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TENSIONS MAR A MISSION TO TIANGONG

Relevant for: Science & Technology | Topic: Space Technology & related matters

The main campus of the Indian Institute of Astrophysics in Bengaluru, Karnataka.Special Arrangement

Tensions between India and China since May 2020 is worrying Indian astrophysicists involved in an ambitious project to install an Indian-made spectroscope aboard the developing Chinese space station Tiangong.

Scientists at the Indian Institute of Astrophysics (IIA), Bengaluru, were among nine groups selected from 42 applicants in 2019 as part of a UN-led initiative that invites research teams from all over the world to compete for an opportunity to design payloads that will be shuttled to Tiangong aboard rockets of the Chinese Manned Space Agency.

The project, called Spectrographic Investigation of Nebular Gas (SING), also involves collaboration with the Institute of Astronomy, Russian Academy of Sciences, and has been designed and developed by research students at the IIA. The plan is to have it ready by the year-end so that it can be launched in the summer of 2023.

Though the plan is on schedule, scientists at the IIA are now consulting with the Indian Space Research Organisation (ISRO) and the External Affairs Ministry whether they are in the clear to go ahead with the project.

“We are cautiously hopeful that the project will progress as scheduled,” said Jayant Murthy, Senior Professor, IIA, and the coordinator for the project. “Technical discussions on the payload are still on with China and we have conveyed to them that we need an export clearance from Indian authorities to go ahead. We have written to our relevant agencies and are awaiting their response,” he said.

The SING project will be the first space collaboration involving India and China, and primarily deals with sending and positioning a spectrograph, an instrument that splits light into constituent frequencies and wavelengths, to study ultraviolet radiation. This will help analyse the make-up and sources of interstellar gas in the region that swept by the space station as it orbits around the earth.

Opportunity at hand

“We could certainly launch this instrument aboard other space missions, including those by ISRO. However, every mission that carries payloads carries a certain cost — in terms of making space, assigning manpower and so on — at the end of the launch vehicle, and that requires planning and budgeting time. Right now, we have an opportunity aboard the CSS (Chinese space station) and it would be wonderful to have the payload on it,” Professor Murthy said.

The T-shaped Tiangong space station, when complete, is expected to be around 20% as massive as the International Space Station, or about 460 tonnes on earth. The space station consists of three modules, two of which have already been launched in April 2021 and July this year, respectively.

The third is expected to be launched this October. It will be only the second such station after the International Space Station in orbit.

India and China have been collaborators in the past on research projects such as the Giant Metre Wave Radio Telescope, a Pune-based observatory employed by astrophysicists across the world to study radiation at metre-scale resolutions to observe and analyse stars and galaxies.

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