



Vital connection

Workers finish digging tunnel providing key transport link in Tibet **LIFE, PAGE 12**

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Heavy toll

Flash floods kill at least 46 in four northeastern US states **WORLD, PAGE 7**



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Astronauts chat with students in Hong Kong

By ZHAO LEI in Beijing and GANG WEN in Hong Kong

Astronauts on board China's Tiangong space station took part in a video call on Friday afternoon with students in the Hong Kong Special Administrative Region.

During the live call, which lasted about 20 minutes, the three crew members of the Shenzhou XII mission — Major General Nie Haisheng, who is also the mission's commander, Major General Liu Boming and Senior Colonel Tang Hongbo — greeted participants in Hong Kong and then answered questions from the students about how they conduct experiments, do physical exercise and drink water. They also showed the students different parts of the colossal spacecraft and demonstrated the functions of some equipment.

The event was co-hosted by the Liaison Office of the Central People's Government in the Hong Kong Special Administrative Region, the Hong Kong SAR Government and the China Manned Space Agency.

Before the call, participants watched a video about the country's space station program and the Shenzhou XII mission, and listened to a speech by Zhou Jianping, chief designer of China's manned space program, about the latest developments in the space station program.



Astronauts on board the Tiangong space station have a real-time video dialogue with Hong Kong science workers, teachers and students on Friday. **LYU XIAOWEI / XINHUA**

Zhou and several space officials, including Yang Liwei, China's first astronaut and now a senior planner, took part in the event at the China Academy of Space Technology in Beijing via a video link. They also answered questions from Hong Kong residents before the dialogue.

At the event's main venue in Hong Kong, Carrie Lam Cheng Yuet-ngor, chief executive of the Hong Kong SAR, told attendees she hopes young people in Hong Kong could be inspired by the motherland's achievements in space exploration, cherish their dreams, learn from the astronauts and brave difficulties in the pursuit of science.

Tan Tieniu, deputy director of the Liaison Office of the Central People's Government in the HKSAR, said the Earth-space video link interaction is a special gift from the central authorities to Hong Kong compatriots, in particular to the youth.

Hong Kong's technology and innovation sector has bright prospects and offers opportunities for young people, Tan added.

Hao Chun, director of the China Manned Space Agency, said in Beijing the occasion was intended to respond to Hong Kong people's questions concerning the motherland's space endeavors, foster cooperation and communication between the mainland and Hong Kong, encourage and enable Hong Kong youngsters to know about space exploration, and inspire their patriotism and pursuit of adventure and innovation.

Astronaut Tang Hongbo said while answering a question: "We mainly focus on three areas of study physics in weightlessness, aerospace medicine and human factor engineering."

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Space: Students see many opportunities

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"We take advantage of this precious opportunity to study the special physical phenomena in the weightless environment, as well as various physical and mental effects of space flight on astronauts, so as to find a better way for people to work and live in space. These experiments also help us better prepare for finding an 'extra-terrestrial homeland' for mankind."

Ng Ka-wo, a science teacher at a middle school in the city, said he hopes that the call will not only help

students understand the nation's aerospace development, but also encourage them to cultivate a sense of national identity.

Ng expressed his hope that the Hong Kong SAR government could allocate more resources to mathematics, physics and chemistry so that the city can make a greater contribution to the nation's science and technology endeavors.

The Shenzhou XII mission was launched on a Long March 2F carrier rocket that blasted off from the Jiuquan Satellite Launch Center in

northwestern China on June 17. The astronauts entered the Tiangong space station later that day after the two spacecraft docked with each other, and they became the station's first inhabitants.

The three-month Shenzhou XII mission, the nation's seventh manned space flight, is part of the Tiangong program, which aims to complete a station in a low-Earth orbit before the end of next year.

Contact the writers at zhaolei@chinadaily.com.cn



Nie is the oldest astronaut in China. He became an astronaut in 1998.

Age	56
Height (at 1.8m from)	1,480
Hometown	Zouyang, Hubei
Previous missions	Shenzhou 6, Shenzhou 10
Previous backpacks	Shenzhou 5, Shenzhou 9

Nie Haisheng
Commander of Shenzhou 12 mission

Liu is one of two astronauts who completed China's first spacewalk.

Age	54
Height (at 1.8m from)	1,050
Hometown	Yi shi, Heilongjiang
Previous missions	Shenzhou 7
Previous backpacks	Shenzhou 6

Liu Boming
Operator of Shenzhou 12 mission

The Shenzhou 12 mission is Tang's first space mission.

Age	45
Height (at 1.8m from)	1,199
Hometown	Xiangshan, Hunan
Previous missions	None
Previous backpacks	Shenzhou 11

Tang Hongbo
Operator of Shenzhou 12 mission

Aerospace exchanges between the HKSAR and the Chinese mainland

Oct 31, 2003
Yang Liwei, China's first astronaut, embarks on a six-day visit to Hong Kong.

