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Tunka-Rex: Status and Results of the First Measurements

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Tunka-Rex is the new radio extension to Tunka-133 located in Siberia close to lake Baikal. The latter is a photomultiplier array registering air-Cherenkov light from air showers induced by cosmic-ray particles with initial energies of $10^{16} - 10^{18}$ eV. Tunka-Rex extends this detector with 20 antennas spread over an area of 1 km². It is triggered externally by Tunka-133, and detects the radio emission of the same air showers. The combination of an air-Cherenkov and a radio detector provides a great facility for hybrid measurements and cross-calibration between the two techniques. The main goal of Tunka-Rex is to determine the precision of the reconstruction of air-shower parameters using the radio detection technique. It started operation in autumn 2012. We present the overall concept of Tunka-Rex, the current status of the array and first analysis results.

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