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Calculation of Neutrino Events in Binary Neutron Star Mergers. LOIDA ROSADO DEL RIO, University of Puerto Rico, Rio Piedras Campus, KATE SCHOLBERG, Duke University — Binary neutron star mergers produce thermal neutrinos that can be detected using detectors such as Super-Kamiokande and the DUNE far detector. Using a software called SNOwGLoBES we can simulate a neutrino flux from a merger at 10 kpc and calculate its interaction and event distribution rates. We found that for said merger 4,000 events in DUNE will be detected at 10 kpc, of which 3,500 will be electron neutrino on argon 40 interactions. We also saw that, comparing the flux for this merger and for a core-collapse supernova, while the event rates for both were similar, the neutrino flux for this merger was higher by one order of magnitude than the flux for the supernova.

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