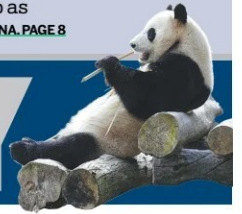




Striking a chord
Busker in Shanghai garners
3 million online followers
LIFE, PAGE 18

Hangzhou tech firms invited to invest in HK
HK SAR, PAGE 4

Panda diplomacy
Bamboo and buns packed for trip as bear couple depart for Austria
CHINA, PAGE 8



香港版
HONG KONG

CHINADAILY

THURSDAY, April 24, 2025

中國日報

www.chinadailyhk.com HK \$12

Nation ready to launch new space mission for crew shift

By ZHAO LEI
zhaolei@chinadaily.com.cn

China is all set to launch its Shenzhou XX mission to make a crew shift onboard the nation's Tiangong space station, according to a senior program official.

A Long March 2F rocket carrying the spaceship will lift off at 5:17 pm on Thursday, said Lin Xiqiang, deputy director of the China Manned Space Agency, at a news conference held on Wednesday morning at the Jiuquan Satellite Launch Center in northwestern China. Thursday also marks China's 10th Space Day, which is observed annually on April 24.

The Shenzhou XX vessel will carry mission commander Senior Colonel Chen Dong, Colonel Chen Zhongrui and Colonel Wang Jie, who are all members of the People's Liberation Army Astronaut Division, to the space station, which is currently manned by their Shenzhou XIX peers.

Lin said the Long March 2F rocket was being loaded with propellants at its service tower on Wednesday.

See Space, page 3

Inside

See more, pages 4, 5, 6-7



Members of the Shenzhou XX crew, mission commander Senior Colonel Chen Dong (center), Colonel Chen Zhongrui (right) and Colonel Wang Jie, attend a news conference at the Jiuquan Satellite Launch Center in northwestern China on Wednesday. A Long March 2F rocket carrying the spaceship will lift off at 5:17 pm on Thursday.

WANG JIANGBO / FOR CHINA DAILY

Experts from SARs to join space mission

Hong Kong, Macao payload specialists ready for 2026 aerospace endeavors

By STEPHY ZHANG in Hong Kong
stephyzhang@chinadailyhk.com

Payload specialists from the Hong Kong and Macao special administrative regions are expected to embark on their first space missions as early as next year, the China Manned Space Agency said on Wednesday at a news briefing for the launch of its Shenzhou XX manned spacecraft.

The two specialists are part of China's fourth astronaut selection group, which began in October 2022 and lasted 20 months. The group, which includes eight pilots from the Chinese mainland, marks the first time residents from Hong Kong and Macao have had the opportunity to join the nation's astronaut corps.

CMSA Deputy Director Lin Xiqiang said the two SAR specialists, who joined the national astronaut corps in August, have adapted swiftly to their rigorous technical training, helped by specially designed courses, such as the spirit of China's manned space program and Mandarin.

He said while astronaut training timelines vary depending on the category, the payload specialists from Hong Kong and Macao are progressing on schedule.

Upon successful certification of training, the specialists will be included in the candidate pool for flight crews and could participate in their first flight mission next year.

Lin added that the specialists enjoy personalized support, including customized meals, to accommodate any dietary preferences.

Although the identities of the specialists have yet to be officially disclosed, the announcement generated excitement in both SARs when the news broke. Hong Kong Chief Executive John Lee Ka-chiu praised the development as "extremely inspiring and uplifting" when the selection result was announced in June last year.

Daniel Lau Shu-ping, head of the Department of Applied Physics at Hong Kong Polytechnic University and a member of the university's Research Center for Deep Space Explorations, welcomed the revelation that the SARs' payload specialists could venture into space next year.

Expressing his willingness to participate if given the opportunity, Lau said that this will be significant motivation for local scientists.

Lau anticipates even closer cooperation between Hong Kong and the national space program, building upon the city's consistent engagement in national endeavors. Hong Kong-based research teams have previously supported the nation's lunar and Martian exploration missions.

He added that in addition to the astronauts, local experts can play a crucial role in ground-based operations. Lau emphasized Hong Kong's substantial contribution in supporting the nation across diverse sectors, encompassing manpower, innovation, and technology.

Leveraging its research expertise and diverse talent pool, he said, the city's academic institutions are well-equipped to aid the nation, particularly in talent cultivation.

