Contribution ID: **33**   Type: **Poster**

Application of coupling functions to analyze energy characteristics of Forbush decreases according to URAGAN muon hodoscope data

Tuesday, 27 June 2023 16:40 (20 minutes)

The purpose of the work is to investigate energy characteristics of Forbush decreases using coupling functions according to muon hodoscope URAGAN data. A coupling function shows relative contribution of primary cosmic rays with different energies to a count rate observed by a particular detector, so it is a basic tool to study energy characteristics of various modulation phenomena, such as Forbush effects.

A coupling function of a real detector depends on an integral multiplicity of secondary particles, effective area of the detector and the spectrum of primary particles. The muon multiplicity was determined by simulations in CORSIKA software package using FLUKA and QGSJET II models.

An algorithm for determining amplitudes of Forbush decreases was developed. In the work we present results of calculations of the muon hodoscope effective energies using coupling functions. Methods for determining spectral indices of Forbush decreases by relative variations, as well as by effective energies, are implemented.

Primary author: SUKHOVA, Polina (NRNU MEPhI)

Co-authors: ASTAPOV, Ivan (MEPhI); BARBASHINA, Natalia (MEPhI); KUZMENKOVA, Polina (National Research Nuclear University MEPhI)

Presenter: SUKHOVA, Polina (NRNU MEPhI)

Session Classification: Poster Session

Track Classification: Cosmo- and geophysical aspects of cosmic rays at the ground level