

Life Sciences as Related to Space (F)

Space Radiation: Dosimetric Measurements and Related Models, Radiation Detector Developments and their Ground-Based Characterization (F2.3)

Consider for oral presentation.

THE DOSIS 3D PROJECT ON-BOARD THE INTERNATIONAL SPACE STATION – STATUS AND SCIENCE OVERVIEW OF 8 YEARS OF MEASUREMENTS (2012 – 2020)

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The radiation environment encountered in space differs in nature from that on Earth, consisting mostly of highly energetic ions from protons up to iron, resulting in radiation levels far exceeding the ones present on Earth for occupational radiation workers. Since the beginning of the space era the radiation exposure during space missions has been monitored with various passive and active radiation instruments. Also on-board the International Space Station (ISS) a number of area monitoring devices provide data related to the spatial and temporal variation of the radiation field in – and outside the ISS. The aim of the DOSIS 3D (2012 - ongoing) experiment is the measurement of the radiation environment within the European Columbus Laboratory of the ISS. These measurements are, on the one hand, performed with passive radiation detectors mounted at eleven locations within Columbus for the determination of the spatial distribution of the radiation field parameters and, on the other hand, with two active radiation detectors (DOSTEL) mounted at a fixed position inside Columbus for the determination of the temporal variation of the radiation field parameters. The talk will give an overview of the current results

of the data evaluation performed for the passive and active radiation detectors for DOSIS 3D in the years 2012 to 2020 and further focus on the work in progress for data comparison with other passive and active radiation detector systems measuring on-board the ISS.

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