MINOS 2012 Highlights

This presentation can be found at http://www-numi.fnal.gov/pr_plots/index.html
Results on appearance of electron-antineutrinos with $3.3 \times 10^{20}$ POT
\(\bar{\nu}\) mode running

The reconstructed energy spectrum of the selected candidate events divided into three samples according to the LEM selection variable. Note we are unable to distinguish between \(\bar{\nu}_e + \nu_e\) events, so the selected events include a combined sample of \(\bar{\nu}_e + \nu_e\) events.

A search for appearance in data taken in the \(\bar{\nu}\) mode is performed by fitting these 15 bins to various background+oscillation hypotheses.
Results on appearance of electron-antineutrinos with $3.3 \times 10^{20}$ POT $\bar{\nu}$ mode running

Exclusion limits based on the selected candidate event distribution in $\bar{\nu}$ mode running.

Allowed values are in the colored regions
The reconstructed energy spectrum of the selected candidate events divided into three samples according to the LEM selection variable. Note we are unable to distinguish between $\nu_e + \nu_e$ events, so the selected events include a combined sample of $\bar{\nu}_e + \nu_e$ events.

A search for appearance in data taken in the $\bar{\nu}$ mode is performed by fitting these 15 bins to various background+oscillation hypotheses.
Results on appearance of electron-(anti)neutrinos with $3.3 \times 10^{20}$ POT $\bar{\nu}$ mode running and $10.6 \times 10^{20}$ POT $\nu$ mode running.

Exclusion limits based on the selected candidate event distributions for both $\bar{\nu}$ mode running and $\nu$ mode running.

Allowed values are in the colored regions.
The confidence level at which we can exclude combinations of delta and the mass hierarchy based on a combined fit of the neutrino and antineutrino data sets.

This analysis was done using the Feldman-Cousins method. Pseudo-experiments were generated, varying all the mixing angles and mass square differences within their uncertainties. We use the uncertainty for $\theta_{13}$ from the combination of Daya Bay+RENO+Double Chooz measurements.

The horizontal line indicates 68% CL. Points above this line are excluded at the 68% CL by our data. The value at which the exclusion CL is 0% is our best fit value of delta, which depends on the hierarchy.