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WINK: A pathfinder towards innovation in X and Gamma Ray detection from Space

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WINK is a test prototype for the innovative technology of Crystal Eye, a detector developed for the all-sky detection of gamma and X rays in 0.1-30 MeV range aimed to study the EM emissions associated with extreme phenomena in the Universe as, for example, production of gravitational waves, and to investigate phenomena such as the prompt emissions of Gamma Rays Bursts (GBRs), while also acting as a pointing system for studying the subsequent afterglow.

WINK consists of 3 full pixels of the original concept of Crystal Eye. Each pixel is made of two layers of LYSO crystal each read by Silicon Photomultipliers (SiPM) and an anti-coincidence system. The final detector will feature 112 pixels arranged on a hemisphere with a radius of 14 cm, which will ensure a wide FoV and an excellent localization capability.

WINK will fly for two months in low Earth orbit (LEO) aboard Space Rider (SR), an ESA vehicle. Its positioning in the module will guarantee a 30° field of view. This not only will permit field tests to further consolidate the design of the final detector, but it will allow WINK to be used for the characterization of the cosmic background. Moreover, when aimed towards earth, WINK will allow for the study of atmospheric phenomena such as Terrestrial Gamma-Ray Flashes (TGFs).
The mechanical components and the ESA compliant version of electronic boards (DAQrevision1) of WINK are already been build, and in this contribution the results of the first tests will be presented.

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

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