

Status and calibration results of Liulin-5 charged particle telescope designed for radiation measurements in a human phantom onboard the ISS

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Described is the current status of particle telescope Liulin-5 developed for investigation of the radiation environment dynamics within the Russian spherical tissue-equivalent phantom on ISS. Liulin-5 experiment will be a part of the international project MATROSHKA-R on ISS. The aim of Liulin-5 experiment is long term investigation of the depth - dose distribution inside the spherical tissue-equivalent phantom, mounted in the Russian Segment of ISS. Energy deposition spectra, LET spectra, flux and absorbed dose rates for protons and the biologically-relevant heavy ion components of the cosmic radiation will be measured simultaneously with near real time resolution at different depths of the phantom's radial channel. Dose equivalent rates at these depths will be calculated from the absorbed dose rates multiplied by $Q(LET)$. The doses in intermediate points will be determined by interpolation. In 2005 acceptance tests of the engineering and flight models were carried out. The qualification tests of the flight model are expected by the June 2006. Presented are the calibration results of Liulin-5 exposure to heavy ions, obtained in ICHIBAN project for intercomparison of the response of space radiation dosimeters and spectrometers to heavy ion beams at the HIMAC - NIRS, Japan. Liulin-5 is planned to be flown on the ISS in 2006 year.