

Abstract Submitted
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Determining the neutrino hierarchy from a galactic supernova using a next-generation detector DAVID WEBBER, University of Wisconsin-Madison — Next-generation long-baseline neutrino experiments will precisely measure the neutrino mixing angle θ_{13} and potentially the CP-violating phase δ by directing an intense neutrino beam at a large detector. In addition to this primary mission, the detector will be used for a rich set of other physics studies. For example, the probability of a supernova occurring within the Milky Way galaxy during the operation of the experiment approaches 40%. If a nearby supernova occurs, 10^4 to 10^5 neutrinos will be observed, depending on the supernova distance and the detector technology. The spectrum of these neutrinos vs. time and energy will provide insight into the explosion dynamics and neutrino properties. This work focuses on the requirements for determining the neutrino hierarchy for several different models of the neutrino flux and detector.

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