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Spectral measurment of theta13 and |dm_ee^2| at RENO (15' + 5')

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The Reactor Experiment for Neutrino Oscillation(RENO) has been taking data since August 2011 using two identical detectors. In 2012 RENO has unambiguously measured the smallest neutrino mixing angle theta13 using 220 days data. In this talk, we report our new results with a larger data set and improved systematics using ˜500 days data.

They are a more precisely measured value of $\sin^2(2\theta_{13}) = 0.082 +- 0.009$ (Stat.) $+- 0.006$ (Syst.) and our first measured value of $|\Delta m^2_{ee}| = 2.62 +0.21 -0.23$ (Stat.) $+0.12 -0.13$ (Syst.) (X 10^{-3} eV^2) based on a spectral analysis.

Most improvement in the systematic error comes from the reduction of Li/He background uncertainty. We also report the result on the 5 MeV excess in the observed reactor neutrino spectrum.

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