

Abstract Submitted
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Computational Analysis of the Bugey Neutrino Oscillation Experiment MASON YOST, Austin Peay State University — The Bugey 3-Detector neutrino experiment attempted to place a limit on $\Delta m_{1,2}^2$ and $\sin^2(2\theta_{1,2})$ by calculating neutrino fluxes from a nuclear reactor. This experiment was unusual because it utilized data taken from three different distances from the neutrino source. The experiment concluded that neutrinos did not oscillate between flavors. However, this conclusion was later contradicted and overruled by data from more accurate neutrino oscillation experiments, and recent discoveries suggest that a fourth neutrino may exist. To help determine the plausibility of a four neutrino model we are reexamining data from the Bugey experiment. Although our attempts to recreate the original experimenter's results have yielded some success, we have not yet been able to fully recreate the original experimenters' results.

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