

## eXTP (enhanced X-ray Timing and Polarimetry mission): scientific objectives and sensors

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The Enhanced X-ray Timing and Polarimetry (eXTP) mission is a collaboration between Chinese and European research institutes and is designed to study the state of matter under extreme conditions of gravity, density and magnetic field. The primary objectives are to determine the equation of state of matter at densities higher than nuclear, measure QED effects in very high magnetic fields and study accretion discs in the strong gravity regime. To do this, the mission will study neutron stars in binary and isolated systems, magnetars and black holes.

The observations will be carried out thanks to the satellite's instrumentation, which will allow spectroscopy, timing and polarimetry of X-ray sources in the 0.5-30 keV energy range to be analysed simultaneously. The instrumentation includes the Spectroscopic Focusing Array (SFA), the Large Area Detector (LAD), the Polarimetry Focusing Array (PFA) and the Wide Field Monitor (WFM).

The Trieste section of INFN and TIFPA, in particular, are involved in this mission through the design and testing of Silicon Drift Detectors (SDD) for LAD and WFM, large area sensors for collimator X-ray spectroscopy and imaging respectively.

In order to achieve the scientific objectives of the mission, the sensors must meet very stringent specifications. Design techniques and verification measures were devised to assess their characteristics in order to carry out a careful selection process before integration.

### Summary

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