

Detection of reactor neutrinos with a delayed signal of neutron capture on Hydrogen at RENO

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The RENO experiment has been taking electron antineutrino data from the reactors at Hanbit nuclear power plant in Korea, using two identical detectors since 2011. It has measured the neutrino mixing angle θ_{13} using inverse beta decay events with a neutron captured on Gadolinium(Gd). A neutron is also captured by Hydrogen. Reactor antineutrinos are detected with a delayed signal of neutron capture by Hydrogen (n-H). The n-H sample provides an independent result and a consistent check of the n-Gd result. The coincidence time between the prompt and delayed events is longer than that of n-Gd, and results in a larger accidental background. We measure background rates in the 2000 day n-H data sample. In this presentation, we report the n-H selection criteria for reactor antineutrino candidates and remained background rates.

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