

Abstract Submitted
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Tidal interactions during neutron star mergers: equation of state considerations WILLIAM NEWTON, FARRUKH FATTOYEV, Texas A&M University-Commerce, JOSHUA HOOKER, Texas A&M University, JOSE CARVAJAL, BAO-AN LI, Texas A&M University-Commerce — We review the possible constraints on the neutron star structure that can be inferred from various gravitational wave and electromagnetic observables during a binary neutron star merger. We focus particularly on examining the sensitivity of the tidal polarizability of neutron stars to the equation of state (EOS) of dense matter at more than 2-3 times nuclear saturation density, concluding that particularly soft or stiff high density EOSs can be distinguished by advanced LIGO observations of the gravitational wave signal immediately pre-merger. We also discuss neutron star structure effects on dynamical tides and crust shattering events during the inspiral phase, the latter of which has been proposed as a possible EM precursor to short GRBs.

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