2025: A space odyssey

Shukla's '*Jai Hind!*' echoes from space as Indian enters orbital club after 41 yrs, gearing up for Gaganyaan leap

SHINE JACOB
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Forty-one years after Rakesh Sharma's iconic words — "*Saare Jahan Se Achcha*" — echoed from orbit, another Indian voice has been heard from space. "*Jai Hind*! *Jai Bharat*!" said Group Captain Shubhanshu Shukla, speaking from aboard Axiom Mission 4 (Ax-4) as it made its way to the International Space Station (ISS).

A little after noon (India time), the mission to the ISS in low-Earth orbit lifted off from Nasa's Kennedy Space Center in Florida. It marked a historic return: India's first government-sponsored human spaceflight since Sharma's 1984 mission aboard a Soviet Soyuz spacecraft, and a significant precursor to its own Gaganyaan programme. The Indian Space Research Organisation (Isro) is investing ₹550 crore in this mission, an early instalment in the country's grand ambitions for human space exploration.

"*Namaskar*, my dear countrymen! what a ride!" Shukla exclaimed. "We are back in space once again after 41 years. *Kya kamaal ki ride thi (*What an amazing ride it was). We are revolving around the Earth at a speed of 7.5 kilometres per second." He will reach the ISS on Thursday, after an approximately 28-hour journey. Turn to Page 6

Indian astronaut Shubhanshu Shukla (*second from left)*, pilot of the Axiom Mission 4 — along with other crew members Tibor Kapu, Peggy Whitson , and Slawosz Uznanski-Wisniewski — aboard the SpaceX Dragon capsule bound for the ISS PHOTOS: PTI

"THE TIRANGA EMBOSSED ON MY SHOULDERS TELLS ME THAT I AM WITH ALL OF YOU. THIS IS NOT JUST THE BEGINNING OF MY JOURNEY TO THE ISS, BUT THE BEGINNING OF INDIA'S HUMAN SPACE PROGRAMME"

Shubhanshu Shukla, Group Captain (first Indian to go to ISS)

Space sector should move beyond Isro: IN-SPACe chairman PAGE 20

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Mission may help India's pvt space sector take off: Industry

If Sharma's words once captured a generation's imagination, Shukla's mission lands in a different context: One shaped by India's emerging commercial space sector and its growing integration into global supply chains and research networks. The Axiom mission, a joint venture between Nasa and Houston-based Axiom Space, is emblematic of that shift. It's a commercially managed flight, launched on a SpaceX Falcon 9 rocket, and operated through the Crew Dragon C213 capsule.

The implications stretch far beyond symbolism. While space ambitions of Indian private sector major like Larsen & Toubro, the Tata group, and Ananth Technologies are expected get lift, startups including Dhruva Space, Bellatrix Aerospace, Skyroot, and Agnikul Cosmos are positioned to ride the next wave of activity in the sector.

"The Tiranga embossed on my shoulders tells me that I am with all of you. This is not just the beginning of my journey to the ISS, but the beginning of India's human space programme"

Once the Dragon capsule docks after its 28-hour journey, Shukla will become the first Indian to reach the ISS. He joins three other astronauts -- retired Nasa astronaut and Mission Commander Peggy Whitson (US), Slawosz Uznanski-Wisniewski (Poland), and Tibor Kapu (Hungary) -- for a 14-day mission involving over 60 research experiments from 31 countries, seven of which have been proposed by Indian researchers.

"The Indian astronaut... carries with him the wishes, hopes and aspirations of 1.4 billion Indians," said Prime Minister Narendra Modi. President Droupadi Murmu echoed the sentiment with the Sanskrit phrase Vasudhaiva Kutumbakam (the world is one family).

SpaceX Falcon 9 rocket, with the Crew Dragon capsule carrying astronaut Shubhanshu Shukla and three others, lifts off from the launch pad at the Kennedy Space Centre, in Florida, USA PHOTO: PTI

Shukla's selection for Ax-4 is part of a longer arc. He is one of four astronauts named by Modi last year -- alongside Prashanth Balakrishnan Nair, Ajit Krishnan, and Angad Prathap – as the shortlists for the Gaganyaan mission, currently slated for late 2026 or early 2027. His role as Ax-4 pilot offers valuable hands-on experience for what will eventually be the fully indigenous crewed mission.

The Axiom model -- a public-private collaboration -- has sparked conversation in India about adapting similar frameworks. "Ax-4 is a beacon for the new era of space exploration," said Pawan Kumar Chandana, co-founder of Skyroot Aerospace. "This proven model... can be strategically adopted for near-Earth missions, including satellite constellation deployments and beyond."

Industry players believe the mission could act as a launchpad for broader momentum. "This journey is a testament to the growing global footprint of India in space exploration," said A K Bhatt, director General of the Indian Space Association (ISpA). "India is now in the final stages of preparation for the Gaganyaan mission, with groups like Larsen & Toubro, Tata and Ananth Technologies playing a critical role, alongside our vibrant startups. If all goes as planned, we are just one or two years away from realising the dream of sending Indian astronauts to space on an entirely indigenous platform."

A recent Ficci-EY report projected that India's space economy, currently worth $8.4 billion, could expand to $44 billion by 2033. The country's share in the global space market, currently around 2 per cent, is expected to quadruple. That vision, however, will require an estimated $22 billion in cumulative investment, and the alignment of an ecosystem already showing signs of depth: Over 300 startups are working across segments from launch vehicles to satellite design, with players like MapmyIndia now contributing geospatial and navigation technology.

"This mission marks a big step for India, not just in human spaceflight, but also for our "growing private space industry," said Yashas Karanam of Bellatrix Aerospace. "It will inspire the next generation of innovators and help build a strong, self-reliant space ecosystem."

According to media reports, research contributions during Ax-4 are also coming from the European Space Agency (ESA), Nasa, and Hungary's HUNOR programme. Polish experiments will study neurofeedback, gut microbiome shifts, and wearable health technologies, while Hungarian projects will focus on cognition, motor function, and even the resilience of fruit flies in microgravity.

As Shukla orbits Earth, his mission reflects not just a return to space, but a redefinition of India's role in it—rooted in collaboration, driven by science, and powered by an increasingly ambitious space economy.