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Status of the Double Chooz detectors

The Double Chooz experiment is aimed to measure the value of the neutrino oscillation parameter θ_13, taking advantage of anti-neutrinos generated by a nuclear power plant in Chooz, France. The experiment relies on neutrino flux measurement by identical detectors at two different locations: one far away from the reactors (1.05 km) to observe the neutrino disappearance, and one closer (400 m) to estimate the non-oscillated flux. Although Double Chooz is currently running with the far detector only since 2011, the collaboration reported a non-zero value for θ_13 by 2.9 σ significance and confirmed it with multiple analysis techniques.

Started last year, the construction of the near detector is on-going. Early 2014, most of the inner PMTs were installed, leaving the place for the integration of acrylic vessels. The first "near data" are foreseen by summer 2014, with an expected neutrino detection rate of 300 per day. The far detector is now running with an upgraded electronics and DAQ system, as a preparation work for the near detector.

Highly anticipated by the collaboration, the two detectors running configuration will lead to a final sensitivity of 0.01 on $\sin^2(2\theta\_13)$.

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