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## The DOSIS 3D Project on-board the International Space Station – Analysis of the Solar particle Event in September 2017

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The nominal radiation environment in Low Earth Orbit (LEO), especially for the International Space Station (ISS), is dominated by two sources. The first is galactic cosmic radiation (GCR) which is modulated by the interplanetary and the Earth's magnetic fields and the second is trapped radiation in the form of the Van Allen Belts. The trapped radiation inside the ISS is mostly due to protons of the inner radiation belt. In addition to these sources sporadic Solar Particle Events (SPEs) can produce high doses inside and outside the ISS, depending on the intensity and energy spectrum of the event. Before 2017, the last SPE observed inside the ISS with relevant radiation detectors occurred in May 2012. Even though we are currently approaching the next solar minimum, an SPE was observed in September 2017, which was a) a Ground Level Enhancement (GLE 72); b) measured with various radiation detector systems on-board the ISS and c) observed on the surface of Mars. This presentation gives an overview of the 10 September 2017 SPE measured with the DOSIS 3D-DOSTEL and the ISS-RAD (Radiation Assessment Detector) instruments, both located at this time in close proximity to each other in the Columbus Laboratory of the ISS. The additional dose received during the SPE, was 146.2  $\mu\text{Gy}$  in Si as measured by ISS-RAD and 67.8  $\mu\text{Gy}$  in Si as measured by the DOSIS 3D-DOSTEL instruments. In addition we will show first results of GEANT4 simulations for the 10 September 2017 event and also provide comparison with events observed with DOSTEL like instruments on space station MIR (1997) and on the ISS (2001).

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