Space: New crew to perform various tasks

From page 1

"After the Shenzhou XX spacecraft enters its preset orbital position, it will activate the rapid autonomous rendezvous-docking mode, and take about six-and-a-half hours to approach and connect with the front port of the Tianhe core module," Lin said.

The Shenzhou XX crew will conduct China's 15th manned spaceflight and become the ninth group of residents aboard the Tiangong, which is currently the only operational space station independently run by a single nation.

Chen Dong and his team will take over the expansive orbital outpost from the Shenzhou XIX crew — mission commander Senior Colonel Cai Xuzhe, Lieutenant Colonel Song Lingdong and Lieutenant Colonel Wang Haoze — who arrived on Oct 30. As of Wednesday, Cai and his team have spent 175 days in orbit.

The two teams will stay together for approximately four days for transition work, after which the Shenzhou XIX astronauts will depart and return to Earth on Tuesday, according to Lin.

During their six-month orbital stay, the Shenzhou XX crew will perform various tasks such as conducting scientific experiments and technological demonstrations, performing spacewalks to install space

debris shielding equipment, experimental instruments and other external devices, retrieving devices from outside the space station, and engaging in science lectures and other activities for public benefit.

This will mark the third space journey for Chen Dong, who participated in the Shenzhou XI mission in 2016 and the Shenzhou XIV mission in 2022, in which he served as the mission commander with Cai as a crew member. For Chen Zhongrui and Wang Jie, the upcoming spaceflight is their first extraterrestrial expedition.

Chen Zhongrui was a flight instructor at a PLA Air Force training base in Hebei province, before he was recruited by the PLA Astronaut Division. Wang Jie worked at the China Academy of Space Technology, a subsidiary of China Aerospace Science and Technology Corp, and took part in the research and development of a crucial technology to be used aboard the Tiangong.

Lin, the deputy director, said the members of the outgoing Shenzhou XIX crew have been in good condition, noting that they have conducted three spacewalks and their first was a new world record for the longest spacewalk. With a total of five spacewalks to his credit, Cai holds the record among Chinese astronauts.

During their mission, Cai and his

team completed 88 scientific and technological tasks, covering life science, the basic physics of microgravity, materials science, space medicine and new spacecraft technologies, Lin said.

Flatworms in orbit

The Shenzhou XX mission will mark China's first space-based investigation into the regeneration of planarians, or flatworms, which are known for their extraordinary ability to regrow organs. These organisms can completely regrow their severed heads or tails, making them ideal candidates for the study of tissue regeneration mechanisms.

Lin said the experiments will deepen researchers' understanding of the basic mechanisms of regeneration at an individual level, and the results are expected to help address space-based health issues such as in-orbit injuries.

Different planarian segments will be studied as they initiate regeneration in orbit, with samples collected at critical intervals for fixation and imaging analysis, said Zhang Wei, director of the Technology and Engineering Center for Space Utilization at the Chinese Academy of Sciences.

Previously, zebrafish and fruit flies have been carried by astronauts to the space station for research and experiments.

NewSpace, low-altitude endeavors offer HK economic potential

Just over a month ago, a unique gathering occurred at the Holiday Inn Golden Mile in Kowloon, Hong Kong. The event, facilitated by four visionary leaders from the Laboratory for Space Research (LSR) at the University of Hong Kong, the European Chamber of Commerce, the Harilela Group, and BDJ Capital, brought together over 30 senior stakeholders from top institutes, commercial interests, big business, academia, major chambers of commerce, and finance, legal, investment groups and insurance groups. The aim was to develop a concise set of serious policy suggestions for the Hong Kong Special Administrative Region government to exploit the NewSpace economic opportunities.

NewSpace is the growing private space industry that includes companies developing and launching small satellites, building space habitats, and exploring new frontiers beyond Earth's orbit. The diverse attendees discussed, deliberated, and defined the scope of NewSpace opportunities for the HKSAR and identified key priorities relevant to all stakeholders. These were then distilled into a serious submission of eight policy recommendations, successfully submitted to the HKSAR government on April 3. It has been very well received. We can see how far the dial moves now, but the signs are encouraging.

