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Neutrino emission from magnetized neutron star mergers: equation-of-state effects

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Neutron-star mergers are interesting for several reasons: they are proposed as the progenitors of short gammaray bursts, they have been speculated to be a site for the synthesis of heavy elements, and they emit gravitational waves possibly detectable at terrestrial facilities. The understanding of the merger process, from the pre-merger stage to the final compact object-accreting system involves detailed knowledge of numerical relativity and nuclear physics. In particular, key ingredients for the evolution of the merger are neutrino physics and the matter equation of state. In this talk, I shall discuss some aspects of neutrinos in binary mergers and the impact that the equation of state has on the neutrino emission and its possible signal in water-Cherenkov detectors.

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