential concerns could be mitigated or avoided by technological developments," said Genevieve Donnellon-May, a research assistant at the Lee Kuan Yew School of Public Policy, National University of Singapore.

She said that when we mentioned China's rural revitalization, poverty alleviation in rural areas is an inevitable topic to be discussed.

According to the nonprofit organization Borgen Project, the Chinese government has seen significant success in reducing poverty across China and

through China's agricultural sci-tech poverty reduction strategy and developing countries may see lower rates of poverty in the following years. Since 2012, China has sent close to 300,000 sci-tech experts to rural areas in order to advance agricultural productivity through agriculture sci-tech, thereby reducing poverty.

"China's push to advance rural revitalization incorporates the implementation of many policies and national aims, seeking to transform China and the lives of its rural residents. Aiming to address regional socioeconomic disparities, the widening gap between urban and rural residents, and promote the sustainable development of the Chinese countryside, the rural revitalization strategy offers both the environment and rural residents many opportunities," said Donnellon-May.



Workers carry out plant protection operations for soilless grown vegetables in Hangzhou, Zhejiang province. (PHOTO: VCG)

By LI Wenjun & LI Hong

Entering 2023, the challenges facing humanity continue unabated. In order to deal with these challenges, it is urgent to use the power of sci-tech innovation and constantly promote open science and international cooperation.

Countries should work together to

solve common challenges and scientific difficulties, strengthen international cooperation on science, technology and innovation, and contribute to the building of a community with a shared future for humankind.

However, the international cooperation in sci-tech innovation is faced with the challenge of "unilateralism" and "grouping" by some countries, to limit

the development of their competitors. Science knows no borders and innovation has no limits. Sci-tech innovation is inseparable from an international vision and global thinking.

To strengthen international cooperation in science and technology is not only a necessary choice to review historical experience at home and abroad, but also the only way to gain a thorough understanding of the law of global scientific and technological change. The following four proposals for China may also serve as a reference for the world:

Firstly, to solve environmental, energy, health and other problems, fundamentally China needs to rely on sci-tech. Scientists from all over the world should work together in the long term, and more extensive and in-depth inter-

national cooperation is also a must. Since building a community with a shared future for humankind is a higher vision for future social development, it transcends differences among countries and serves as an ideological guide for building consensus on development and overcoming difficulties in governance.

Secondly, China should pursue win-win cooperation and expand international cooperation in sci-tech and innovation. The country needs to unwaveringly continue to promote and further expand the opening-up of sci-tech, carry out mutually beneficial cooperation in sci-tech, and better integrate into the global innovation network. In addition, it needs to improve multilateral cooperation mechanisms, strengthen cooperation with the international standardiza-

tion body and the United Nations global technical regulatory body, and participate in global sci-tech governance. The country should also improve the resilience and security of industrial and supply chains, and build a mutually beneficial international cooperation system for industrial and supply chains.

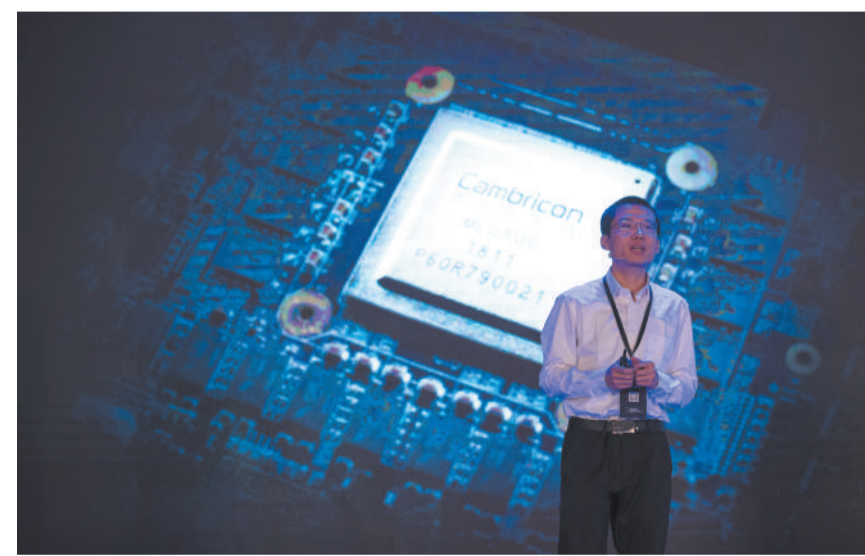
Thirdly, China needs to stimulate the flow of research factors and enhance the ability to provide specialized services for an open environment and international cooperation. It should focus on details, provide convenience for the entry and exit of sci-tech experts, and promote foreign experts services, legal consulting services and other scientific and technological work to be more professional and international. This is in order to create an attractive environment for

gathering international talents and international innovation resources.

Fourthly, relying on the large scientific device platform and scientific research network platform, China could initiate global innovation issues, accelerate the gathering of global innovation resources, and help global scientists to expand the scope of scientific research cooperation. To achieve this, China would work with relevant sci-tech management agencies of other countries to jointly develop a series of international sci-tech cooperation and communication products, and enhance the international influence of sci-tech innovation.

The two authors are from Institutes of Science and Development, Chinese Academy of Sciences

Innovation, Cooperation Advance Human Society



Cambricon Technologies's CEO Chen Tianshi introduces China's first cloud artificial intelligence (AI) chip MLU100 in Shanghai, east China. (PHOTO: XINHUA)