In parallel, much has been made lately of the low-altitude economy (LAE) and the opportunities it brings the HKSAR. The LAE encompasses activities and services in the lower regions of Earth's atmosphere. This has considerable potential to reshape industries, urban spaces, and our daily



Quentin Parker
The author is director of the Laboratory for Space Research, the University of Hong Kong.

encounters with technology. The tremendous advances in artificial intelligence, scalable, interdependent networks, and how we interact with these systems are at the vanguard of all this. It is exciting and challenging but achievable. However, there is one piece of joined-up thinking that does not seem to appear and that is that there is no LAE without the high-altitude NewSpace economy that provides all LAE systems with their telemetry so they know where they are to a high degree of accuracy at any moment.

These two areas are intricately linked. One thing is sure: If we seize these opportunities, Hong Kong can immediately boost its GDP by up to 5 percent in the coming years through the NewSpace and related LAE industries. This is by leveraging our superconnector capacity, mighty insurance securities pillar, investment and fintech excellence, and use of English as the international language of aviation, aerospace, commerce, banking, and much else. This GDP growth estimate is based on a similar NewSpace policy to what we propose, as adopted by the Grand Duchy of Luxembourg. Luxembourg is a close analog to Hong Kong in several respects, based on its financial focus, small land area, and

educated population, but without our tertiary education superpower status, access to formidable and concentrated talent, and adjacency to a world-class manufacturing hub. Hence, we can do much better. This is especially true given our opportunities to link to the burgeoning China Space Program, which is the second in terms of rocket launches. Nowhere in Europe (Luxembourg) or Singapore is even close to this advancement of SpaceTech that we can leverage.

However, the elephant in the room for all of this is the question of the sustainability of the space environment and, particularly, the low Earth orbit (LEO) ecosystem situated 200 to 1,600 kilometers above the Earth's surface and the orbital home into which thousands of Elon Musk's Starlink satellites are being launched and where China's own, soon-to-be-competing, Thousand Sails satellite constellation and others are being placed. Continued access to the LEO affects and influences much of humankind's ability to monitor and manage our planet sustainably via the key tools of remote sensing satellites. Only the wealth of global "eyes in the sky" enables us to accurately measure and follow the growing impacts of climate change on every planetary ecosystem in granular detail as we move ever further away from a sustainable future.

The impactful Space Sustainability Conference held at HKU from Dec 2-4, and jointly organized by HKU-LSR and the Swiss Federal Technology Institute of Lausanne, provided inspiration, motivation and support that has enthused many (including among the 70-plus international senior conference participants and field leaders from

21 countries), to consider that Hong Kong is the ideal place to establish a globally important space sustainability hub and NewSpace hub. We can use our globally respected expertise in compliance, regulation, and the rule of law, together with our prowess and reputation as an investment powerhouse, global financial center, and investment and talent magnet, and together with elite university technology incubators to provide the necessary multicomponent framework. These would be effectively and collaboratively deployed to help regulate and fund the enforcement and remediation of this issue for global benefit, which is needed to safeguard the future of the NewSpace economy. According to the World Economic Forum, this will be worth more than \$1.5 trillion by the middle of the next decade.

The LSR is also at the vanguard of a significant international proposal for a global R&D space sustainability center as part of joint efforts to establish the HKSAR as a global NewSpace hub. We firmly believe that the HKSAR, as a Guangdong-Hong Kong-Macao Greater Bay Area powerhouse, has an opportunity to become a world leader in this rapidly emerging high-tech industry through swift and coordinated action between government and private enterprise. This is for technology and opportunity today, not tomorrow, through proactive engagement in the NewSpace economy for the HKSAR to capitalize on the current and relevant opportunities for tech advancement and economic growth. Indeed, we cannot tackle sustainability in the broadest sense of securing our planet as a viable ecosystem without access to the data these satellites transmit to Earth. They

provide weather monitoring, cloud cover measures, sea level temperature, sea level rise, ice cap melt, forest destruction, desert encroachment, and myriad other parameters that form the basis of monitoring and understanding the health and sustainability of our planet. These data are vital for any serious attempts at managing and moderating our impacts, sustainable development, and safeguarding the NewSpace economy's future. However, all this capability and much else of modern life we take for granted (such as the space-based internet, the internet of things, and supporting efficient logistics and energy management, including the LAE) is under direct threat from the so-called "Kessler syndrome". This is a cascading catastrophic collapse of the LEO environment as a viable ecosystem to host all satellites and spacecraft due to the impact of more serious amounts of space debris.

