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Merger of compact stars in the two-families scenario

Wednesday, 18 September 2019 13:30 (30 minutes)

I will discuss the phenomenological implications of the two-families scenario on the merger of compact stars. After reviewing the main properties of this scenario, which is based on the coexistence of hadronic stars (HSs) and quark stars (QSs), I will present results of population synthesis analyses for the estimates of the rate of events associated with the merger of two HSs, two QSs or a HS and a QSs. I will move then to the results obtained by numerical simulations of HS-HS mergers concerning the threshold mass for the prompt collapse, the postmerger GW signal and the mass dynamically ejected. Finally, after discussing the interpretation of GW170817 as due to the merger of a HS-QS system, I will argue that the specific signature of our scenario is the observation of cases of prompt collapses even for systems with a mass smaller than 2.74 m_sun (i.e. the mass of the source of GW170817).

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