

Neutron Star Matter (NeuMatt)

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The detection of GWs associated with the merger of two neutron stars offers a new important tool to test the Equation of State of matter at very high densities. Preliminary studies have indicated the possibility of discriminating among the various theoretically possible EoSs by analysing the GW signal before and after the merger. Moreover, the merger of two neutron stars is supposed to be at the origin of the short Gamma Ray Bursts: a detailed analysis of the effects of the EoS on the merger will provide crucial information also to the physics and the astrophysics of these explosive phenomena. To study the impact of the EoS on the merger state-of-the-art codes describing in full GR the process of merger are needed. These codes are high demanding on the computational side. This research is at the core of the IS NeuMatt.

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