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## Astronauts meet the media



Shenzhou XX astronauts Wang Jie (left), Chen Dong (center) and Chen Zhongrui (right) meet the media at a news conference in Beijing on Friday. This marked the first official public appearance of the Shenzhou XX crew after returning to Earth on Nov 14 last year. **WANG JING / CHINA DAILY See story, page 3**

## Astronauts say training helped ensure safe return

By **JIANG CHENGLONG**  
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The three astronauts from China's Shenzhou XX mission said that support from the ground control team and their well-trained crewmates was crucial to their successful response to an unexpected incident involving a cracked spacecraft window.

They made the remarks during a media event in Beijing on Friday, marking the first public appearance of the Shenzhou XX crew — mission commander Senior Colonel Chen Dong, and crew members Colonel Chen Zhongrui and Colonel Wang Jie — after returning to Earth in November.

The three astronauts were originally scheduled to return to Earth aboard the Shenzhou XX return capsule after the Shenzhou XXI spacecraft successfully docked with the Tiangong space station. However, during the final inspection phase before their return, they found a crack on the return capsule's window, possibly hit by tiny fragments of space debris. Their return was deferred after evaluation by ground experts.

The crew gave a detailed account of how they handled the emergency situation. Senior Colonel Chen said that the crew discovered a triangular crack in the window. He quickly took photos and sent them to the ground control team.

Together with the Shenzhou XXI mission crew, the astronauts closely observed and discussed the window's condition, fully cooperating

with ground staff during the review and confirmation process.

After assessing the situation, the mission headquarters decided that the Shenzhou XX spacecraft's reentry posed safety risks and delayed the return, activating an emergency plan, Chen said.

He emphasized the importance of trust at that moment. "We trusted the ground team. They anticipated every possibility and exhausted every method to develop the safest return plan for us," he said. "We trusted ourselves. We are well-trained astronauts, capable of dealing with various unexpected malfunctions and staying calm and composed."

Colonel Chen Zhongrui said the ground team had undergone solid emergency response training. "We felt confident. Behind us is a strong motherland. Our team always strives for excellence, and our crew stayed united as one," he said.

Thanks to precise assessments and efficient support from the ground team, the Shenzhou XX crew successfully switched to the Shenzhou XXI return capsule and landed safely.

Colonel Wang Jie served as the spacecraft engineer and previously worked on the construction of the space station. Wang said that when equipment malfunctions occurred in space, the basic knowledge and design principles he accumulated on the ground could be put to immediate use.

"We learn a little more and practice one more time on the ground, so that we can stay calm at that moment in space," he said.

## Year's first private rocket mission takes off

By **ZHAO LEI**  
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Galactic Energy, a private rocket maker in Beijing, conducted the sixth sea-based launch of its Ceres 1 carrier rocket on Friday morning, marking the first private space mission in China in 2026.

The company said in a news release that the rocket blasted off at 4:10 am from a mobile launch platform in the Yellow Sea off the eastern province of Shandong and sent four satellites into a low-Earth orbit about 850 kilometers above Earth.

The satellites were built by Guodian Gaoke, a Beijing-based private satellite operator, for its Tianqi network, which now has 41 satellites and global coverage after the latest launch. The network collects data for the internet of things and has been used in fields such as forestry, agriculture, tourism, power generation and environmental protection, according to Galactic Energy.

The Ceres 1 model performed its maiden flight in November 2020 at the Jiuquan Satellite Launch Center in the Inner Mongolia autonomous region, becoming the second privately developed Chinese carrier rocket to successfully complete an orbital mission, after i-Space's SQX 1.

The solid-propellant Ceres 1 model stands about 20 meters tall, with a diameter of 1.4 meters. It has a liftoff weight of 33 metric tons. It can deliver a single 300-kilogram satellite or multiple satellites with a combined weight of 300 kg into a 500-km sun-synchronous orbit. It can also carry a 350-kg payload to a low-Earth orbit at an altitude of 200 km.

## 33 metric tons

The liftoff weight of the solid-propellant Ceres 1 rocket

To date, 21 of the rocket's 23 flights have been successful, placing 89 commercial satellites into orbit.

Galactic Energy is preparing to conduct the debut mission of its Ceres 2, a larger model of solid-propellant carrier rocket, at the Jiuquan spaceport, according to the company.

Besides Galactic Energy, other private Chinese rocket makers are also planning the maiden flights of their new rockets, including Orienspace's Gravity 2, Deep Blue Aerospace's Nebula 1, and the TL-3 from Space Pioneer. In another development, China launched a Long March 2C rocket on Thursday afternoon, placing a remote-sensing satellite for Algeria into orbit, according to China Great Wall Industry, the project's contractor.

