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## The Crystal Eye X and gamma-ray detector for space missions: first prototypes and results

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The Crystal Eye is an innovative space based X and  $\gamma$ -ray future all sky monitor active from 10keV up to 30MeV, an energy range still under-explored. The full detector consists of a 40cm diameter hemisphere made by 112 pixels. It combines a wide FOV, a good sky localization capability and a large effective area, 6 times higher than Fermi-GBM at 1 MeV. Each pixel consists of two scintillating LYSO crystals, read by SiPM-arrays, equipped with segmented anticoincidence for photon tagging and charged Cosmic Ray (CR) identification. Preliminary studies about the materials to be used and the DAQ concept has been made thanks to a breadboard prototype. Recently, an Engineering Model, consisting of 3 pixels, has been realized to perform further tests and optimize the parameters for the realization of the Crystal Eye pathfinder for the Space Rider mission. Three operation mode are planned: a space and an earth observation mode and a calibration mode. Decisions taken on materials, geometry and electronics will be presented together with the first results of the calibration procedure, based on the emission spectrum of LYSO crystals, and the first measurements performed with radioactive sources.

### Eligibility for "Best presentation for young researcher" prize

**Authors:** ANASTASIO, Antonio (INFN- Napoli); BARBATO, Felicia (Gran Sasso Science Institute (IT)); BOIANO, Alfonso (INFN - National Institute for Nuclear Physics); COLALILLO, Roberta; DE ASMUNDIS, Riccardo (Università e INFN sezione di Napoli (IT)); DE MITRI, Ivan (Gran Sasso Science Institute (IT)); DI GIOVANNI, Adriano (Gran Sasso Science Institute (IT)); FERNANDEZ ALONSO, Mateo (GSSI); GARUFI, Fabio; GUARINO, Fausto (Università di Napoli Federico II (IT)); SMIRNOV, Aleksei; Dr VALORE, Laura (University of Naples / INFN Naples); VANZANELLA, Antonio (Università e sezione INFN di Napoli (IT))

**Presenter:** COLALILLO, Roberta

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