I am honored to be invited by the Chinese Society of Astronautics to the China Space Conference in Shanghai from April 23-25 to speak on the key issue of space debris. This is a sensitive but increasingly hot topic where China can play an internationally essential and leading role. China is not responsible for most of the debris in LEO — that is the legacy of decades of Russian and American space launches of all kinds, but it has contributed. It could now show the world that it is not only a responsible space-faring power but one that can put global issues ahead of purely national ones for the good of all concerned.

The views do not necessarily reflect those of China Daily.

Space memo smear hard-sell for US satellites

An undated internal memo, US media outlets recently obtained from the State Department, urges countries to shun Chinese satellite services, citing security concerns.

Without providing any evidence to substantiate its claim, the document, which is ostensibly to provide talking points for senior US officials meeting with the representatives of other governments, warns that Beijing could use the satellite services it provides to gather military information and sensitive intelligence.

The irony is the world knows clearly that it is the United States that has been doing that — including targeting its allies and partners — taking advantage of its dominance of the space technology and industry.

With its "Star Wars" program transformed from a tool to consume Soviet Union resources during the Cold War into a standard configuration connecting its defense, intelligence and technology strategies, using its satellite services to gather other countries' "military information and sensitive intelligence" is only a small part of the US' overall space-related undertakings.

The US has built a holistic intelligence collecting system stretching from its satellite network in space, such as those related to SpaceX's Starlink program, to the digital terminals on Earth made up of smartphones, databases and base stations and the global submarine optical cable networks under its control.

The huge US-controlled system, which is expanding and developing fast, plays a crucial role in the wars, conflicts, cyberattacks and assassinations it engineers around the world.

It is the huge hegemonic interest associated with the US' dominance in the sector that has prompted it to guard against any other competitor touching its cheese in this realm, even if latecomers, such as China, are doing nothing but carrying out peaceful and cooperative space exploration and research.

China regards space, which is public space, as an extended part of the community with a shared future for mankind and acts accordingly, working with other partners, including both developed countries and Global South countries, to jointly

learn more about the universe we live in.

With its Shenzhou XX crewed spaceship scheduled to launch on Thursday, which is itself a fruit of international cooperation, China's fast rise in the space industry has provided more countries with opportunities to take part in space exploration and enjoy the benefits related to a wide range of applications in agriculture, logistics, transportation, people's livelihoods and disaster prevention, rescue and relief, among others.

In a stark contrast, the US treats outer space as its exclusive territory, a newfound land awaiting colonization. With its I-come-I-conquer expansionist view of space, the US regards space a first-come-first-served virgin land.

With a dominance of the realm that is hard to be changed by any latecomers, what the US is worried about is not only China's progress in related technology and application, but more importantly the concept Beijing has put forward which entitles even the least-developed countries to the peaceful use of outer space.

As that concept is increasingly embraced by countries as a principle for the space industry, the US' concerns that, if unchecked, it will ultimately lead to the formation of a set of inclusive and fair rules on space exploration, are understandable. If so, the US' dominance of the realm will be lost to its global obligation and responsibility.

Tellingly, the State Department memo also had advice for US officials who were asked about the Starlink satellite communication services, suggesting how they could promote it to fill the vacancy they hope will be left by their proposed ban on Chinese satellite services with reliable satellite services provided by a trusted US operator.

When SpaceX launched its first batch of Starlink satellites in May 2019, there were only around 2,000 operational satellites in the entire sky including a small number of high-orbit satellites. Today, that number has grown to over 11,000 most of which are low-orbit ones — nearly 7,000 of which belong to Starlink. And SpaceX has said it hopes to grow the number to 42,000 by 2027.

Looked at from that orbit, the memo is nothing but an advertising leaflet from the State Department for US business.

Lan Shunzheng

Commercial space missions boast vibrant industry

In 2016, China designated April 24 as its Space Day to commemorate its achievements in space exploration. The aerospace industry has boomed in recent years. China began its trust with commercial space launches in November 2024, when it successfully launched a Long March 12 carrier rocket from the Hainan commercial spacecraft launch site in Wenchang, South China's Hainan province. That was a milestone as it established China's commercial spacecraft launch site's capability to execute launches.

