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STATUS AND FUTURE PLANS FOR MEDIPIX-BASED RADIATION MONITORING DEVICES ON ISS, ORION AND BEYOND...

Abstract

Radiation monitoring devices based on the Timepix detector chip from the CERN-Based Medipix2 Collaboration have been deployed on the ISS for more than 4 years. They were also flown on the EFT-1 mission testing the new Orion Multi-Purpose Crew Vehicle, and will be the primary radiation monitors on the upcoming EM-1 and EM-2 Orion flights. A second version of the Technology, the TImepix3 from the Medipix3 Collaboration has extended the capabilities in significant directions, and the Medipix Collaborations are in the process of developing several new evolutionary versions of the technology with significant improvements in many capabilities that will enhance every aspect of their application to the space radiation monitoring tasks. Much has been learned over the years that the Timepix has been in use, both from the flight data and from a number of ground-based accelerator campaigns. A summary of those lessons and the current understanding of the full capabilities of this approach to space radiation monitoring will be presented along with projections of future capabilities of the upcoming new designs.