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The Zirè detector onboard the NUSES satellite

NUSES is a pathfinder satellite that will be deployed in a low Earth orbit, designed with new technologies for space-based detectors. The satellite will host two payloads, Terzina and Zirè. Terzina will detect ultrahigh-energy cosmic-ray and neutrino air showers by the Cherenkov emission, while Zirè will perform measurements on low-energy cosmic rays and gamma rays. Zirè will consist of a Fiber TracKer (FTK), a Plastic Scintillator Tower (PST), a calorimeter (CALOg), an AntiCoincidence System (ACS) and a Low Energy Module (LEM). The PST and CALOg sub-detectors will be based on plastic and crystal scintillators with Silicon Photomultiplier (SiPM) readout. The FTK will be based on thin scintillating fibers readout by SiPM arrays. We assembled a prototype of Ziré (Zirettino) equipped with a single FTK layer, a reduced number of PST layers and a partially instrumented CALOg. A first version of the Ziré custom Front-End Board (FEB) featuring the on-the-shelf ASIC CITIROC by Omega/Weeroc was used for the readout. We carried out several beam test campaigns at the CERN PS and SPS facilities, as well as a dynamic test. The preliminary results of these tests will be presented and discussed.

Primary experiment

NUSES

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