

China's Commitments Promoting Global Sci-tech Cooperation: Foreign Experts

Dialogue

By LONG Yun, ZHONG Jianli
BI Weizi

On June 24, 10 foreign experts received the China International Science and Technology Cooperation Award at the national science and technology award conference in Beijing.

They stand as eminent experts who have collaborated closely with their Chinese peers for years, making significant contributions to international sci-tech cooperation. This recognition underscores China's commitment to technological innovation and promoting global scientific collaboration.

In recent interviews with *Science and Technology Daily (S&T Daily)*, some foreign experts working in China praised this commitment, highlighting China's advancement across various technological domains and its supportive environment for international talents.

Integrating into global innovation network

China has become deeply integrated into the global innovation network, committed to creating an open research environment. "China actively collaborates with international research institutions and scientists, fostering an environment of shared knowledge and joint innovation," said Italian scientist Francesco Faiola, who became the first full-time foreign researcher at the Research Center for Eco-Environmental Sciences of the Chinese Academy of Sciences in 2014.

He cited the numerous Chinese initiatives and programs to encourage international collaboration. One of the most prominent, according to him, is the Belt and Road Initiative (BRI) for International Cooperation in Science and Technology, which aims to enhance scientific research partnerships with BRI countries, focusing on areas such as agriculture, health and engineering.

Matteo Cavalleri, publisher of Strategy & Portfolio Development, AIP Publishing, echoed Faiola's sentiments. "Investment in research infrastructure has also been a priority for China, particularly in developing robust data repositories and open science platforms. These investments support the storage, sharing, and dissemination of scientific data and publications, further facilitating open science practices," Cavalleri told *S&T Daily*.

According to him, China has consistently taken the lead in the number of papers published under an open-access model in physical sciences, establishing itself as a major contributor to open science globally since 2018. In tandem with this, various training programs and workshops are cultivating a culture of openness and accountability in research practices across China's scientific community.

Inclusive academic ecosystem

China has stepped up efforts to promote technological innovation to benefit more countries and people, attracting domestic and international talents to advance the cause of science and technology. Konstantinos Pouleros, a Greek cable expert, is the manufacturing director at Ningbo Orient Cables company. Having

worked in China for nearly six years, he has seen the substantial investment in R&D creating an environment where engineers can thrive and innovate. "China's R&D culture makes life easier for engineers," he said.

Igor Alexandrov, a Russian expert at Changzhou University in Jiangsu province, east China, also highlighted China's supportive research environment. "It is very good, especially when you get access to well-equipped institutions. [China] provides great opportunities for scientists, especially young researchers from different countries, to come to China and achieve important results," he said.

"Working in an internationally collaborative environment in China has been incredibly rewarding," Faiola added, pointing out that international researchers working in China have access to state-of-the-art laboratories and equipment that may not be readily available in their home countries.

Enrico Marsili, an Italian chemical engineer at the University of Nottingham Ningbo China (UNNC), praised the unique opportunities in China's research environment, calling China's investment in quality research and researchers "a wise move". Marsili's co-worker at the UNNC, Alain Chong, pointed out another side of China's flourishing academic ecosystem. China provides support for both local and international talent and this inclusiveness extends to funding and grants for researchers regardless of nationality, making international talent recognized and valued. "These little things that the government does make a big

difference," he said.

Green growth shows technological prowess

Green development is now a key focus for China. The rapid development and adoption of green technologies showcase the ability to innovate and address pressing environmental concerns.

Andreas Thorud, general manager of seafood giant Nordic Aqua and an old China hand, lauded China's "strong commitment to green transitioning". "The results are impressive," he remarked. "I've seen the changes over the years. There have been amazing achievements, particularly in the development of renewable energy industries, such as solar panel expansion."

"China's greenness is visual," said Pouleros, talking about the good impression left on his customers and visitors from Europe who are struck by the Chinese cities with extensive green spaces.

Pouleros also emphasized the significant strides China has made in the sci-tech sphere, especially in the green energy sector. "Chinese companies lead in battery development for global markets, contributing to a better future environmentally and ensuring long-term sustainability for the planet. This benefits not only us but also future generations," he said.

Empowering lives

"I don't think anyone would have ever imagined what China has made in the last 40 years," Brian Linden, an American entrepreneur living in Yunnan province in southwest China for decades, told *S&T Daily*. "If our goal for all humanity is to make sure that everybody lives at a certain level, a quality life, the world should be proud of what China has achieved in 40 years."

After 10 years in China, UNNC's Chong is particularly impressed by the country's rapid progress in the digital economy and AI industry, especially in empowering people's lives. "The speed at which new technologies are developed and embraced by society [here] is truly impressive," he said, adding that the Chinese have shown a remarkable willingness to embrace technological advancements.

From his perspective, China's progress in biotechnology and healthcare has broader implications for global health and sustainability. "The development of vaccines, biotech research, and commitment to environmental sustainability highlight China's growing influence in these critical areas," he said.

According to Faiola, China understands that to achieve global growth progress in science and technology is crucial. "These advancements significantly enhance the well-being of its people. This is particularly evident in the emphasis China has placed on applied science and technology in recent years," he said.

Chang'e-6 Brings Back First Samples from Far Side of Moon



This photo taken on June 25, 2024 shows the retrieval site of the returner of the Chang'e-6 probe in Siziwang Banner, north China's Inner Mongolia autonomous region. (PHOTO: XINHUA)

By ZHONG Jianli & GONG Qian

The Chang'e-6 probe returned to Earth in triumph on June 25, bringing the first rock and other samples from the far side of the moon.

