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Determination of Detection Efficiency in Double Chooz Experiment GUANG YANG, Argonne National Lab/Illinois Institute of Technology, DOUBLE CHOOZ COLLABORATION — Double Chooz Experiment is designed to perform a very precise measurement of the neutrino oscillation mixing angle theta-13. The Double Chooz detector system consists of a main detector, an outer veto system and several calibration systems. The main detector has a cylindrical structure. It consists of the target vessel, a liquid scintillator loaded with Gd, surrounded by the gamma-catcher, a non-loaded liquid scintillator. A buffer region of non-scintillating liquid surrounds the gamma-catcher and serves to host 390 photomultiplier tubes and to decrease the level of accidental background. The Inner Veto region is outside the buffer, and the Outer Veto system covers all detector components. The detector is calibrated with light sources, radioactive point sources, cosmics and natural radioactivity. Far detector is operational and the near detector is under construction. Neutron detection efficiency is one of the major systematic components in the measurement of anti-neutrino disappearance. Neutrons from inverse beta decay and an untagged 252Cf source are the tools used to determine fractions of neutron captures on Gd, as well as neutron capture time and neutron delayed energy systematics. Details will be presented in the talk along with most recent oscillation results.

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