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P3.057 Status and R&D efforts for RENO-50

S-H Seo

Seoul National University, South Korea

on behalf of RENO-50 collaboration

A large liquid scintillator and multi-purpose neutrino experiment, RENO-50, is proposed to be built for playing a leading role in neutrino physics and neutrino astronomy. The detector will be located at the underground of Mt. Guemseong in Naju, 50 km distant from the Hanbit nuclear power plant. It will make an unprecedentedly high precision measurement of neutrino oscillation parameters of θ_{12} , Δm^2_{12} , and Δm^2_{ee} , and explore the neutrino mass ordering using reactor antineutrinos.

The large neutrino telescope is expected to observe ~6,000 neutrino burst events from a galactic supernova, providing a revolutionary information on the supernova explosion and cooling mechanisms. The detector can also play the role of a geo-telescope to measure the geo-neutrino flux from the Earth and will shed new light on the heat generation mechanism of the Earth. This will result in the first observational step on geo-science. In this talk, current R&D efforts and status of RENO-50 will be presented.