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Neutrino Oscillations in Post-Merger Disks

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The remnant black-hole accretion disk system that results from binary neutron star mergers has proven to be a promising site for the synthesis of the heaviest elements through the rapid neutron capture process (r-process). One of the key quantities determining the extent to which these sites are capable of producing a full r-process pattern is the neutron richness of the ejecta, which is heavily influenced by neutrino interactions in the disk during its evolution. We present results from a 3D general-relativistic magnetohydrodynamics disk simulations with Monte Carlo neutrino transport, showing the effect neutrino oscillations have on the conditions for r-process nucleosynthesis in the disk.

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