

"Chronotron" timing detectors for EAS studies

Friday 16 July 2021 19:18 (12 minutes)

The EAS detector system consisting of timing detection is being built for the reconstruction of the EAS axis direction using chronotron timing information. This system consists of eight scintillator-based individual detectors (100 x 100 x 1 cm) using wavelength shifting fibers for light collection. The goal of the project is to supplement the Horizon-T detector system that is located at the elevation of 3340 m at the TSHASS near the city of Almaty, Kazakhstan, with the system of detectors with fast timing. To improve the pulse time resolution beyond the several ns that is available for the scintillator-based systems, the approach to use the optical glass as the particle detection medium is also being tested. This work presents the current design, the characteristics from the simulation and the performance of the prototype.

Keywords

EAS; cosmic rays

Collaboration

other Collaboration

Subcategory

Experimental Methods & Instrumentation

Primary authors: Ms BAKTORAZ, Aliya (Al-Farabi Kazakh National University, Kazakhstan, Almaty); Mr SADUYEV, Nurzhan (Al-Farabi Kazakh National University, Kazakhstan, Almaty; P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia); Mr KALIKULOV, Orazaly (Al-Farabi Kazakh National University, Kazakhstan, Almaty); Mr BEZNOSKO, Dmitriy (Clayton State University); Mr MUKHAMEJANOV, Yerzhan (Joint Institute for Nuclear Research, Dubna, Russia); Mr SHINBULATOV, Saken (Al-Farabi Kazakh National University, Kazakhstan, Almaty); Mr UTEY, Shynbolat (Al-Farabi Kazakh National University, Kazakhstan, Almaty); Mr YEREZHEP, Nurzhan (Al-Farabi Kazakh National University, Kazakhstan, Almaty); Mr ZHUMABAYEV, Askhat (Al-Farabi Kazakh National University, Kazakhstan, Almaty); Mr ZHUKOV, Valeriy (P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia); Mr SHEPETOV, Alexander (P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia)

Presenter: Ms BAKTORAZ, Aliya (Al-Farabi Kazakh National University, Kazakhstan, Almaty)

Session Classification: Discussion

Track Classification: Scientific Field: CRI | Cosmic Ray Indirect