

IIA hands over key Aditya-L1 payload to study corona to Isro

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Bengaluru: The Indian Institute of Astrophysics (IIA), which has built the Visible Line Emission Coronagraph (VELC) payload for Isro's Aditya-L1 mission at its CREST (Centre for Research and Education in Science and Technology) campus in Hoskote, handed it over to the space agency on Thursday.

Aditya-L1 is India's first dedicated scientific mission to study the sun, and it is expected to be launched in the second half of this year. It is an observatory-class space-based solar mission wherein the spacecraft will be placed in a halo orbit around the first Lagrange point (L1) of the sun-earth system.

According to Isro, a satellite around L1 has the major advantage of continuously viewing the sun without occultation/eclipses. Aditya-L1 will carry seven payloads to observe the photosphere, chromosphere, and the outermost layers of the sun (the corona) using electromagnetic and particle detectors. While four payloads directly view the sun from L1, the remaining three carry out in-situ studies of particles and fields at L1. IIA said: "The pay-



3D-printed model of the VELC payload designed and developed by IIA

load is designed as an internally occulted reflective coronagraph and has been assembled, tested and calibrated on the CREST campus."

Pointing out that one of the main puzzles in solar astrophysics is that the atmosphere of the sun is at a temperature of about a million degrees whereas the surface is only at about 6,000 kelvin, IIA said that answering this needs continuous observation of the corona.

What's unique

It can image solar corona down to as close as 1.05R_o (that is, starting from 1.05 times the solar radius). That would be the closest any coronagraph on a space mission will be able to image the corona ever. It can take observations roughly three times every second and with a high pixel resolution of 2.5 arc-seconds per pixel.