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RELATIVE NUCLEAR ABUNDANCES , LET AND DOSE RATES AT VARIOUS LOCATIONS AND CONFIGURATIONS IN ISS FROM THE ALTCRISS EXPERIMENT.

Abstract

Over the years many devices, using different technologies and various locations, have been used - and still are in use - on the International Space Station, ISS, to measure and map the radiation and cosmic particle flux which astronauts as well as sensitive electronics are exposed to. This presentation presents recent analyses and results from the Alteino/SilEye-3 detector during the ESA-sponsored project ALTCRISS. Comparisons are made with published data from other experiments, such as ALTEA and DOSIS. Alteino is an Si-strip detector, developed from the two SilEye detectors that were operated on Mir, in particular for studies of the Light Flash phenomena. Alteino was used at several locations, and orientations, in the Russian segment of ISS from late 2005 through 2007. Many of the data sets were obtained with a shielding of 5 g/cm2 polyethylene in front of the detector. Data on nuclei from C to Fe in the energy range above 60 MeV/n show an increase in relative abundance for odd Z inside ISS compared to the outside, due to fragmentation in the hull. Fluxes and relative abundances vary with location and shielding, where the material of the station itself plays a major role. The difference in flux can be as much as 50