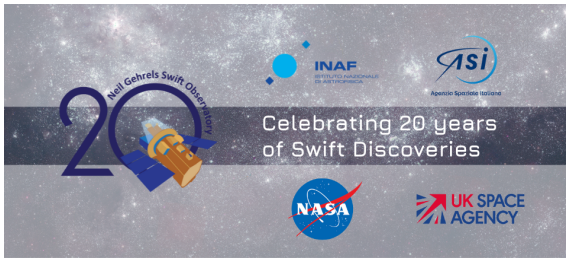

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The Transient High-Energy Sky and Early Universe Surveyor (THESEUS)

Wednesday 26 March 2025 12:15 (15 minutes)

The Transient High-Energy Sky and Early Universe Surveyor (THESEUS) is a mission concept, developed by a large European collaboration, under study by ESA since 2018 and currently one of the three candidate M7 mission for a launch in the second half of the 30s, aiming at fully exploiting Gamma-Ray Bursts for investigating the early Universe and as key phenomena for multi-messenger astrophysics. In particular, by providing an unprecedented combination of X-/gamma-ray monitors, on-board IR telescope and spacecraft autonomous fast slewing capabilities, THESEUS will be a wonderful machine for the detection, multi-wavelength characterization and redshift measurement of any kind of GRBs and many classes of X-ray transients, including high-redshift GRBs for cosmology (pop-III stars, cosmic reionization, SFR and metallicity evolution up to the "cosmic dawn") and electromagnetic counterparts to sources of gravitational waves. THESEUS will also provide breakthrough measurements of GRB prompt and afterglow emission, as well as the detection and multi-wavelength characterization of many classes of high-energy transients. In all these s respects, THESEUS will thus provide an ideal synergy with the very large astronomical facilities of the future working in the e.m. (e.g., ELT, TMT, CTA, SKA, Athena) and multi-messenger (e.g., Einstein Telescope, Cosmic Explorer, km3NET) domains.

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