

PHAROS Conference 2019: the multi-messenger physics and astrophysics of neutron stars



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Effects of Chiral Effective Field Theory Equation of State on Binary Neutron Star Mergers

I will present fully general relativistic simulations of binary neutron star mergers employing a new zero-temperature chiral effective field theory equation of state (EOS), the Bombaci-Logoteta (BL) EOS, and compare with simulations using the older GM3 EOS, which is based on standard relativistic mean-field theory. I will provide a detailed analysis of the dynamics, with focus on the post-merger phase and on the properties of the post-merger remnant. For all models, I will show the gravitational wave strain and the post-merger frequency spectrum. I will also discuss the properties of ejected matter and of the resulting kilonova signals.

Primary author(s) : Prof. GIACOMAZZO, Bruno (University of Trento)

Co-author(s) : Dr ENDRIZZI, Andrea (University of Jena); Dr LOGOTETA, Domenico (University of Pisa); Prof. BOMBACI, Ignazio (University of Pisa); Dr CIOLFI, Riccardo (INAF); Dr KASTAUN, Wolfgang (Albert Einstein Institute)

Presenter(s) : Prof. GIACOMAZZO, Bruno (University of Trento)