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Event selection and background estimation for the reactor neutrinos in RENO

The RENO experiment has measured the smallest neutrino mixing angle θ_{13} by detecting reactor anti-neutrino via inverse beta decay reaction (IBD). We have accumulated ~800 days of data through December, 2013, with two identical near and far RENO detectors at Hanbit nuclear power plant, since August, 2011. The coincidence of a prompt positron signal and a delayed signal from neutron capture by Gadolinium provides a distinctive IBD signature against several known backgrounds. The mixing angle θ_{13} has been precisely measured based on the ~800 data sample. In this presentation, we describe how to select the IBD signal events and how to estimate the background rates and shapes in RENO.

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