Nov 27, 2005
A national delegation of scientists and astronauts of the Shenzhou 6 spacecraft arrives in Hong Kong for a three-day visit.

April 2006
The Hong Kong Polytechnic University enters into an agreement with the Lunar Exploration Centre of the Chinese National Space Administration on exchanges and cooperation in training and scientific research.

Aug 10, 2012
Astronauts Jing Haipeng, Liu Wang and Liu Xing begin a four-day visit to Hong Kong, after returning from a mission during which they completed automatic docking and manual docking with the space laboratory Tiangong 1.

June 27, 2017
Bao Weimin, director of the Science and Technology Council at the China Aerospace Science and Technology Corp, Sai Mingsheng, chief designer of Tianzhou 1, and Song Zhengyu, deputy chief designer of Long March 7, give a lecture at PolyU.

June 22, 2021
A delegation of scientists behind major national aerospace projects, including the Long March, Shenzhou, Beidou, Tianwen and Chang'e, arrives in Hong Kong for a four-day visit.

June 26, 2021
An exhibition on China's scientific breakthroughs over the past century opens to the public, along with a display of lunar soil samples brought back by the Chang'e 5 spacecraft in December.

Youths revel in 'surreal' talk to space

Video call from three taikonauts on board the orbiting Tiangong space station thrills and inspires HK students

By GAN WEN in Hong Kong ganwen@chinaDaily.com.hk

Hong Kong's young people were pumped after having an "incredible" and "surreal" video call beamed from outer space on Friday by Chinese astronauts in the Tiangong space station.

During the video call, part of a seminar featuring the nation's aerospace development, students and residents of Hong Kong were shown life in outer space and had their questions on space answered by the three orbiting taikonauts — Nie Haisheng, Liu Boming and Tang Hongbo, crew members of the spacecraft Shenzhou 12.

The conference room at the Hong Kong Convention and Exhibition Centre, where nearly 300 students, scientists and teachers attended the seminar, heard multiple bursts of applause from the excited audience — such as when Nie showed how to ride a bicycle with his hands and performed tai chi in the Tianhe core module, and when Liu demonstrated how to drink tea from a plastic bag in zero gravity.

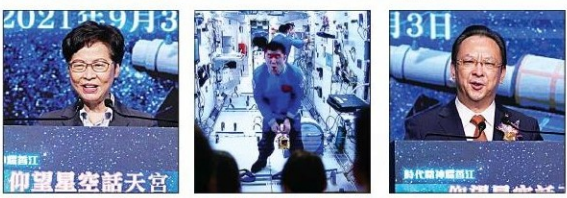
Before the space video call, a live question-and-answer session with aerospace experts in Beijing via another video call was arranged. Yang Liwei, China's first astronaut to enter outer space, was among the sharers.

Marco Clark, a student in aerospace engineering at the Hong Kong University of Science and Technology, called the experience an "incredible" opportunity that the country offered to the city.

Clark was also an emcee at the Hong Kong version of the live call. He said it is also an incredible moment for young students who have a passion for the subject to capture this opportunity and work to become the next generation of taikonauts or aerospace scientists.

Hong Kong has tremendous potential in promoting the development of related fields with its strong fundamental science and outstanding scientists, Clark said, who said he is looking forward to his future involvement in this field and to providing some insights.

Timothy Wong, a junior of Clark's major at HKUST, said the most



Clockwise from top: Hong Kong students join a video link on Friday with aerospace experts in Beijing. Tan Tieniu, deputy director of the Liaison Office of the Central People's Government in the Hong Kong Special Administrative Region, speaks at the event. Astronaut Liu Boming shows students how to make a cup of tea on board China's space station. Carrie Lam Cheng Yuet-ngor, chief executive of the HKSAR, addresses the event.

"impressive" and "surreal" part of the event was talking with astronauts in the space station in real time, waving to the astronauts, and watching them wave back.

The exchange was a "golden opportunity" for young students like him to deepen their understanding of the long-term vision of their profession, something not available from routine studies in the classroom and in the lab, Wong said. Many students in his major will be inspired to commit to the field after the talk, he added.

Tom Mok Kwan-pui, a doctoral student at HKUST, said the astronauts' rising to the challenge during missions encouraged him in his daily

work. From now on, he will pay more attention to the design and transformation of his research results into engineering products that may be conducive for national development and the public, Mok said.

Zhang Hongsheng, an assistant professor at the University of Hong Kong, was excited to learn that a new space telescope will be installed on China's space station. With a much wider view than the NASA/ESA Hubble Space Telescope, the planned new telescope will provide more data for satellite remote sensing researchers.

In the lobby outside the conference room, dozens of teenagers lined up to have their pictures taken with

a cardboard cutout of the three taikonauts.

