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Neutrinos and Nucleosynthesis in Gamma Ray Bursts

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Gamma-ray bursts, while rare, may be important contributors to galactic nucleosynthesis. Here we consider the types of nucleosynthesis that can occur as material is ejected from a gamma-ray burst accretion disk. We calculate the composition of material within the disk as it dissociates into protons and neutrons and then use a parameterized outflow model to follow nuclear recombination in the wind. From the resulting nucleosynthesis we delineate the disk and outflow conditions in which iron peak, r-process, or light p-process nuclei may form. In all cases the neutrinos have an important impact on the final abundance distributions.

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