Contribution ID: **53** Type: **Overview**

30 years of cosmic ray research in the Tunka Valley

Tuesday, 27 June 2023 11:00 (30 minutes)

A brief history and the main results of the study of cosmic rays and high-energy gamma radiation using the Cherenkov EAS installations located in the Tunka Valley 50 km from the southwestern tip of Lake Baikal are presented. Since 1993, the important results have been got about the energy spectrum and mass composition of cosmic rays in the energy range of 1 – 1000 PeV with the Tunka-4, Tunka-13, Tunka-25, Tunka-133 installations. The spectrum indicates a significantly more complex dependence of the intensity of cosmic rays on energy than previously assumed and serves as a natural bridge between the results obtained in experiments on satellites and balloon experiments and the results of the giant international observatories Auger and Telescope Array.

Based on the experience gained, in 2014, the creation of a hybrid complex TAIGA was launched, aimed at solving a lot of tasks in the field of astroparticle physics, cosmic ray physics and high-energy gamma astronomy. In 2022, the creation of the TAIGA-1 pilot complex was completed, including 120 low-threshold wide-angle Cherenkov stations distributed over an area of 1.2 km ˆ 2, and three Imaging Atmospheric Cherenkov Telescopes. The report will present the first results of studies of high-energy gamma radiation from a number of sources.

Primary authors: BUDNEV, Nikolay (Irkutsk State University); KUZMICHEV, Leonid (SINP MSU)

Presenter: BUDNEV, Nikolay (Irkutsk State University)

Session Classification: Overview Talks

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