

Abstract Submitted
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Neutral-Current Supernova Neutrino Interactions in Liquid Argon BENJAMIN SUH, Duke University — We have investigated a new neutral-current $\nu-^{40}\text{Ar}$ channel for interaction of supernova neutrinos in liquid ^{40}Ar . We used the default smearing assumptions and the ar17kt detector configuration in SNOwGLoBES, an event rate calculator, to determine the expected number of events. For this analysis, the “Livermore” supernova flux and cross-section calculated by Dr. Anna Hayes were used. We found that there is a sizeable peak at this energy, which shows that this interaction will be easily measureable, and thus allow the total supernova neutrino flux to be calculated. In the future, we hope to improve the accuracy of our energy resolution algorithm since it might have been too optimistic, and we hope to use this data in full detector simulations to determine what effect this research will have in practice.

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