



物理学第二教室 談話会

Hunting the highest energy astroparticles with GRAND

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16:00~

場所 : 理学研究科5号館525号室
(第4講義室)
(Room 525, Building No.5)

Abstract :

The Giant Radio Array for Neutrino Detection project aims to detect ultra-high-energy cosmic neutrinos, cosmic rays, and gamma rays with a radio antenna array deployed over a total area of 200 000 km² in mountainous regions, in several favorable locations around the world. The strategy of GRAND is to detect air showers above 10¹⁷ eV that are induced by the interaction of high-energy particles in the atmosphere or underground, through its associated coherent radio-emission in the 50-200 MHz range. In its final configuration, GRAND plans to reach a sensitivity of $\sim 10^{-10}$ GeV cm⁻² s⁻¹ sr⁻¹ above 5×10^{17} eV and a sub-degree angular resolution. The 300-antenna pathfinder array, GRANDProto300 is planned to be deployed in 2020. It aims at demonstrating autonomous radio detection of inclined air-showers, and make exquisite measurements of the composition and the muon content of cosmic rays around the ankle energy. In this talk, we will show preliminary designs and simulation results, plans for the ongoing, staged approach to construction, and the rich research program made possible by the proposed sensitivity and angular resolution.