Abstract Submitted
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Is there a fourth neutrino?[1] DAVID ERNST, JESUS ESCAMILLA, Vanderbilt University, DAVID LATIMER, Cumberland University — The phenomena of neutrino oscillations will be reviewed. A brief overview of the worlds data, neutrinos originating from the sun, from cosmic rays, from beam stops, and from reactors, will be given. A global analysis of the total of the data will be given in the context of three active neutrinos and in the context of three active plus one sterile neutrino. The analysis is performed utilizing the full mixing without expanding into sub-oscillations. This allows parameters to vary in a highly correlated way and hence produces results that are different from previous analyses. In particular, we find that the atmospheric neutrino data prefer a fourth neutrino. With this additional support for the existence of a fourth neutrino, we find that present data indicate the existence of the fourth neutrino at several specific masses. If results from Mini-Boone are available, the abstract and talk will be updated to incorporate these.

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