

13 December 2011

Short Baseline Neutrino Focus Group

CHARGE

Several neutrino oscillation experiments have produced results that exhibit, at the level of a couple of standard deviations, a tension with the simple three-flavor mixing framework. These tensions might be purely statistical in origin, or might arise from one or more unidentified systematic effects, or from new physics. Together with the laboratory and the community, we would like to ask you to consider new generation detectors and/or new types of neutrino sources that would lead to a definitive resolution of the existing anomalies. With this in mind:

1. Evaluate to what extent the ongoing and planned neutrino experiments will be able to resolve the origin of each of the couple of sigma tensions with three-flavor mixing. Identify any additional measurements that might be needed, and options for making these measurements.
2. Compare with competing facilities the future capabilities at Fermilab for supporting a short baseline neutrino program to definitively resolve the present anomalies, and suggest what the optimal short baseline neutrino program might be beyond the presently approved and running experiments.

We would like the focus group to give an interim report by the end of March, 2012, to deliver the final report by May 31, 2012, and to give a presentation at the PAC meeting during the week of June 18th.

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