

Executive Summary

The Giant Radio Array for Neutrino Detection (GRAND) project

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What is this contribution about?

We present the prototyping stage, preliminary designs and simulation results of the GRAND experiment. The GRAND project aims to detect ultra-high-energy neutrinos, cosmic rays and gamma rays, with an array of 200,000 radio antennas over 200,000 km², split into ~20 sub-arrays of ~10,000 km² deployed worldwide.

Why is it relevant / interesting?

GRAND is one of the leading future projects for the detection of ultra-high-energy (UHE) neutrinos. Its performances will enable to cover a rich multi-messenger science case.

What have we done?

We present the simulated performances of the experiment, as well as the experimental status of the prototype, GRANDProto300.

What is the result?

In its final configuration, GRAND plans to reach an excellent neutrino-sensitivity and a sub-degree angular resolution to enable neutrino astronomy at UHE. GRANDProto300, the 300-antenna pathfinder array, is planned to start data taking in 2021. It aims at demonstrating autonomous radio detection of inclined air-showers, and study cosmic rays around the transition between Galactic and extra-Galactic sources.