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Spacesuit for lunar missions unveiled

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The China Manned Space Agency has unveiled the exterior design of the country's moon-landing spacesuit for the first time, soliciting its name from members of the public.

The white spacesuit with red stripes debuted on Saturday at the third Spacesuit Technology Forum in Chongqing.

The design incorporates exquisite traditional art and represents the spirit of bravery and exploration of the Chinese people, according to the agency.

The red stripes on the upper limbs are inspired by ribbons from the famous "flying apparatus" of Dunhuang art, while those on the lower limbs resemble rocket launch flames.

The agency said the spacesuit is made from protective materials that can effectively shield astronauts from complex environmental factors on the moon such as vacuum, extreme temperature, radiation and lunar dust.



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ZHOU YI / CHINA NEWS SERVICE

The suit is equipped with a multifunctional integrated control panel that is easy to operate, as well as cameras for recording close-up and long-distance scenes. It also features flexible and reliable gloves, a panoramic glare-proof helmet visor, and joints adapted for low-gravity environments.

When wearing the special suits, the astronauts will be able to walk, climb, drive and conduct scientific tasks on the lunar surface, the agency said, adding that the suit is lightweight, compact, highly reliable and very safe.

China now has two types of spacesuits — one that is used for activities inside a spacecraft and the other for extravehicular activities, such as spacewalks.

The nation has announced its plan to conduct its first manned mission to the moon around 2030. To

achieve the goal, it needs to develop a host of cutting-edge hardware, including a manned lunar lander, a new crew spaceship and the special suit for lunar surface operations.

Yang Yuguang, a senior space industry observer and vice-chair of the International Astronautical Federation's Space Transportation Committee, said the spacesuit will support activities on the lunar surface that will likely last for several hours, so it must be lightweight and capable of resisting the impact of lunar dust.

"Preparing for a moon walk will be sophisticated and will involve many steps. It is understandable that astronauts will stay as long as possible outside their landing craft during each extravehicular mission to execute their tasks. Therefore, designers must make the spacesuit as light as possible to reduce the physical burden of astronauts," Yang said.

Improving sky eye to ace scientific competition

The construction of the prototype of the core array of the Five-hundred-meter Aperture Spherical Radio Telescope, commonly known as "China Sky Eye", officially began on Wednesday. The plan is to harness the electromagnetic wave environment within a 5-kilometer radius surrounding FAST to build 24 telescopes of 40-meter aperture each, forming a core array that is expected to effectively enhance FAST's resolution, precise positioning, and detailed mapping capabilities.

The upgrading coincides with FAST's eighth anniversary. In the 1990s, when China's largest radio telescope had an aperture of less than 30 meters, Chinese astronomers proposed the construction of the "China Sky Eye", with the aim of

surpassing the then world's largest Arecibo Observatory in Puerto Rico, which had a diameter of 305 meters when made operational in the 1960s and later expanded to 350 m. Site-selection for FAST began in 1994, the project received approval in 2007, construction commenced in 2011, it was made operational in September 2016, and, on passing national acceptance tests, became operational in 2020.

Since then, FAST has crossed many milestones to become the world's No 1 in the sector. Although FAST has high sensitivity, it lacks good resolution. Globally, the first phase of the construction of the Square Kilometer Array Observatory, split across South Africa and Australia, is likely to see completion

in 2029, while the next generation Very Large Array observatory in the United States is scheduled for completion in 2035. They will have an edge over FAST in both resolution and sensitivity. It is for this reason that FAST is constructing the core array, which will enable it to see farther and more clearly.

The latest upgrading involves a low-cost and rapid implementation plan for building radio telescope arrays, which shows that top-level planning is essential for constructing large science devices. By setting outstanding goals and targeting real needs, China can build high-quality equipment to seize the commanding heights of international scientific competition.

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