

Abstract Submitted
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Reactor anti-neutrino disappearance and other exciting physics with Double Chooz¹ DEEPAK SHRESTHA, Kansas State University, DOUBLE CHOOZ COLLABORATION — Double Chooz is a reactor neutrino experiment which has shown evidence of electron anti-neutrino disappearance at 1 km distance. It has been able to exclude the no-oscillation hypothesis at 99.8% CL (2.9σ) with only one detector. From a rate plus spectral shape analysis the value of $\sin^2 2\theta_{13}$ was found to be $0.109 \pm 0.030(\text{stat}) \pm 0.025(\text{syst})$. Additionally, Double Chooz has proved to be a pioneer in conducting exciting physics analyses in neutrino sector, such as the search for Lorentz violation with a reactor-based anti-neutrino source, neutrino directionality analysis and the background analysis with purely reactor-off data.

¹On behalf of the Double Chooz collaboration.

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