Contribution ID: **93** Type: **Poster**

Separation of Muon Component of Extensive Air Showers in Multipurpose Detector of Muons

The Multipurpose Detector of Muons (MDM) is now under development at the National Research Nuclear University MEPhI. It is an array of multiwire drift chambers shielded with the layers of steel absorber. Such configuration enables the detection and analysis of both single-particle and multiparticle events across a zenith angle range from 0° to 60°.
The detector is designed for investigation of muon bundle flux, both in standalone operation and in conjunction with other facilities of the Experimental complex NEVOD, as well as for studying single muon flux in a hodoscopic mode. Additionally, the MDM can be used as a precise test bench for measuring spatial characteristics of charged particle detectors.
It is necessary to determine the energy range in which the muon detector is able to record and reconstruct events, as well as to cut off other particles. The detector model was developed using the Geant4. The events for muons, electrons, photons, neutrons, protons and pions were modeled, and the possibility of isolating only muon events was tested using the reconstruction methods.

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Session Classification: Poster Session

Track Classification: Cosmic rays (nuclei, gammas, neutrinos) of very high energies (> 100 TeV)