

Plans for a Giant Radio Array for Neutrino Detection (GRAND)

GRAND will be a huge antenna array for air showers initiated by ultra-high-energy cosmic particles, aiming at the discovery of their sources. The primary targets are tau neutrinos interacting in mountains and producing tau leptons. Some of these will initiate atmospheric particle cascades detectable by its radio emission. The final configuration of GRAND will span 200,000 km². It will reach sufficient sensitivity for a guaranteed detection of the GZK neutrinos produced during propagation of cosmic-ray nuclei. Additionally, GRAND aims to detect astrophysical neutrinos produced at the sources. The annual exposure for cosmic rays and photons will exceed that of current experiments by an order of magnitude. Thus, GRAND will be a multi-messenger instrument by itself. A prototype is already under construction in China. From 2020 on, an array of 300 antennas will measure cosmic rays. The neutrino search will start around 2025 with the first 10,000 antennas covering about 10,000 km².

Authorship annotation

for the GRAND Collaboration

Session and Location

Monday Session, Poster Wall #124 (Auditorium Gallery Left)

Poster included in proceedings:

yes

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