The rocket lifted off at 12:01 pm from the Jiuquan center and successfully deployed the AISat-3A satellite into its preset orbit, the company said. China Great Wall Industry is the overseas trading arm of the China Aerospace Science and Technology Corp.

Developed by the China Academy of Space Technology, another CASC subsidiary, AISat-3A is designed to collect data and images to support land-use planning as well as disaster prevention and mitigation.

Under a contract signed in July 2023 between China Great Wall Industry and the Algerian Space Agency, China will deliver two optical remote-sensing satellites to the North African country and provide ground systems, training, and other support services. AISat-3A is the first satellite delivered under the agreement.

The launch marks a new milestone in space cooperation between China and Algeria, following the successful launch of the Alcomsat-1 communications satellite in December 2017.

# FAST reveals insights into cosmic signals

Origin of fast radio bursts unraveled in study, based on in-depth observations

By **LI MENGHAN** in Guiyang  
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An international research team using China's Five-hundred-meter Aperture Spherical radio Telescope, or FAST, has found some of the strongest evidence yet suggesting that at least some fast radio bursts — mysterious flashes of radio energy from deep space — are produced by compact star binaries.

The discovery, published on Friday in the journal Science, comes from in-depth observations of a repeating fast radio burst known as FRB 20220529. This marks the first time globally that scientists have captured the evolutionary process of such a burst, aiding in narrowing down the long-debated origins of these brief yet powerful cosmic signals.

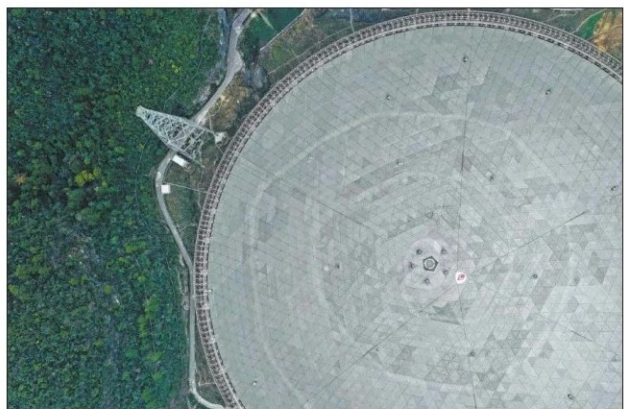
Fast radio bursts, akin to super lightning in the universe, are millisecond-duration phenomena of unidentified extragalactic origin, and

are extremely bright and transient but release as much energy as our sun produces in over an entire week.

Since fast radio bursts were first discovered in 2007, astronomers have detected thousands of them, yet their exact cause has remained unclear. Many scientists suspect they originate from extremely dense stellar remnants such as neutron stars, but how they generate the bursts — and whether they do so alone or with a companion — has been an ongoing mystery.

The new study, led by astronomers from the Chinese Academy of Science's Purple Mountain Observatory in Nanjing, Jiangsu province, utilized FAST — the world's largest single-dish radio telescope — to monitor FRB 20220529 for more than two years, from June 2022 to August 2024.

Wu Xuefeng, corresponding author of the study and a researcher at the Purple Mountain Observatory, said, "This is the first time we have seen such a clear 'surge and recovery'



An aerial photo taken on Friday shows China's Five-hundred-meter Aperture Spherical radio Telescope, or FAST, under maintenance, in Guizhou province. **OU DONGQU / XINHUA**

in the magnetic environment of a fast radio burst."

Duncan Lorimer, a professor of physics and astronomy at West Virginia University, who first discovered fast radio bursts in 2007, said: "It is an amazing result, and it's a testament to the power of FAST in China to make these monitoring observations. Taking facilities like FAST, coupling them with survey instruments such as the Canadian Hydrogen Intensity Mapping Experiment — which initially found this particular repeating fast radio burst — we continue to transform

our knowledge of these amazing objects."

FAST, which became fully operational in 2020, has become a major tool for studying pulsars, fast radio bursts and the structure of the Milky Way — the home galaxy. The telescope has produced key results in areas ranging from gravitational wave research to mapping hydrogen gas in space, demonstrating the core strengths of China's independently designed facility, from the independent control of key technologies to leading scientific output.

Sun Jinghai, a senior engineer at the

CAS' National Astronomical Observatories, said: "China is now planning a major upgrade to FAST, adding dozens of medium-aperture antennas around the main dish to form the world's only mixed synthetic aperture array centered on a giant single-dish radio telescope. This upgrade would allow them to pinpoint fast radio burst sources with much greater precision."

Sun added that scientists hope continued observations will eventually solve one of astronomy's biggest puzzles — what exactly produces fast radio bursts and why some of them keep repeating.