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The Giant Radio Array for Neutrino Detection - experimental status and plans

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GRAND (the Giant Radio Array for Neutrino Detection) is a proposed next-generation observatory targeting primarily the detection of ultra-high-energy(UHE) neutrinos, with energies exceeding 100 PeV. GRAND is envisioned as a collection of large-scale ground arrays of self-triggered radio antennas that target the radio emission from extensive air showers initiated by UHE particles. Three prototype arrays are presently in operation: GRANDProto300 in China, with 60 units running since the end of 2024, GRAND@Auger in Argentina, with 10 units deployed on the site of the Pierre Auger Observatory, and GRAND@Nançay in France, a 4-unit setup installed at the Nançay Radio Observatory and used for test purposes. The main objective of the GRAND prototype phase is to validate the detection principle and technology of GRAND, in preparation for its next phase, GRAND10k. GRAND10k will consist of two arrays of 10'000 antennas each, in the Northern and Southern hemispheres, to be deployed from 2030 on. We will give an overview of the GRAND concept, its science goals, the status of the prototypes, their first measurements, and the technical and scientific perspectives that these measurements open for the field.

Collaboration(s)

GRAND

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