

Abstract Submitted
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Search for hep neutrinos at the Sudbury Neutrino Observatory

TIMOTHY MAJOR, NIKOLAI TOLICH, Univ of Washington — The sun fuses hydrogen into helium through a variety of pathways. All pathways produce neutrinos, but the energies of the neutrinos depend on the exact process producing them. The highest energy solar neutrinos are produced by the “hep” reaction, ${}^3\text{He} + p \rightarrow {}^4\text{He} + e^+ + \nu_e$. Despite their high energy, hep neutrinos remain undetected because of their small flux relative to other solar neutrinos. Previous analyses hint at the possibility of the flux of hep neutrinos being much higher than theory predicts. A new analysis of data from the Sudbury Neutrino Observatory is being conducted to measure or set the best possible limit on the flux of hep neutrinos by including data that was previously unused and applying a new fitter to distinguish signal events from backgrounds.

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