

Development of a dedicated DAQ system for Crystal Eye pathfinder

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Crystal Eye is an innovative detector that aims to provide more information about the electromagnetic counterpart of gravitational waves by detecting X and γ -rays events, improving the event localization of concurrent detectors. The detector consists of LYSO scintillation crystals, each one read by an array of Silicon Photomultipliers (SiPMs) and it has been positively evaluated to fly onboard the Space RIDER, an uncrewed reusable orbital spaceplane of the European Space Agency (ESA).

For the proposed detection module we developed a dedicated DAQ system consisting in a ZYNQ-based board which manage the HV provided to each SiPM, control the ASIC (CITIROC-1A) linked with the photomultipliers, the collection and storage of the data.

The board also implement two different levels of trigger, to better discriminate between the LYSO's self-activity and the detection of an event we are interested in, avoiding excessive consumption of redundant SSDs space.

TIPP2020 abstract resubmission?

No, this is an entirely new submission.

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