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Measuring θ_{13} in the Double Chooz experiment KEITH CRUM, University of Chicago, DOUBLE CHOOZ COLLABORATION — Double Chooz measures θ_{13} by searching for the disappearance of reactor electron antineutrinos ($\overline{\nu}_e$) interacting via inverse beta decay (IBD) in a liquid scintillator-based detector. The signature of IBD is the coincidence of positron annihilation followed by the capture of a neutron. Although Double Chooz was primarily designed to detect $\overline{\nu}_e$ by searching for neutron capture on gadolinium, we can also search for neutron capture on hydrogen. We developed separate analyses for neutron capture on hydrogen and gadolinium as the two elements have different capture energies, capture lifetimes, and spatial distributions within our detector.

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