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Crew to head for space station module

Astronauts will test technology during three-month stay

By ZHAO LEI
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China will launch its seventh manned space mission on Thursday morning to send three astronauts to the core module of the nation's permanent space station, according to a project leader.

Inside Ji Qiming, assistant director of the China Manned Space Agency, told reporters at a news conference on Wednesday at the Jiuquan Satellite Launch Center in northwestern China that the crew on board the Shenzhou XII spacecraft — Nie Haisheng, Liu Boming and Tang Hongbo — will be taken into space by a Long March 2F carrier rocket at 9:22 am on Thursday at the launch complex and will become the first occupants of the core module after their spacecraft docks with the module, which is traveling in a low-Earth orbit hundreds of kilometers above the ground.

Ji said that during its three-month stay in the module, named Tianhe, or Harmony of Heavens, the all-male crew is tasked with testing and verifying plans, technologies and equipment for crucial elements in the space station's construction and operation, such as astronauts' long-term mission arrangements, the life-support system, in-orbit resupply and extravehicular activity as well as spacecraft maintenance and repair.

They are also assigned with carrying out other space tasks and experiments.

Ji said that after Nie's crew finishes its three-month mission, it will return to Shenzhou XII and then depart from Tianhe and return to Earth to land at the Dongfeng Landing Site in the Inner Mongolia autonomous region.



Astronauts (left to right) Tang Hongbo, Nie Haisheng and Liu Boming — crew of the Shenzhou XII spacecraft — attend a news conference at the Jiuquan Satellite Launch Center on Wednesday. They are scheduled to be sent into space on Thursday morning. **SU DONG / FOR CHINA DAILY**

He noted that Nie, who has already flown twice in space, will be the mission commander, adding that the mission's alternative crew members are Zhai Zhigang, Wang Yaping and Ye Guangfu.

Through this mission, the manned space agency will be able to accumulate experience and check the capability, performance and compatibility of systems involved in the space station program, according to the official.

The Long March 2F rocket to be used in the mission started to pump propellants into its fuel tanks on Wednesday morning, he said.

Tianhe was launched by a Long

March 5B heavy-lift rocket at the Wenchang Space Launch Center in Hainan province on April 29. The largest and heaviest spacecraft China has ever built, the module is the first part of the Chinese space station, named Tiangong or Heavenly Palace.

The module is now connected with the Tianzhou 2 robotic cargo ship, which was launched by a Long March 7 rocket from the Wenchang facility on May 29. The two spacecraft docked with each other the next day.

All pre-launch preparations have so far been completed. The Tianhe-Tianzhou 2 combination is orbiting Earth at an altitude of

about 390 kilometers, waiting for astronauts' arrival, Ji said.

Hao Chun, director of the China Manned Space Agency, told China Daily in April that the Tianzhou 3 cargo ship will be launched from Wenchang in September to dock with Tianhe. The next month, another three-astronaut team will fly to the core module on Shenzhou XIII to work there for six months.

Responding to China Daily's question on concern over debris from rockets and spacecrafts, Ji said that it is international practice to leave a rocket's last stage to uncontrolled orbital descent and then atmospheric reentry, stressing

that people should not worry about debris from Chinese rockets.

"All of our rockets to be used in the construction of our space station have technologies to ensure their last stage will not explode in orbit, which will create space junk, and most of the stage will burn up during the reentry into the atmosphere. The chances of causing harm to air traffic activities and people and assets on the ground are very low," he said.

The agency has closely monitored the atmospheric reentry of rockets previously launched and published related information in a timely manner, according to the official.

China's Heavenly Palace welcomes international cooperation

By ZHAO LEI
at Jiuquan Satellite Launch Center

China welcomes foreign astronauts to its space station to work with their Chinese counterparts, according to a senior space official.

Ji Qiming, assistant director of the China Manned Space Agency, said on Wednesday that many foreign countries and regions have expressed their intention to cooperate in joint flights on board the Chinese space station.

"We welcome cooperation in this regard in general," he said at a news conference at the Jiuquan Satellite Launch Center. "We believe that after our space station is completed in

the near future, we will see Chinese and foreign astronauts flying and working together."

Outer space is a shared asset of all people on Earth, and space exploration is a universal cause for humankind, said Ji, adding that China is open to cooperation and exchanges with all nations and regions around the globe that are dedicated to the peaceful use of outer space.

