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Building the Innovation Silk Road for Shared Development



By Staff Reporters

The second Belt and Road Conference on Science and Technology Exchange is set to take place in Chengdu, capital of Sichuan province in southwest China, from June 10 to 12.

With the theme "Building the Innovation Silk Road for Shared Development: Working Together for a Belt and Road Science and Technology Community," the conference will promote the concept of a community with a shared future for mankind, emphasizing multilateral consultation, joint construction, and shared benefits. It aims to strengthen scientific collaboration and provide robust technological support for high-quality development under the Belt and Road Initiative (BRI).

According to Vice Minister of Science and Technology Chen Jiachang, the conference will serve as a platform for policy coordination, academic exchanges, industrial innovation, international mega-science projects and emerging technologies such as AI.

A number of bilateral government agreements on science and technology cooperation are expected to be signed during the event. Additionally, several specialized BRI science and technology cooperation programs will be launched, including international mega-science projects led by Chinese scientists, injecting new momentum into the development of an Innovation Silk Road.

The organizers have planned five major segments across 38 sessions: keynote events, themed forums, special activities, roundtable discussions and technology matchmaking. BRI partner countries have shown enthusiasm to participate, with representatives from more than 100 nations and international organizations expected to attend.

This year's event reflects the growing influence of BRI scientific collaboration. The first Belt and Road Conference on Science and Technology Exchange was held in Chongqing in southwest China in November 2023.

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The aerial drone photo shows the Tianfu International Convention Center in Chengdu, southwest China's Sichuan province, where the second Belt and Road Conference on Science and Technology Exchange will be held from June 10 to 12. (PHOTO: XINHUA)

Innovation Frontier

Tiangong Space Station Pushes Life Science Boundaries

Edited by WANG Xiaoxia

Researchers have discovered a new species of microorganism in China's Tiangong space station and named it *Niallia tiangongensis*. This discovery has expanded human understanding of microbial diversity and also marks China's progress in space life science research. The achievement was published online in the *International Journal of Systematic and Evolutionary Microbiology*.

The discovery journey

The discovery of this new microbial species is attributed to the aerospace technology test program on China's space station.

Dating back to 2023, when the Shenzhou-15 crew was in orbit, a microbiome

monitoring mission named China Space Station Habitation Area Microbiome Program (CHAMP) was conducted to research the dynamic changes and safety control of environmental microorganisms during the long-term operation of China's space station, according to China Manned Space (CMS).

In May 2023, the Shenzhou-15 crew used sterile sampling wipes to collect and store microorganisms on the inner surface of the space station in orbit at low temperatures, and brought them back to the ground.

The researchers employed multidisciplinary approaches such as morphological observation, genomic sequencing, phylogenetic analysis and metabolic analysis, and ultimately confirmed

the discovery of the new microbial species.

Outstanding performance in space

Microorganisms ingeniously adapt to the pressure of the space environment through unique biological mechanisms, and the space environment, in turn, shapes the metabolic and physiological characteristics of microorganisms.

Compared with its closely related species, *Niallia tiangongensis* performs well in adapting to the space environment. Its food mainly comes from skin debris remaining on the surface of the space station and gelatin from food debris. It can survive under extreme conditions such as microgravity, enhanced radiation and scarce nutrients.

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Observer

'New Trio' Powering Global Green Shift

By Staff Reporters

China's dominance in the green technology sector continues to strengthen, as the nation leads the world in invention patents for its "new trio" industries: electric vehicles (EVs), lithium-ion batteries and solar cells. According to data from the General Administration of Customs, from January to April, the export value of EVs was 18.13 billion USD, lithium-ion batteries 21.63 billion USD, and solar cells 8.66 billion USD.

Despite rising global protectionism, China's exports in these sectors have maintained upward momentum. Industry leaders are not only scaling production but also breaking through technological ceilings. Contemporary Amperex Technology Co. Limited (CATL), a global

battery giant, recently launched its second-generation ultra-fast charging battery and debuted on the Hong Kong Stock Exchange with one of the largest IPOs in recent years. With over 43,000 patents and patent applications and an R&D team exceeding 20,000 personnel, CATL exemplifies China's innovation-driven progress.

Breakthroughs extend to EV makers and solar firms. BYD claimed first-quarter sales leadership across seven countries and regions, driven by its vast R&D strength and advanced smart-driving strategy. In the solar sector, companies like LONGi Green Energy are setting global efficiency records and running high-speed, AI-powered manufacturing lines that produce a solar module every 18 seconds.

