

Investigation of the large-scale distribution of the arrival points of 1-100 PeV EAS detected at the Tien Shan cosmic ray installation

Wednesday, 28 June 2023 12:45 (15 minutes)

A set of eight scintillators with the reduced to (50-70)ns width of their output pulse signals is applied for determination of the arrival directions of extensive air showers which are effectively detected by the Tien Shan shower installation in the energy range between 1 and 100 PeV. Up to the present time, about $\sim 10^6$ shower events applicable for deducing their directional angles were collected in 2021-2023 during the ~ 5500 h of the installation operation life time. Here, the statistical characteristics of these events are presented which confirm the functioning correctness of the electronic hardware and mathematical algorithms applied for the treatment of the initial measurement data. Further on, the newly obtained information on the angular distribution of the EAS arrival points is supposed to be used for a study of the large-scale anisotropy of the PeV cosmic rays on the celestial sphere by application of the difference method which has been earlier developed for this purpose in the LPI.

Primary authors: SHEPETOV, Alexander (Lebedev Physical Institute); RYABOV, Vladimir (Lebedev Physical Institute)

Co-authors: MAMINA, Svetlana (Lebedev Physical Institute); PISCAL, Vyacheslav (Lebedev Physical Institute); SADYKOV, Turlan (Satbayev University, Institute of Physics and Technology); SADUYEV, Nurzhan (Al-Farabi Kazakh National University, Institute of Experimental and Theoretical Physics); VILDANOVA, Ludmila (Lebedev Physical Institute); ZHUKOV, Valery (Lebedev Physical Institute)

Presenters: SHEPETOV, Alexander (Lebedev Physical Institute); RYABOV, Vladimir (Lebedev Physical Institute)

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

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