ID de Contribution: **173** Type: **Ordinary**

New Results of Double Chooz

lundi 14 mars 2016 11:00 (15 minutes)

At Rencontres de Moriond, Double Chooz (DC) collaboration will present the first θ_{13} measurement with two detectors.
DC is a reactor neutrino experiment running at Chooz nuclear power plant in France.
In 2011, DC first reported indication of non-zero θ_{13} in reactor neutrino oscillation by a single detector at around oscillation maximum (far detector, FD). Until then only the upper limit was given by the CHOOZ experiment. A robust observation of θ_{13} was followed in 2012 by the Daya Bay and RENO experiments with multiple detectors. θ_{13} is most precisely measured by the reactor experiments with the systematic uncertainties at per mille level and the value is used as reference in current and future projects which aim to search for CP violation and mass hierarchy in neutrino sector. Therefore, precision and accuracy of the reactor θ_{13} is a critical matter and validation by multi-experiments based on different systematic uncertainty compositions are essential. In the latest analysis of DC, precision of θ_{13} is dominated by the reactor flux uncertainty after suppression of background and detector related systematic uncertainties, and hence significant improvement is expected with two detectors.
DC finished construction of the second detector close to the reactor cores (near detector, ND) and has accumulated about 1 year of data with two detectors as of February 2016. In addition to that, about 2 years of data with only FD can be used in analysis to improve the precision.
Thanks to nearly iso-flux experimental layout in DC, reactor flux uncertainties are strongly suppressed to the lowest level in the world.

Auteur principal: Dr ISHITSUKA, Masaki (Tokyo Institute of Technology)

Orateur: Dr ISHITSUKA, Masaki (Tokyo Institute of Technology)

Classification de Session: Neutrinos

Classification de thématique: Experiment