



Contribution ID: 1241

Type: **Poster contribution**

New software package of modelling of cosmic rays transport in the atmosphere

Thursday, July 30, 2015 3:30 PM (1 hour)

In this paper the RUSCOSMICS software package based on the GEANT4 toolkit and its possibilities in the cosmic rays are considered. Energy spectra of secondary cosmic rays particles resulting from the proton transport modeling through the Earth atmosphere are presented. A calculation error is estimated and a comparison with experimental data is carried out. Also on the basis of the secondary cosmic rays flux intensity we investigate a contribution of different particles (protons, muons, electrons, positrons) in the ionization process in the atmosphere. The altitude profiles of ionization are presented and also a radiation absorbed dose calculation is carried out. The obtained data are compared with results of other authors.

Collaboration

– not specified –

Registration number following "ICRC2015-I"

861

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