

Study of Neutrino Mass Hierarchy at RENO-50

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A 5 kton of ultra-low-radioactivity liquid scintillator detector, located at roughly 50 km away from the Yonggwang nuclear power plant, is proposed to determine the neutrino mass hierarchy. The neutrino oscillation due to θ_{12} takes place at maximum with the baseline. The detector is expected to detect neutrinos from nuclear reactors, the Sun, Supernova, the Earth, any possible stellar object and the J-PARC neutrino beam. It could be regarded as a multi-purpose and long-term operational detector. The main goal is to measure the most accurate value of θ_{12} and Δm_{21}^2 , and to attempt determination of the neutrino mass hierarchy. We will describe physics goals and experimental arrangement of RENO-50, and present its sensitivity based on a MC study.