

## Studying muon bundles of inclined air showers in the NEVOD-DECOR experiment

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NEVOD-DECOR is the unique experiment where systematic studies of cosmic ray muon bundles in a wide range of zenith angles and, accordingly, the energies of primary cosmic rays are carried out. Impressive experimental material (more than 100 thousand events) has been accumulated over a long time period from May 2012 to December 2022. The earlier developed method of local muon density spectra allows us to compare experimental data on muon bundles with the results of the EAS muon component simulations. The analysis showed that the observed intensity of muon bundles at primary cosmic ray energies of about 1 EeV and higher can be compatible with the expectation (in frame of widely used hadron interaction models) only under the assumption of an extremely heavy mass composition. It is consistent with data of several other experiments on investigations of air shower muon content, but contradicts the available measurements of the depth of the shower maximum in the atmosphere by means of fluorescent technique, which favor a light mass composition at these energies. This probably leads to the need to revise the existing models of hadronic interactions.

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