THESEUS Workshop 2017

Naples, October 05-06, 2017

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Sponsorship

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FOREWORD

The Transient High Energy Sky and Early Universe Surveyor (THESEUS) is a mission concept, under development by a large international collaboration and currently under evaluation by ESA within the selection process for next M5 mission, aimed at exploiting Gamma-Ray Bursts for investigating the early Universe and providing a substantial advancement of time-domain and multi-messenger astrophysics. These goals will be achieved through a unique combination of instruments allowing GRBs and X-ray transients detection over a broad FOV (more than 1sr) with 0.5-1 arcmin localization, an energy band extending from several MeVs down to 0.3 keV and unprecedented sensitivity in the soft X-ray domain, as well as on-board prompt (few minutes) follow-up with a 0.7 m class IR telescope with both imaging and spectroscopic capabilities.

THESEUS is thus perfectely suited not only for addressing main open issues in cosmology such as, e.g., star formation rate and metallicity evolution of the ISM and IGM up to redshift 10, signatures of pop III stars, sources and physics of re-ionization, faint end of galaxies luminosity function, but also for performing an unprecedented monitoring of the X-ray variable sky, thus detecting, locating and identifying the electromagnetic counterparts to sources of gravitational radiation, which may be routinely detected in the late '20s / early '30s by next generation facilities like aLIGO/aVirgo, eLISA, KAGRA, Einstein Telescope, and providing a perfect service and sinergy also to next generation multi-wavalength (e.g., E-ELT, SKA, CTA, ATHENA) observatories.

The aim of the Workshop was to collect the several astrophysical communities involved and interested in the scientific goals, and related technology, of THESEUS, in order to review the status of the project and further discuss and refine the expected scientific return for the several fields of cosmology and astrophysics on which this mission would have an important impact.

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