

## **Systematic uncertainties of the primary astroparticle energy estimation vs zenith angle distribution of EAS event rate measured with surface array**

*Thursday, 29 June 2023 10:45 (15 minutes)*

Systematic uncertainties in the energy estimation of EAS primaries are a source of headache for physicists and lead to elusive discrepancies in the energy spectra of cosmic rays measured with different arrays. We have found the zenith angle distribution of EAS event rate to be sensitive to these systematic uncertainties. It gives an opportunity to test different algorithms for the primary astroparticle energy estimation, to find the best of them, and tune the parameters in the model independent way. We have compared several algorithms that were in use in the Yakutsk array group, discard some of them, and derived the proper parameters assuming isotropic arrival directions of cosmic rays.

**Primary authors:** IVANOV, Anatoly (Shafer Institute for Cosmophysical Research and Aeronomy); BOYAKI-NOV, Aleksandr

**Presenter:** IVANOV, Anatoly (Shafer Institute for Cosmophysical Research and Aeronomy)

**Session Classification:** Cosmic rays of very high energies (> 1 PeV)

**Track Classification:** Cosmic rays of very high energies (> 1 PeV)