

Estimations of the flux and spectrum of secondary neutrons onboard CORONAS-I Satellite, orbital station Mir and international space station out of Earth's radiation belts

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Abstract. Recent investigations have shown that radiation dose onboard orbital station MIR under a shield of some tens g/cm^2 is mostly defined by fluxes of neutrons due to interactions with the matter of the station of protons of cosmic rays and of inner radiation belt. As secondary neutron fluxes are dependent on spacecraft mass onboard International Space Station (ISS) these fluxes compared with MIR-station can be yet more. In this paper we present results of the simulations of the flux and energy spectrum of secondary neutrons out of Earth's radiation belts for main laboratories and modules of

ISS for its full configuration. Calculations were made both in the energy ranges $\lesssim 10$ MeV and $\gtrsim 10$ MeV for maximum and minimum of solar activity. To test accuracy of the estimations the same simulations are made for orbital station MIR and CORONAS-I satellite. Obtained for MIR-station and CORONAS-I results are compared with measured values.

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