

Systematics of prompt black-hole formation in neutron star mergers

Andreas Bauswein- GSI Helmholtz center for heavy-ion research

The merger of two neutron stars leads either to the formation of a very massive rotating stellar remnant or a black hole. The latter outcome is expected for total binary masses beyond a certain threshold. We discuss the systematic dependencies of the threshold binary mass for direct black-hole formation. The threshold mass may be determined by detecting merger events since the merger outcome has a very strong impact on different observables. In particular, we describe that a determination of the threshold mass can yield valuable information on still unknown properties of high-density matter and neutron stars.