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Calibration of the absolute amplitude scale of the Tunka Radio Extension (Tunka-Rex)

Thursday, 30 July 2015 15:30 (1 hour)

The Tunka Radio Extension (Tunka-Rex) is an array of 44 radio antenna stations, constituting a radio detector for air showers.
It is an extension to Tunka-133, an air-Cherenkov detector in Siberia, which is used as an external trigger for Tunka-Rex and
provides a reliable reconstruction of energy and shower maximum.
Each antenna station consists of two perpendicularly aligned active antennas, called SALLAs.
An antenna calibration of the SALLA with a commercial reference source enables us to
reconstruct the incoming radio signal on an absolute scale.
Since the same reference source was used for the calibration of LOPES and, in a calibration campaign in 2014, also for LOFAR,
these three experiments now have a consistent calibration and, therefore, absolute scale.
This was a key ingredient to resolve a longer standing contradiction between measurements of two calibrated experiments.
We will present how the calibration was performed and compare radio measurements of air showers from Tunka-Rex to model calculations
and published results from other calibrated experiments.

Collaboration

Tunka-Rex

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