

Abstract Submitted
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Analysis of the CDHSW Neutrino Oscillation Experiment JOCELYN MANDALOU, Florida State University, DAVID ERNST, Vanderbilt University — Analysis of the world's neutrino oscillation data in terms of a phenomenology that employs the three known neutrinos allows extraction of the five parameters that determine the model, three mixing angles and two mass-squared differences. However, two existing experiments, LSND and MiniBooNE do not fit within this model. These experiments lead to the suggestion that the addition of a fourth neutrino, called a sterile neutrino, might accommodate them. Two publications which use various approximations say that this suggestion does not work. The group with which I worked will do a full four neutrino analysis to further investigate this hypothesis. An additional experiment, CERN Dortmund Heidelberg Saclay Warsaw (CDHSW) will impact this investigation in the region of a larger mass-squared difference, the region where a fourth neutrino is expected to lie. I constructed a computational tool that analyzes the CDHSW experiment by calculating the probability for mu neutrinos to not oscillate in the CDHSW experiment. It was calibrated to reproduce the two-neutrino results given by the experimentalists and then will be generalized to four neutrinos. It will be used in the larger analysis which will include all of the world's data.

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