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## **The X/Gamma-ray Imaging Spectrometer (XGIS) for THESEUS and other opportunities**

*Wednesday, 7 July 2021 11:50 (20 minutes)*

The Transient High-Energy Sky and Early Universe Surveyor (THESEUS) mission concept aims at fully exploiting Gamma-Ray Bursts (GRB) for early Universe and multi-messenger astrophysics, as well as providing a substantial advance in time-domain astronomy through detection, accurate location, multi-wavelength (0.3 keV – 10 MeV plus near IR) characterization, and redshift measurement, of many classes of high-energy transients. I will describe the science case, scientific requirements and concept of the X/Gamma-ray Imaging Spectrometer (XGIS), a GRB and transients monitor capable of covering an exceptionally wide energy band (2 keV – 10 MeV), with imaging capabilities and location accuracy  $<15$  arcmin up to 150 keV over a Field of View of 2sr, a few hundreds energy resolution in the X-ray band ( $<30$  keV) and few  $\mu$ s time resolution over the whole energy band. In synergy with the Soft-X-ray Imager (0.3 – 5 keV) and the Infra-Red Telescope (IRT), combined with spacecraft fast slewing capabilities, the XGIS will allow THESEUS to detect, accurately localize and characterize any class of GRBs (long, short, high-z, sub-energetic, ultra-long, etc.), as well as further bright X/gamma-ray transients, for a fraction of which the IRT will provide detection, arcsec localization, moderate spectroscopy and on-board redshift determination. Thanks to a design based on a modularity approach, the XGIS can be easily re-scaled and adapted for fitting the available resources and specific scientific objectives of other high-energy astrophysics missions.

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