

A Precise Measurement of Neutrino Mixing Angle θ_{13} at RENO

Soo-Bong Kim

KNRC, Department of Physics and Astronomy, Seoul National University, Seoul 151-742, South Korea

Contact email: sbk@snu.ac.kr

The Reactor Experiment for Neutrino Oscillation (RENO) started data-taking from August, 2011 and has observed the disappearance of reactor electron antineutrinos, consistent with neutrino oscillations. The experiment has made unprecedentedly accurate measurement of reactor neutrino flux, and performed a definitive measurement of the smallest neutrino mixing angle θ_{13} based on the disappearance. Antineutrinos from six reactors at Yonggwang Nuclear Power Plant in Korea, are detected and compared by two identical detectors located at 294 m and 1383 m, respectively, from the reactor array center. In this talk, a new result from RENO will be presented based on the further reduction of backgrounds and a spectral shape analysis. A precise measurement of reactor neutrino flux and spectrum will be also presented in comparison with expectations.

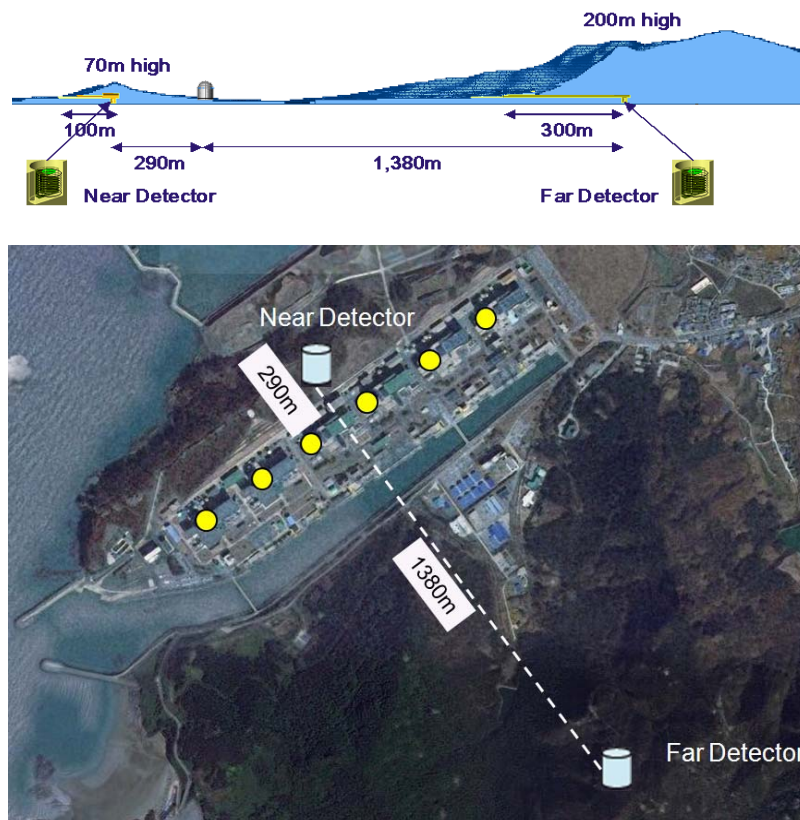


Figure 1: A schematic setup of the RENO experiment.

[1] J.K. Ahn *et al.* (RENO Collaboration), arXiv:1003.1391 (2010);

[2] J.K. Ahn *et al.* (RENO Collaboration), Phys. Rev. Lett. **108**, 191802 (2012).