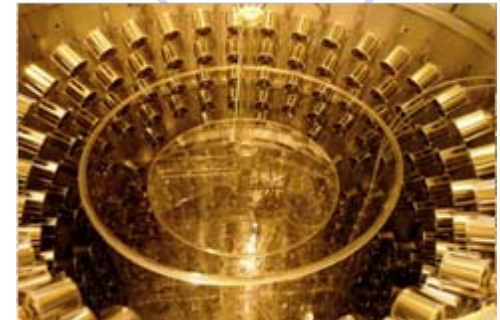


CU Physics Department Particle Seminar

Wednesday, November 9, 2011 705 Pupin Hall 1:00 PM

Double Chooz First Results

In this talk we present the first results from 100 days of running of the Double Chooz detector. This experiment searches for the last unmeasured mixing angle, θ_{13} , in the three-neutrino mixing matrix, via the disappearance of $\bar{\nu}_e$ produced by the dual 4.27 GWth Chooz B Reactors. We demonstrate that the detector is running well. With this data set, we fit total interaction rate and energy dependence to extract the mixing parameter at $\Delta m_{31}^2 = 2.4 \times 10^{-3} \text{ eV}^2$. We find $\sin^2 2\theta_{13} = 0.085 \pm 0.051$. This is an important first step in our multi-year program to establish the magnitude of θ_{13} and a valuable input to today's global fits to the three-neutrino oscillation model.



Matthew Toups, Columbia University