Among them was Leo Yeung, an 11-year-old student at an international school. He said his classmates envied him because of his opportunity to talk to the astronauts. If offered the chance, Yeung said, he would tell them that "you are true heroes of mine".

Clark said the event made everyone in Hong Kong proud to be Chinese, given the incredible achievements the country has made over the last decade in aerospace.

"People in most other countries do not have the opportunity to achieve the dream of working in space", he said.

Space talk with taikonauts

Editor's note: In a video call from the Tiangong space station on Friday, three Chinese astronauts on a three-month mission in outer space — Nie Haisheng, Liu Boming and Tang Hongbo — talked to Hong Kong students about living in zero gravity. Yang Liwei, China's first taikonaut to go into space, also joined a live call from Beijing, fielding questions from the curious crowd.

A student from Scientia Secondary School in Ho Man Tin asks:
Can you exercise in the space station? Can you show us?

Nie: Sure. We must work out to reduce the effects of the weightless environment. The station has a lot of exercise equipment, such as a space bicycle and treadmill. While running on the machine, we need to attach our upper body to it to keep our balance. Bicycling is a cardio exercise that helps us build muscle strength. In space, we can ride bicycles not only with our legs, but also with our hands while fastening our legs to the ceiling of the station. We also do tai chi for stretching.

While speaking, Nie rode a bicycle in two positions to show how a space workout is done.

A student from St Paul's Co-

educational College in Mid-Levels has a question:
Where does water come from in space, and how do astronauts drink it?

Liu: Water is produced in two ways: One is by adding pressure to the cold air to extract condensed water, and the other is by distilling water from urine. In both, we need to remove inorganic pollutants and organics, and add some salt before the process to reclaim water. We use water for three main purposes. One is to refill space suits, which have lots of tubes to hold water to reduce the heat. The water can also be used to produce oxygen, and it is also for drinking. To drink water in space takes a special technique. For an astronaut who loves "kung fu tea", water is precious. Let me make a cup of tea, and show you how to drink it in space.

I need to gently squeeze the bag to make a floating water ball of just the right size, and then I can slowly drink it when the ball is floating steadily.

A student from the Chinese Foundation Secondary School in Su Sai Wan asks:
Can you see satellites outside the space station? Do the stars look the same in space as they do on Earth?

Liu: I feel very lucky to be living in such a good time when generations of workers have raised the level of our national aerospace industry to where it is now. We have seen the grandeur of Earth and magnificent scenes during two spacewalks. It's like a sci-fi movie. The most unforgettable moment was when we opened the hatch. "Beautiful" does not even come close to describing what we saw. Looking at the horizon, the rainbow was colorful; on the right,

the sun had just risen. Without the atmosphere, the sunlight was radiant. Looking down, the blue planet was at our feet. We saw the Atlantic Ocean and the Mediterranean Sea; we saw the smoke of Afghanistan, the Tianshan Mountains in Xinjiang, the Taklamakan Desert, and the Himalayas. We also saw Victoria Harbour in Hong Kong, as well as the capital, Beijing.

Soon, the night fell, and the sky was full of stars. From the ground, we see stars blinking because of the atmospheric refraction. But it is different in space. I hope people from Hong Kong will join our team of astronauts in achieving the Chinese dream and the space dream.

A student from Clementi Secondary School in North Point asks:
Why did you become an astronaut? What do you think is the

coolest thing about the job?

Yang: At first, I wanted to be a pilot. After realizing that dream, I took an interest in aerospace science. Luckily, China was launching manned space projects at that time. So I devoted myself to aerospace out of my passion and the nation's need, and the country has made progress in economy, technology and overall strength.

I came to Hong Kong many times and talked to a lot of students. From Shenzhou 5 to Shenzhou 12, astronauts have shown numerous work and day-to-day scenarios during each mission. Their achievements are all very cool. For me, the coolest moment is when I displayed the national flag and greeted all Chinese people as the first Chinese astronaut going into space.

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2004
The Hong Kong Polytechnic University designs anti-static suits for staff of the China National Space Administration's control center.



2013
PolyU works with the China Academy of Space Technology to design a camera-pointing station that helps photograph the moon and facilitates commands to the rover. It was applied in the Chang'e 3 lunar probe mission.



2015
The Chinese University of Hong Kong and the China Astronaut Research and Training Center establish the Joint Research Center for Health Maintenance of Musculoskeletal System on Space Medicine.

PolyU helps develop a micro-satellite platform and deployment system to support the Long March 6 mission.



2017
Traditional Chinese medicine scholars at Hong Kong Baptist University conduct research on space life science on board the Tianzhou 1 spacecraft.



2018
PolyU develops lunar topographic mapping and geomorphological analysis technologies for selecting the landing site for Chang'e 4.



2020
PolyU works with the China Academy of Space Technology to develop the Surface Sampling and Packing System to aid the Chang'e 5 lunar mission.

2021
Tianwen 1 touches down on Mars with a camera developed by PolyU researchers.

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