Comprehensive cooperation and communication on spacecraft technology, space experimentation and astronaut selection and training have already taken place between China and several countries including Russia, Germany and Italy, as

well as international organizations such as the United Nations Office for Outer Space Affairs and the European Space Agency.

Ji said that as the Chinese space station, named Tiangong, or Heavenly Palace, has entered the construction stage, China will deepen its cooperation and exchanges with partners in a wide variety of fields ranging from joint space exploration to joint flights.

The China Manned Space Agency and the United Nations Office for Outer Space Affairs have jointly issued a statement inviting scientists from around the world to submit their research proposals for an opportunity

to conduct their own experiments aboard the Chinese space station.

"We have selected and confirmed nine scientific projects submitted by 17 foreign nations that will be carried out in our space station, with related work proceeding well," Ji said. "We will continue working with the UN office to prepare for the second round of the solicitation of proposals for future scientific cooperation."

Nie Haisheng, a senior astronaut and commander of the Shenzhou XII mission crew, said on Wednesday that Tiangong will be a "home" for Chinese astronauts in space.

"We welcome our foreign counterparts, who we will treat as

friends, to join us at this home. We are determined to make our station a shared platform to advance science and technology to benefit all people around the world," he said.

Hao Chun, director of the China Manned Space Agency, said in April that more than 20 cabinets aboard the space station will be reserved for scientific instruments designed in accordance with international standards, adding that these will be available for international cooperation.

"Many foreign space organizations have told us that they hoped we could open our station to their astronauts. Some foreign astronauts have started to learn Chinese," Hao said.

Commander takes place in China's space history

By ZHAO LEI
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Major General Nie Haisheng will become the second Chinese astronaut involved in three spaceflights, after his peer Jing Haipeng, as the country is set to launch its seventh manned space mission on Thursday morning.

Nie is commander of the three-member crew of the Shenzhou XII mission, which will be lifted into orbit by a Long March 2F carrier rocket at the Jiuquan Satellite Launch Center in northwestern China's Gobi Desert.

Born in September 1964, Nie is the sixth child of a large farming family in Yangtang township in Hubei province.

Having six sisters and one younger brother, he grew up in a poor village house and witnessed his parents struggle to work their farmland to make ends meet.

Nie recalls that his parents often worried when the time came to pay for their sons' primary school tuition, and it was not uncommon for them to borrow the money from relatives or neighbors. He also remembers that one time his parents could not borrow the fee and had no choice but to tell him to give a rabbit to the teacher in place of the tuition money.

Nie's father died of disease when he was 14. As the eldest son, he had to leave school and start farming as he was obliged to help his mother and older sisters support the family.

Fortunately, the schoolmaster and his class teacher came to Nie's family after hearing about the boy's difficulties. They managed to persuade the family to allow him to continue with his studies and told the boy that his tuition fees would be reduced and the school would provide him with some used textbooks.

The hardships Nie underwent in childhood and adolescence taught him diligence, fortitude, caring and gratefulness, he said.

When Nie studied at a local high school, he would find part-time jobs

during summer and winter vacations, such as carrying timber or packing tea, to earn the tuition fees for the next semester.

When he was about to graduate from high school in the summer of 1983, the People's Liberation Army Air Force opened its annual recruitment drive for trainee pilots. He applied and was admitted to an Air Force flight academy.

After four years of hard training, he graduated with outstanding scores and was deployed to a fighter jet unit.

During his 10 years with the unit, Nie flew a total of 1,480 hours in three types of fighter jets and was decorated for his good skills and service performance.

In the winter of 1995, three years after China's top leadership approved the country's current manned space program, the Central Military Commission decided to start selecting astronaut candidates. Military authorities stipulated that the candidates should be chosen from the ranks of veteran Air Force pilots with at least 600 flight hours in fighter jets or attack aircraft. More than 1,500 pilots applied for the positions and after several rounds of strict tests, only 14 passed the final selection process.

In January 1998, Nie and his 13 male comrades became the founding members of the PLA Astronaut Division.

He has already taken part in two spaceflights—the Shenzhou VII in October 2005 and Shenzhou X in June 2013.

Nie said he felt honored when President Xi Jinping came to the Jiuquan Satellite Launch Center before Shenzhou X was launched to wish the crew a safe, smooth journey.

