Poster session 2 – Tuesday 5 July

P2.072 **Spectral measurement of theta13 and |dm_ee^2| at RENO**

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on behalf of RENO collaboration

The Reactor Experiment for Neutrino Oscillation (RENO) has been taking data to measure the smallest neutrino mixing angle theta13 using two identical near and far detectors since August 2011. The RENO experiment has analyzed about 500 live days of data to observe an energy dependent disappearance of reactor electron antineutrinos by comparison of their prompt signal spectra. In this presentation we report a more precisely measured value of theta13 and our first determination of an effective squared mass difference $|dm^2\_ee|$, based on rate, spectral and baseline information. Using the measured far-to-near ratio of prompt spectra, we obtain $\sin^2(2\theta_{13})$ = 0.082 +- 0.009(stat.) +- 0.006 (syst.) and $|\text{Delta } m^2\_ee|$ = (2.62 +0.21-0.23 (stat.) +0.12-0.13(syst.)) X 10^{-3} eV^2. Several improvements in energy calibration and background estimation have been made to reduce the systematic error of $\sin^2(2\theta_{13})$ from 0.019 to 0.006.