

XPoSat mission

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About XPoSat mission

- It is the first dedicated scientific satellite from ISRO to carry out research in space-polarisation measurements of X-ray emission from celestial sources.
- It carries two payloads namely
 - POLIX: It is an X-ray Polarimeter for astronomical observations in the energy band of 8-30 keV.
 - The payload is being developed by Raman Research Institute (RRI), Bangalore in collaboration with U R Rao Satellite Centre (URSC).
 - It is expected to observe about 40 bright astronomical sources of different categories during the planned lifetime of XPoSat mission of about 5 years.
 - This is the first payload in the medium X-ray energy band dedicated for polarimetry measurements.

- XSPECT: It is an X-ray SPECTroscopy and Timing payload onboard XPoSat, which can provide fast timing and good spectroscopic resolution in soft X-rays.
 - It can provide long-term monitoring of spectral state changes in continuum emission, changes in their line flux and profile, simultaneous long term temporal monitoring of soft X-ray emission in the X-ray energy range 0.8-15 keV.
 - It would observe several types of sources viz X-ray pulsars, blackhole binaries, low-magnetic field neutron star (NS) in LMXBs, AGNs and Magnetars.
 - The launch put India in an elite category as it has become the second (after NASA's Imaging X-ray Polarimetry Explorer (IXPE) launched in 2021) nation to send an observatory to study astronomical sources such as black holes, neutron stars among others.
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Q1) What is a magnetar ?

It is an exotic type of neutron star, its defining feature is that it has an ultra-powerful magnetic field. The field is about 1,000 times stronger than a normal neutron star and about a trillion times stronger than the Earth's. Apart from ultra-powerful magnetic fields, magnetars also release vast amounts of energy in the form of flares, X-rays, and gamma-ray bursts.

Source: [ISRO successfully launches PSLV-C58 XPoSat mission](#)

Source: <https://vajiramandravi.com/current-affairs/xposat-mission/>

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