

The Advanced Surveyor of Transient Events and Nuclear Astrophysics (ASTENA)

Wednesday, 9 June 2021 11:20 (20 minutes)

The Advanced Surveyor of Transient Events and Nuclear Astrophysics (ASTENA) is a new high energy mission concept that has been proposed within the context of the European project AHEAD (Activities in the High-Energy Astrophysics Domain) that aims the promotion of synergies between the distinct national efforts in high-energy astrophysics and propose the next generation of gamma-ray observatories.

The ASTENA mission includes two instruments: 1) an array of Wide Field Monitors with Imaging, Spectroscopy and polarimetric capabilities (WFM-IS), with a large effective area and a broad energy passband (2-20 MeV), and 2) a broad-band (50-700 keV) Narrow Field Telescope (NFT) with focusing capabilities based on the use of an advanced Laue lens with unprecedented sensitivity and angular resolution.

Thanks to its increased sensitivity with respect to state-of-the-art soft gamma-telescopes in the MeV and sub-MeV energy band, ASTENA will enable the study of the so far uncovered population of low-luminosity GRBs and will afford to detect or improve existing detections with unprecedented angular resolution of gamma-ray lines of nuclear origin or from pair annihilation.

Until now, we have performed simulations to predict the telescope performance and we are currently developing the technics to build such instrument. In this presentation we will give an overview of the science motivation, a description of the telescope, and an update of the technological development.

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Session Classification: Session