

XVIII Workshop on Neutrino Telescopes
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Poster Session
Submission of Abstract

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Title of the Poster: European Spallation Source Neutrino Superbeam Experiment

Abstract Text: (no longer than 800 characters)

We would like to present a physics potential of the ESSnuSB (European Spallation Source Neutrino Superbeam) experiment. The accelerator is now under construction in Lund, Sweden. The characteristic features of ESSnuSB - high intensity and low energy neutrino beam - will give us a unique chance to observe the second oscillation maximum in the electron neutrino appearance channel. In this study, we will reveal the sensitivity reach of the experiment to the standard neutrino oscillation parameters (the mass hierarchy and the CP violating phase) with realistic numerical simulations, and also show possible optimized scenarios in the choice of baseline length, systematic uncertainties, etc. We also discuss possibilities of new physics searches at the facility.

Summary: (no longer than 400 characters. Insert a tag, key word, topic, etc.)

The low-energy high-intensity neutrino beam provided by ESSnuSB gives a unique opportunity to access the second oscillation maximum, and it is complementary with the next generation long baseline experiments, DUNE and T2HK, which are focusing on the first oscillation maximum. We show the sensitivity reach to the CP violating phase and the mass ordering and reveal the optimal baseline length and the impact of the improvement of the systematic errors with realistic numerical simulations. We also discuss possible new physics searches at the near and far detectors.

Kindly follow the instructions above and send the abstract (.pdf file) to <mailto:salente@pd.infn.it> by February 22nd 2019. Response will be sent to the submitter's e-mail address indicated above, by March 1st. Posters will be exhibited all week long at the workshop site. Discussion will take place on Thursday March 21st, during the Poster Party. At least one author must be available for "question-answer" time. Best 3 posters will be awarded on Friday 22nd, during the closing plenary session of the workshop.