



Contribution ID: 93

Type: **Poster**

## **Prediction of the Reactor Antineutrino Flux and Spectrum for the Daya Bay experiment**

Prediction of the Reactor Antineutrino Flux and Spectrum for the Daya Bay experiment

Xubo Ma North China Electric Power University, China

On behalf of the Daya Bay Collaboration

In this poster, we present the calculations of the predicted antineutrino flux and spectrum as well as their uncertainties in the Daya Bay Experiment. The isotope models of Huber [1], Mueller [2], ILL [3] and Vogel [4], are used in the prediction. Using the operational history and simulation information from the nuclear power plant (NPP), including power, burn-up and fission fractions, the expected antineutrino spectrum and total flux at each antineutrino detector is obtained. To precisely compare with measurement, the contributions of spent nuclear fuel and off-equilibrium corrections to total flux and spectrum are simulated with the input of NPP information. The fission energy, fission fractions of each isotope, and correlation matrix of fission fractions are calculated and compared with previous results. All the uncorrelated and correlated uncertainties between cores, isotopes and energy bins are evaluated.

References:

[1] P. Huber, Phys. Rev. C 84, 024617 (2011), 85, 029901(E) (2012)

[2] T. Mueller et al. Phys. Rev. C 83, 054615 (2011)

[3] K. Schreckenbach et al., Phys. Lett. B. 160, 325 (1985), F. von Feilitzsch, A. A. Hahn and K. Schreckenbach, Phys. Lett. B. 118, 162 (1982), A. A. Hahn et al. Phys. Lett. B 218, 365 (1989)

[4] P. Vogel, G. K. Schenter, F. M. Mann, and R. E. Schenter, Phys. Rev. C 24, 1543 (1981)

**Primary author:** Dr XUBO, Ma (North China Electric Power University)

**Presenter:** Dr XUBO, Ma (North China Electric Power University)

**Track Classification:** Reactor Neutrino Oscillations