The returner landed precisely in the designated area in Siziwang Banner, located in north China's Inner Mongolia autonomous region. The China National Space Administration (CNSA) confirmed the success of the mission.

Launched on May 3, it is one of China's most intricate and challenging space explorations. It comprised an orbiter, a returner, a lander, and an ascender.

The mission went through a series of critical stages. They included Earth-to-moon transfer, near-moon braking, lunar orbiting, and separation of the lander-ascender combination and the orbiter-returner combination.

Supported by China's Queqiao-2 relay satellite, the lander-ascender combination successfully landed in the designated area on the moon's far side on June 2, and collected samples.

By June 6, after a series of maneuvers, the samples were transferred to the returner, which went back on June 25.

The Chang'e-6 lunar exploration lasted 53 days, traveling more than 760,000 kilometers.

The overseas media, including the Associated Press, Reuters, BBC, CNN, Bloomberg, the *New York Times* and the *Washington Post*, extensively covered this milestone mission, calling it "historic" and "the world's first".

Chang'e-6 marks a significant leap forward in the quest to unlock the secrets of the moon. Its success will help explore the moon's mysteries more comprehensively in the future.

Technologies Behind Triumphant Return of Chang'e-6

By LIN Yuchen & FU Yifei

According to China National Space Administration (CNSA), on June 25, the Chang'e-6 returner, carrying the sample of lunar farside, successfully landed in Siziwang Banner, Inner Mongolia autonomous region. The return journey from space to the predetermined landing site was complex and fraught with challenges.

According to the China Aerospace Science and Technology Corporation (CASC), a series of advanced technologies ensured the safe return of Chang'e-6.

'Space skipping stone' method

The returner re-entered Earth's atmosphere at nearly the second cosmic velocity, using a technique called "semi-ballistic skipping re-entry." This method involved the capsule "skipping" across the atmosphere like a stone on water, using atmospheric drag and heat to slow down. The guidance, navigation, and control system developed by CASC played a crucial role in executing this complex maneuver.

Crafting the ultimate heat shield
The returner had to withstand

extreme temperatures during re-entry. Drawing on the experience of the Chang'e-5 mission, researchers designed a heat- and ablation-resistant "coat" for the capsule, according to the different burning resistance and heat insulation requirements of its different parts. A precise welding technique is required to ensure the thin-walled structure could endure the intense heat and pressure.

Parachute system to ensure safe landing

Once the returner re-entered the atmosphere, the parachute system developed by CASC took over the duty of decelerating. It consisted of a two-stage deceleration process: an initial small parachute to slow the capsule and a larger main parachute to reduce the speed to a safe-landing velocity. Additional components, such as recovery controllers and ejection systems, worked in unison to ensure a precise and safe popping up of parachutes.

The successful return with lunar samples from the moon's far side marks a new milestone in space exploration.



A Reliable Land of Innovative Products

Letter to the Editor

By Md Altab Hossin

China has emerged as a manufacturing powerhouse, producing almost everything under the sun from needles to heavy machinery, electric cars, smartphones and other high-tech products for diverse sectors.

Since China began its reform and opening up, established capital markets, and reformed its enterprise system, industries began to develop rapidly, creating a visible agglomeration effect.

The industrial revolution was boosted by China's full participation in the global industry chains by joining the World Trade Organization in 2001.

Consequently, the world has witnessed the progress and benefits of the manufacturing facilities and industrial chain of China.

Robust supply chain with valuable products

China has the world's largest consumer market with a robust supply chain that is digitally empowered. It enables enterprises to manufacture valuable products by sourcing raw materials from inside the country. This reduces the cost and time at each stage of production, and enterprises can also promote and distribute their products in the domestic market before exporting to the international market.

The easy availability of raw materials helps shorten research and development time and offer more innovative products at competitive prices within a

short time. For example, in 2022, Tesla's mega factory in Shanghai produced more than half of its total 1.3 million electric cars sold all over the world. That was a testament to the robustness of China's industry and supply chain.

Competitive advantages with a full range of suppliers

China also boasts different areas specializing in different products or industries with advanced manufacturing facilities, which provides them with a competitive advantage. For example, Shenzhen in south China is famous for electronic products; Shunde, a district in Foshan city, also in south China, is renowned for home appliance products; Wenzhou in east China is known for electric appliances; Suzhou, also in east China, is famed for material technologies and machinery items, whilst

Chengdu in the southwest is among the best in the information and communication technology industry.

I had the opportunity to visit many factories and professional exhibitions in different areas for sourcing products and business cooperation. Their professional experience in demand-oriented product innovation, knowledge, demonstration, and supply channels, as well as hospitality, eased our sourcing difficulties.

You can find many similar enterprises and complete solutions for a product in such areas at a glance, and due to this competitive advantage, many foreign enterprises continuously source their product or raw materials from China.

Dr. Md Altab Hossin is a foreign expert at the School of Innovation and Entrepreneurship, Chengdu University.

Photo News



Slight heat, or minor heat, the 11th solar term in the traditional calendar will fall on July 6 this year. During the time, farmers are busy with summer harvesting work. The photo shows farmers rush to harvest early rice. (PHOTO: VCG)