



Contribution ID: 5

Type: **not specified**

Tunka-Rex experiment for detection of air-shower radio emission

Tuesday, 10 June 2014 11:10 (30 minutes)

The Tunka-Rex experiment (Tunka Radio Extension) was created in 2012 at the Tunka Valley (Republic of Buryatia, Russia). Its purpose is to investigate methods for the energy spectrum and the mass composition of high energy cosmic rays based on the radio emission of air showers. Tunka-Rex is an array of 25 radio antennas distributed over an area of 3 km². The most important feature of the project is that the air-shower radio emission is measured in coincidence with the Tunka-133 installation, which detects the Cherenkov radiation generated by the same atmospheric showers. Joint measurements of the radio emission and the Cherenkov light provide a unique opportunity for crosscalibration of both calorimetric detection methods. The main goal of Tunka-Rex is to determine the precision for the reconstruction of air-shower parameters using the radio detection technique. This report presents the current status of Tunka-Rex, and first results of Tunka-Rex including a discussion of the reconstruction methods for the parameters of the primary cosmic rays.

Summary

The results of Tunka-Rex experiment will be represented.

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Session Classification: Tues AM II

Track Classification: Tues AM II - Air Shower Experiment