

Abstract Submitted
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Search for ν_e - ^{16}O Interactions From Low Energy Atmospheric Neutrinos in Super-Kamiokande BARAN BODUR, KATE SCHOLBERG, Duke University, SUPER-KAMIOKANDE COLLABORATION — Charged-current scattering of ν_e below 100 MeV from ^{16}O nucleus is not yet measured. This interaction is an important background for diffuse supernova background searches (DSNB) with inverse beta decay process in water Cherenkov detectors, a useful ν_e detection channel in case of a supernova burst, and a possible way to probe atmospheric neutrino flux at low energies that will be a background for the future WIMP dark matter searches. A study for the first observation of this interaction from atmospheric ν_e with 20 years of Super-Kamiokande data is currently underway, with the goal of measuring atmospheric ν_e flux weighted cross section below 100 MeV. For this purpose, a custom event generator that can accurately simulate products of ν_e - ^{16}O and $\bar{\nu}_e$ - ^{16}O interactions has been built, and now methods to separate signal from the backgrounds are being studied. In this talk, both the event generator and the current status of the analysis will be discussed.

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