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Fast Neutron Detection with the Double Chooz Time Projection Chamber

The Double Chooz Time Projection Chamber (DCTPC) is a directional fast neutron detector that measures background neutron production at the Double Chooz reactor-based neutrino oscillation experiment's near (120 mwe) and far (300 mwe) halls. DCTPC will provide data at modest depths, tying near-surface measurements to those from deep underground laboratories. DCTPC will be used to search for a correlation between fast neutron production and rainfall and will provide valuable neutron measurements as a function of depth, direction, and energy. Calibration data will be presented, as well as preliminary findings from operation at Double Chooz.

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