

Abstract Submitted  
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**Testing for a Sterile Neutrino in Computer Models of the RNPS Short Baseline Nuclear Reactor Experiments.**<sup>1</sup> RACHEL HUNTER, Northern Michigan University, DAVID ERNST, JOHN VASTOLA, Vanderbilt University, NOAH AUSTIN, Washington State University — In the 1980's and 90's a series of experiments were conducted to search for evidence of neutrino oscillations. Data was collected on five of the six independent fundamental parameters relating to oscillation rates. The data was then used to produce an exclusion region plot for values of the parameters. However, it was discovered that the experiments were not analyzed correctly and there are large gaps between theoretical and experimental data. A fourth type of neutrino could be to blame for these gaps. The goal of this research project is to find evidence for or against a fourth type of neutrino by a reanalysis of the old experiments. This part of the project attempts to reproduce the exclusion region plots for data taken at Rovno Nuclear Power Station in order to validate a model of the original analysis. Thus far the reproduction of their exclusion region is close, but not a complete success. Further work on the coding program will need to be completed in order to proceed with the next step in the reanalysis procedure.

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Rachel Hunter  
Northern Michigan University

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