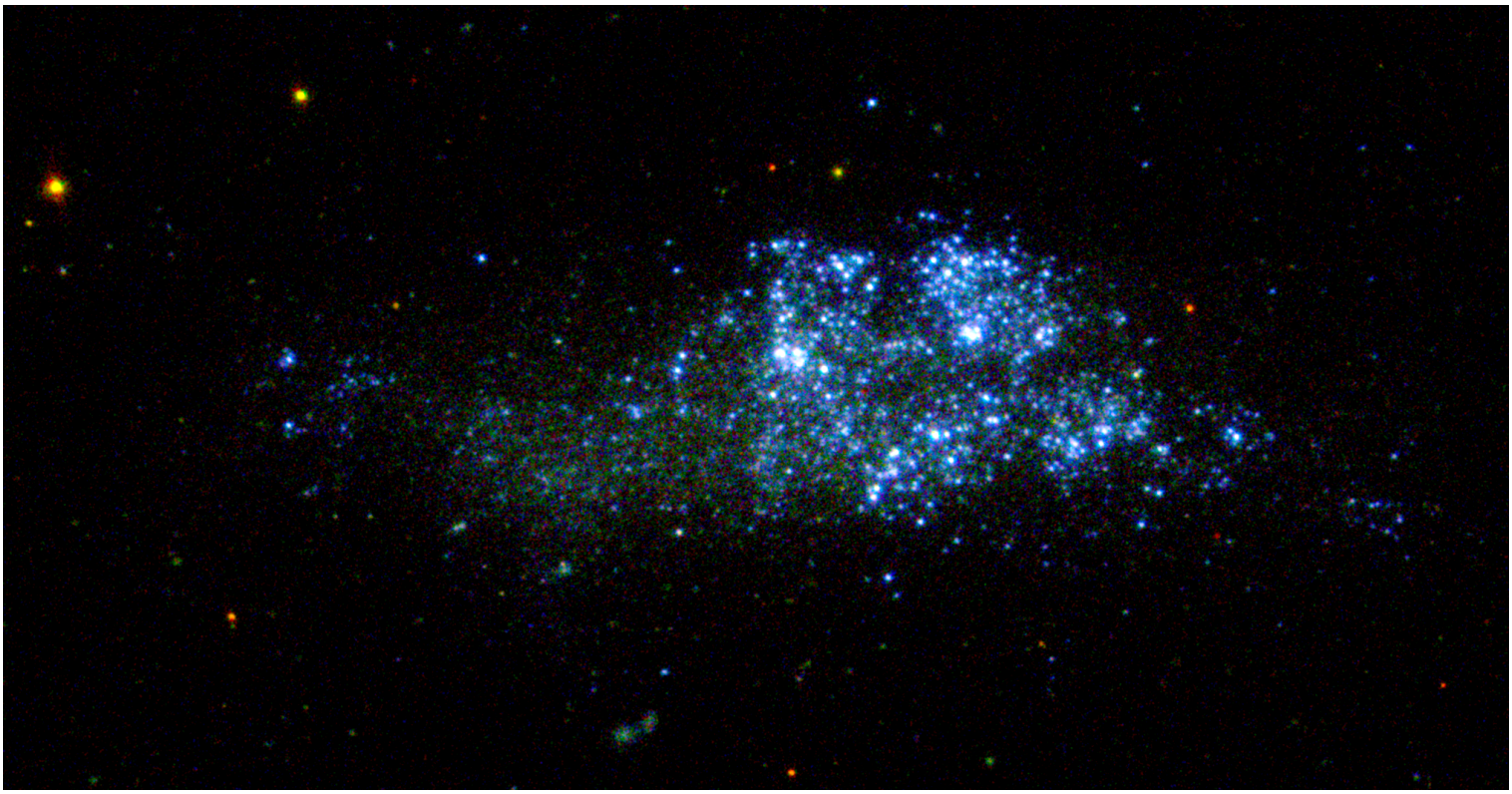
AstroSat Picture of the Month - Sep 2017

WLM: Forming stars efficiently in grand isolation



Located in the constellation Cetus, 3 million light years away, is a faint dwarf galaxy, Wolf-Lundmark-Melotte, or WLM for short. It is relatively isolated, lying in the outskirts of our Local Group of Galaxies. It has a mass that is thousands of times less than the Milky Way and a metallicity that is only 13% solar. Lower metallicity implies less heavier elements, which in turn hinders forming new stars. So why did AstroSat even look at this galaxy? WLM is a dwarf irregular galaxy with a low mass and metallicity and exists in solitude. Nevertheless, it manages to form new stars extremely efficiently. Adjusted for their respective masses, WLM forms stars at a rate that is 12 times higher than our own Milky Way! Astronomers are still not sure as to how WLM does this.

Annapurni Subramaniam and her student Chayan Mondal at the Indian Institute of Astrophysics in Bengaluru wanted to understand how this diminutive galaxy is such an efficient star factory. They decided to use the Ultra Violet Imaging Telescope on board the AstroSat to image the younger star clusters in WLM. In this image, the blue dots are the star clusters imaged in Far Ultra-Violet (130-180 nm) and the yellow dots are those imaged in Near Ultra-Violet (180-300 nm). They are currently analysing this data and will soon be able to fit one more piece into the puzzle that is WLM.

Info: AstroSat, India's first dedicated multi-wavelength space observatory, was launched by ISRO on 28 Sep 2015. It has five intruments on board - the Ultra Violet Imaging Telescope, the Soft X-ray Telescope, the Large Area X-ray Proportional Counter, the Cadmium-Zinc-Telluride Imager and the Scanning Sky Monitor.

"AstroSat Picture of the Month" is an initiative of the Public Outreach and Education Committee of the Astronomical Society of India and AstroSat Training and Outreach Team.

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