Contribution ID: **48** Type: **Oral report**

Progress of the Giant Radio Array for Neutrino Detection (GRAND) Project

The origins of Ultra-high-energy cosmic rays (UHECRs) remain mysterious. Nevertheless, the observation of UHE neutrinos offers a pivotal means to uncover the distant sources of these most energetic particles, as neutrinos can traverse the universe unimpeded, even beyond the Greisen-Zatsepin-Kuzmin (GZK) horizon.
The Giant Radio Array for Neutrino Detection (GRAND) is a proposed extensive observatory aimed at detecting and studying the sources of UHECRs by employing a dual approach: amassing unprecedented UHECR data and searching for accompanying UHE gamma rays and neutrinos. Envisioned to consist of 200,000 radio antennas distributed across 200,000 km² in approximately 20 sub-arrays of around 10,000 km² each, GRAND is designed to achieve a neutrino sensitivity of approximately for energies above eV, coupled with sub-degree angular precision.
The GRANDProto300, a pathfinder 300-antenna prototype array, is currently under construction in Xiao Dushan, Gansu province, China, and data collection is expected to begin in 2024. Its objectives include autonomous radio detection of inclined air showers and investigation into cosmic rays around the transition between Galactic and extragalactic origins. Presently, a 13-antenna demonstrator array is operational. We will present the preliminary designs, simulated performance of GRAND, and the preliminary results from GRANDProto300.

Primary author: 张, 毅 (purple mountain observatory)

Presenter: 张, 毅 (purple mountain observatory)

Track Classification: 中微子物理、粒子天体物理与宇宙学