This technological evolution is reshaping the global supply chain. At LONGi's smart factories, the integration of AI, digital twins and big data has slashed production costs and energy consumption while boosting efficiency. China's lithium-ion battery producers like EVE Energy and EV manufacturers like Li Auto are also optimizing output.

Global expansion is also accelerating. Changan Automobile, now active in over 100 countries and regions, recently launched production in Thailand, marking its shift from exporting products to exporting entire industrial ecosystems. Meanwhile, emerging firms like Hithium are exporting large-scale energy storage solutions, showcasing Chinese strengths in design, manufacturing and efficiency.

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Tianwen-2 Embarks on Asteroid Exploration

By WANG Jing

The Tianwen-2 probe has embarked on its journey of asteroid exploration and sample collection with its successful launch from the Xichang Satellite Launch Center in Sichuan province in southwest China on May 29.

Tianwen-2's main mission is to bring back samples of the asteroid 2016HO3 and conduct scientific exploration of the main-belt comet 311P. This process involves 13 flight phases and reaching a distance of approximately 150 to 500 million kilometers from Earth, according to the China National Space Administration (CNSA).

The mission marks a new step taken by China in deep space exploration.

Expanding scientific cognition

The goal is to achieve breakthroughs in a series of key technologies, including sampling on a low-gravity celestial surface, high-precision autonomous navigation and control, as well as trajectory design, according to Han Siyuan, deputy director of the CNSA's Lunar Exploration and Space Engineering Center and spokesperson for the Tianwen-2 mission.

The mission will also provide exploration data and precious samples for scientific research such as on the origin and evolution of asteroids.

The scientific goal is to determine multiple physical parameters of asteroid 2016HO3 and main-belt comet 311P, including their orbital and rotation parameters, shape, size and thermal radiation characteristics.

This mission will also conduct research on the morphology, material composition, internal structure and possible ejecta of asteroids and main-belt comets.

Laboratory analysis and research of the samples will be carried out to determine their physical properties, chemical and mineral composition, and structure for further research on the formation and evolution of the early solar system.

The Tianwen-2 probe is equipped with 11 scientific devices, including mid-field color cameras, multispectral cameras, a visible and infrared imaging spectrometer, a thermal radiation spectrometer and a detection radar, which will help it obtain scientific data. See page 3

WEEKLY REVIEW

Discovery of Super-Earth in Habitable Zone

An international team, led by Gu Shenghong from Yunnan Observatories, Chinese Academy of Sciences, has discovered a super-Earth by using the Transit Timing Variation technique for the first time. The exoplanet, Kepler 725c, is about 10 times the mass of Earth and is located in the habitable zone of the Sun-like star Kepler-725.

Breakthrough in Quantum Direct Communication

A team of Chinese researchers has achieved a milestone in quantum secure direct communication (QSDC), successfully building a 300-kilometer fully connected network. Using innovative dual-pump optical parametric down-conversion technology, QSDC systems maintain over 85 percent quantum state fidelity over long distances.

AI-powered Pen Detects Early Parkinson's Symptoms

A study published in *Nature Chemical Engineering* by researchers from the University of California, Los Angeles, reveals that an AI-powered pen containing magnetic ink can accurately identify early signs of Parkinson's disease by analyzing writing patterns. Using neural networks, the device distinguishes between the handwriting of patients and healthy individuals with over 95 percent accuracy.

Collision with Andromeda Less Certain, New Mergers Predicted

New research from Helsinki University, using Gaia and Hubble data, suggests the Milky Way's collision with the Andromeda galaxy is less certain than previously believed, with only a 50 percent chance of happening within the next 10 billion years. Meanwhile, the Milky Way is set to merge with the Large Magellanic galaxy in about two billion years, leading to significant cosmic changes and an unpredictable future for our galaxy.

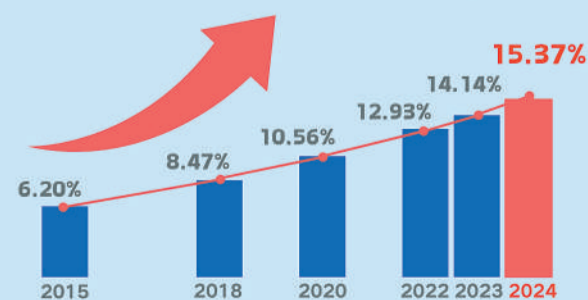
New Graphic

IN 2024

The proportion of Chinese citizens with basic scientific literacy

44.07%

The proportion of Chinese citizens with scientific literacy



Source: China Association for Science and Technology
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WECHAT ACCOUNT



E-PAPER

