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newASTROGAM: The MeV to GeV gamma-ray observatory for ESA's M8 mission

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newASTROGAM is a breakthrough mission concept for the study of the non-thermal Universe from space with gamma rays in the energy range from 100 keV to 3 GeV. It is based on an advanced space-proven detector technology, which will achieve unprecedented sensitivity, angular and energy resolution combined with polarimetric capability. Since the MeV gamma-ray energy range is the most under-explored electromagnetic window to the Universe, a mission in this energy range can address fundamental astrophysics questions connected to the physics of compact objects and merger events, jets and their environments, supernovae and the origin of the elements, potentially constrain the nature of dark matter and many more. newASTROGAM provides in addition unique continuation of sensitivity into the GeV energy range and to transients, and will detect and follow-up many of the key sources of multi-messenger astronomy in the 2040s.

newASTROGAM consists of a silicon tracker followed by a crystal calorimeter, which are both wrapped into an anti-coincidence detector to reject charged cosmic rays. Such a mission can detect gamma rays via Compton scattering interactions or the production of pairs of electrons and positrons. This mission concept will be proposed to the ESA call for medium-class mission ideas (M8). In this talk we will review the main science cases for an MeV to GeV general purpose observatory and introduce the mission concept.

Eligibility for "Best presentation for young researcher" or "Best poster for young researcher" prize

No

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