Commercial space activities are market-driven, aimed at developing, manufacturing, launching, and applying space technology and services through profitable commercial activities. Technological breakthroughs, reduced costs and promotion by the government have led to the growth of the commercial space industry.

The United States is the leader in this sector with a growing market size. A report by the US-based Satellite Industry Association showed that "during 2023, the overall global space economy generated revenue of \$400 billion. The commercial satellite industry continued to be dominant, increasing to \$285 billion and accounting for 71 percent of the world's space business".

The active participation by and innovation of private enterprises has helped boost the US' commercial space market. For example, commercial space giant SpaceX has made achievements in rocket launches, satellite manufacturing, and satellite internet. The US also leads in commercial space investment and financing. According to US-based Space Capital, a venture capital firm specializing in space-based technologies and their applications, the US accounted for 51 percent of equity investment in the space economy. The commercial space market in the US has vitality and attractiveness.

China entered the commercial space sector late but it has developed rapidly since 1985 when it announced that the Long March series of carrier rockets would be available for international satellite launch services.

Furthermore, China has continued to expand its satellite internet constellation projects, aiming to provide global broadband coverage.

Now, the booming space industry is contributing to China's high-quality economic development. With policy support and robust market demand, China's commercial space industry has gained its share of the international market. According to the China Astronautics Association for Quality, China's commercial space sector has grown from 0.6 trillion yuan (\$82.04 billion) in 2018 to 1.9 trillion yuan in 2023, with an average annual growth rate of 23 percent. It is expected that the growth will continue in the coming years.

Commercial space emphasizes technological innovation to drive industrial innovation, and it plays a crucial role in developing new quality productive forces and building a strong space nation. After decades of endeavor, China is ready to accelerate the development of the commercial space industry. Commercial space appeared in China's 2024 government work report as a new growth engine and a key driver of high-tech development in 2025.

China's commercial satellite and rocket companies have proliferated rapidly in recent years, but the lack of commercial spaceports has hampered the growth of the commercial space industry. The launch in Wenchang means that China has completed the full industrial chain of the commercial space industry, from satellite and rocket manufacturing, commercial launch site testing and launching, and satellite data application services.

China's first civilian-built space launch site in Hainan employs a flexible and efficient commercial mechanism for mission organization and management, which will promote social innovation.

The inaugural launch utilized a remote measurement and control system. The No 2 launch pad, executing the maiden mission, is China's first versatile launch pad designed for medium-lift liquid-fuel rockets, offering multi-mission adaptability, rapid turnaround, and high compatibility, which shows China's space industry has improved in cost efficiency and competitiveness.

The launch site can execute high-cadence and cost-effective launch missions, providing a stable and reliable platform for commercial rocket and satellite companies. The progress in China's launch capability will support large-scale low-Earth orbit constellation deployment missions for civilian and commercial space infrastructure projects.

The Long March 12 carrier rocket is China's first 3.8-meter-diameter launch vehicle and most capable single-core rocket, coupled with its modular design, which optimizes payload and cost performance.

Another innovation is streamlining pre-launch operations by assembling, testing and transporting the rocket lying flat. This has advantages in cost efficiency, security, accessibility and turnaround because the design eliminates the need for vertical assembly building, reduces high-altitude work, makes maintenance and modification easier, enhances efficiency, and enables high cadence potential.

The Long March 12 carrier rocket is poised to enter a high-frequency launch phase and will enhance China's ability to deploy satellites into sun-synchronous orbits and assemble low-Earth orbit constellation networking.

China launched a Long March 8 carrier rocket from the No 1 launch pad at the Hainan commercial spacecraft launch site in March, sending 18 satellites into space.

This month, the Hainan government has bolstered policy support to expedite the development of commercial space launch capabilities, including establishing an innovative platform for rocket recovery and reusability.

Furthermore, China has continued to expand its satellite internet constellation projects, aiming to provide global broadband coverage. The country's commitment to reducing launch costs and increasing the frequency of commercial missions has positioned it as a formidable player in the global space industry by 2025.

Continuous advancement will bolster China's space transportation and bring new technology, industry, and business models to the commercial rocket sector.

The author is a research fellow at the Charhar Institute and a member of the Chinese Institute of Command and Control. The views don't necessarily reflect those of China Daily.