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Status of Double Chooz experiment

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Double Chooz aims to measure the last neutrino mixing angle θ_{13} with a 10 % precision through the disappearance of reactor electronic anti-neutrinos. The experiment relies on the measurement of neutrino flux and spectrum with two identical detectors at different location: one at 1 km of reactor cores to observe the disappearance of neutrinos around the first minimum, and one around 400 m to measure the flux before any significant oscillation.

Neutrinos are detected by inverse beta decay on free proton in a 8.3 tons liquid scintillator target, providing two signal with coincidence in time and space: scintillation and annihilation of positron for the prompt signal and gamma ray following neutron capture on Gd as delayed signal.

Double Chooz has been running since 2011 with the far detector only, providing on the scene novel analysis like independent measurement using neutron capture on Hydrogen as delayed signal, reactor rate modulation study providing a background independent measurement of θ_{13} , and new background vetos techniques. Data taking with the near detector has finally started early 2015.

The talk will review the most recent measurement of θ_{13} using Gd and H data set with the far detector only, and discuss first data obtained with the near detector.

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