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The Crystal Eye X and gamma ray detector for space missions

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Crystal Eye is a new concept of all sky monitor for the observation of 10keV-30MeV cosmic photons exploiting a new detection technique, which foresees enhanced localization capability with respect to current instruments. This is now possible thanks to the use of new materials and sensors.
The proposed detection module is designed to be easily installed either on free flyer satellites or onboard space stations. Science goals include Gamma Ray Bursts, electromagnetic counterpart of Gravitational Wave emissions, Active Galactic Nuclei and line emission from supernova explosions observations.
A Crystal Eye pathfinder, made by 4 pixels, has been set up to fly aboard of the Space RIDER, an uncrewed reusable orbital spaceplane aiming to provide the European Space Agency (ESA) with affordable and routine access to space.
The mission will follow a LEO orbit (400 km, 5.3° of inclination) for two months then it will come back at the base. We here present the Crystal Eye detection method and characteristics and the first characterization of the pathfinder.

Keywords

gamma ray detection; all sky monitor; SiPM; LYSO; Space RIDER.

Collaboration

other Collaboration

Subcategory

Experimental Methods & Instrumentation

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