

Single Event Effect test results of the ULTRASAT space mission

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ULTRASAT (ULtra-violet TRansient Astronomy SATellite) is a wide-angle space telescope that will perform a deep time-resolved all-sky survey in the near-ultraviolet (NUV) spectrum. The science objectives are the detection of counterparts to short-lived transient astronomical events such as gravitational wave sources and supernovae. The mission is led by the Weizmann Institute of Science and is planned for launch in 2026 in collaboration with the Israeli Space Agency and NASA. DESY will provide the UV camera, composed by the detector assembly located in the telescope focal plane and the remote electronics unit. The camera is composed out of four back-metallized CMOS Image Sensors (CIS) manufactured in the 4T, dual gain Tower process. As part of the radiation qualification of the camera, Single Event Effect (SEE) testing has been performed by irradiating the sensor with heavy ions at the RADEF, Jyvaskyla facility. Preliminary results of both Single Event Upset (SEU) and Single Event Latch-up (SEL) occurrence rate in the sensor are presented. Additionally, an in-orbit SEE rate simulation has been performed in order to gain preliminary knowledge about the expected effect of SEE on the mission.

Collaboration

ULTRASAT

Role of Submitter

I am the presenter

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