

SPACE LIFE SCIENCES SYMPOSIUM (A1)  
Radiation Fields, Effects and Risks in Human Space Missions (4)

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RECENT RESULTS FOR SPACE RADIATION ENVIRONMENT IN THE SPHERICAL  
TISSUE-EQUIVALENT PHANTOM ON THE ISS FROM LIULIN-5 EXPERIMENT**Abstract**

The Liulin-5 charged particle telescope observes the radiation environment in the spherical tissue-equivalent phantom of MATROSHKA-R international project on the International Space Station (ISS). Liulin-5 measures time resolved linear energy transfer (LET) spectrum, flux and absorbed dose rates for electrons, protons and the biologically relevant heavy ion components of the cosmic radiation at three depths along the phantom' radius. Data are stored and returned to Earth on memory cards. The first stage of Liulin-5 experiment on ISS took place from June 2007 to March 2010. In that period the spherical phantom was located inside the docking module PIERS-1 of the Russian Segment of ISS. The second stage of Liulin-5 experiment is conducted since December 2011 on ISS. In this paper we present results of Liulin-5 experiment for the radiation quantities obtained from the components of the complex radiation field in ISS during the first stage of the experiment. Discussed are the obtained LET spectra and quality factors of the galactic cosmic rays and trapped radiation, their dose rate and flux distribution in different depths in the phantom and as a function of ISS orbital parameters. Compared are two types of absorbed dose depth distribution along the phantom' radius- the typical and another one associated with change of ISS attitude and Space Shuttle docking to ISS. Data from the second stage of Liulin-5 experiment on ISS will be presented upon availability.