Another unforgettable moment took place during the mission when Xi came to the Beijing Aerospace Control Center to speak with Nie and his crew members. The president encouraged the crew to complete their tasks with full success and wished for their safe return, according to the astronaut.

Astronauts to tap abundant experience

Nie Haisheng

Major General Nie Haisheng, 56, a native of Hubei province, joined the People's Liberation Army Air Force in June 1983. A veteran astronaut, he is the incumbent head of the PLA Astronaut Division.

Nie was an experienced pilot in an Air Force fighter jet regiment before being selected in January 1998 as one of the nation's first astronauts.

He was one of the two alternates to Yang Lwei, who was chosen to conduct China's first manned spaceflight in October 2003.

In October 2005, Nie performed his first space mission onboard the Shenzhou VI spaceship with Fei Junlong, fulfilling the country's first multi-day crewed spaceflight.

In June 2013, he carried out his second space journey on the 15-day Shenzhou X mission with Zhang Xiaoguang and Wang Yaping.

Nie, Liu Boming and Tang Hongbo were selected for the Shenzhou XII crew in December 2019.



Nie Haisheng



Liu Boming



Tang Hongbo

Liu Boming

Major General Liu Boming, 54, a native of Heilongjiang province, joined the PLA Air Force in June 1985 and served as squadron commander of a fighter jet regiment before becoming one of the founding members of the PLA Astronaut Division in January 1998.

In June 2005, Liu was selected as an alternate for the Shenzhou VI mission's two-member crew.

In September 2008, he took part in the Shenzhou VII mission with Zhai Zhigang and Jing Haipeng, staying nearly three days in space. During the mission, he assisted Zhai in carrying out the first extravehicular activity by a Chinese astronaut.

Tang Hongbo

Senior Colonel Tang Hongbo, 45, a native of Hunan province, joined

the PLA Air Force in September 1995 and was gradually promoted to the post of group commander of a fighter jet regiment.

Tang became a member of the second group of astronauts at the Astronaut Division in May 2010 and was chosen in May 2016 as an alternate to the two-member crew of the Shenzhou XI mission.

ZHAO LEI

Stringent training will help fulfill spacewalk mission

By ZHAO LEI
at Jiuquan Satellite Launch Center

Astronauts on the Shenzhou XII mission have undergone intensive training and exercises for their planned extravehicular activities, commonly known as spacewalks, according to Liu Boming, a member of the crew.

"Compared with the extravehicular operation in the Shenzhou VII mission, extravehicular activities in this coming mission will be much longer and more sophisticated, and I believe that there will be difficulties and challenges," Liu said at a briefing for reporters at the Jiuquan Satellite Launch Center in Northwest China on Wednesday morning, one day ahead of

their departure.

"Therefore, we have received comprehensive, systematic and stringent training," he said. "We will strive to make every extravehicular task successful through our cooperation and with support from ground control."

During the planned spacewalks, astronauts will wear a new-generation, domestically developed extravehicular suit, Liu said, adding that one maneuver will involve him standing on a mechanical arm.

Ji Qiming, assistant director of the China Manned Space Agency, said on Wednesday at the Jiuquan center that astronauts will make two lengthy spacewalks during the mission and use external mechanical arms to install equipment and check

the Tianhe core module's condition.

Liu took part in the three-day Shenzhou VII spaceflight in September 2008 with Zhai Zhigang and Jing Haipeng. He and Zhai worked together to conduct the first, and so far only, spacewalk by Chinese astronauts.

During the operation, Zhai stayed out of the spacecraft for about 15 minutes while Liu moved the upper half of his body out of the craft for several minutes to assist Zhai.

"It was a great honor for us to undertake the country's first extravehicular activity," Liu recalled. "We had some difficulties, but we were determined to accomplish our task and wave our national flag in outer space no matter what happened. Finally, we made it."

Tang Hongbo, who will embark on his first space trip said at the meeting that he has been undergoing demanding training for 11 years and passed many selection rounds and tests to qualify for the Shenzhou XII mission.

"This will be my first mission, so I do feel the pressure in my mind," he told reporters. "But I am convinced that pressure can translate into motivation, and our confidence is a guarantee of success."

Tang said the crew will unite as one and strive to build the Chinese space station into a "home in space for the Chinese nation." He added he is looking forward to seeing his "beautiful motherland and hometown" when the spacecraft flies over China.