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# The high resolution PAN detector for deep space cosmic rays particles measurements

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The Penetrating particle ANalyzer, an instrument designed to operate in space, will provide precise measurements and monitoring of the flux, composition, and direction of highly penetrating particles with energy ranging from 100MeV/n to 20 GeV/n. The concept of the detector is based on a modular magnetic spectrometer of small size, reduced power consumption and low weight to make the instrument suitable for deep space and interplanetary missions. The magnetic spectrometer module consists in high-field permanent magnet sectors, high resolution silicon micro-strip detectors, Time Of Flight counters readout by SiPMs, and active Pixel detectors to maintain the detection capabilities in high rate conditions occurring during solar energetic particle events and traversing radiation belts around planets. Here we report on the concept of the PAN instrument and the construction status of the MiniPAN demonstrator for the in-orbit validation of the key functionalities of the instrument.

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