A Nearest Neighbors Approach for Electron Neutrino Event Selection in MINOS JUAN PEDRO OCHOA, Caltech, MINOS COLLABORATION — The reach of the search for electron-neutrino appearance in the MINOS far detector, a process which would manifest a non-zero value of the θ_{13} mixing angle, depends primarily on the ability to separate the signal from the backgrounds. MINOS is using two different approaches for event classification. In this talk I will review a new highly effective method for selecting electron neutrino events where each event in the data is compared to very large libraries of simulated signal and background events, and a discriminant is constructed from the properties of the N best matches. The method effectively reduces the problem of event identification to that of pattern recognition. By making a more complete use of all the available information in each event the new method increases MINOS' reach in θ_{13}.

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