

Ultraviolet Imaging Telescope

September 29, 2020

The Ultraviolet Imaging Telescope, or the UVIT, is a remarkable **3-in-1 imaging telescope simultaneously observing in the visible, the near-ultraviolet (NUV), and the far-ultraviolet (FUV) spectrum**. It is **one of the five payloads onboard India's first multi-wavelength astronomical observatory AstroSat** and completed five years of operation in the sky.

More About UVIT

- The UVIT **comprises two separate telescopes**. One of them works in the visible (320-550 nm) and the NUV (200-300 nm). The second works only in the FUV (130-180 nm).
- It has carried out 1166 observations of 800 unique celestial sources proposed by scientists both from India and abroad.
- It has explored
 - . stars/ star clusters
 - . **mapping of the large and small satellite galaxies** nearby to our own Milky Way galaxy called the Magellanic Clouds
 - . an energetic phenomenon in the universe such as the **ultra-violet counterparts to gamma-ray bursts**, supernovae, active galactic nuclei, and so on.
- Its **superior spatial resolution capability** has enabled astronomers to probe star formation in galaxies as well as resolve the cores of star clusters (3 times better than the last NASA mission, GALEX).
- Observations from UVIT have recently **led to the discovery of a galaxy** located at a distance of about 10 billion light-years from Earth and **emitting extreme ultraviolet radiation that can ionize the intergalactic**

medium.

- The UVIT project was **led by the Indian Institute of Astrophysics (IIA)**, an autonomous institute of the Department of Science & Technology, in collaboration with the Inter University Centre for Astronomy and Astrophysics, Pune, the Tata Institute of Fundamental Research, Mumbai, several centers of ISRO and the Canadian Space Agency.
- Just as optical telescopes have filters to image the sky in the red or blue or green range of wavelengths, so also the UVIT has **filters to image the NUV and FUV (and the visible) in different narrow wavelength bands**. These filters are mounted on wheels which can be spun to bring whichever filter the astronomer wants into the light path.