

IAF/IAA SPACE LIFE SCIENCES SYMPOSIUM (A1)
Radiation Fields, Effects and Risks in Human Space Missions (5)

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RADIATION SPECTROMETER HARDPIX

Abstract

HardPix is a miniature radiation monitor based on the Timepix3 sensor and developed for space application by the Institute of Experimental and Applied Physics, Czech Technical University in Prague (IEAP CTU). Its low volume (≈ 0.1 U), mass (≈ 150 g), power consumption (≈ 2 W) and cost make it ideal even for small cubesats and networks of space weather monitoring satellites. Thanks to the built-in onboard processing it can provide particle identification, energy spectra, flux and dose rates using minimum data transfer rates. It is building upon the space heritage of SATRAM, our radiation monitor onboard ESA Proba-V satellite celebrating 10 years of ongoing operation in space this year, as well as REM units onboard ISS. Space agencies and commercial companies are already showing interest in HardPix, one unit will be launched onboard D-Orbit ION satellite in June 2023 and two units will be part of ESA's European Radiation Sensors Array (ERSA) onboard Lunar Gateway, with several more missions already in preparation.