

Abstract Submitted
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The Neutron Star Equation of State and Gravitational Wave Observations¹ CHARALAMPOS MARKAKIS, JOCELYN S. READ, University of Wisconsin Milwaukee, MASARU SHIBATA, University of Tokyo, Komaba, Meguro, Tokyo, KOJI URYU, University of the Ryukyus, Okinawa, Japan, JOLIEN D. E. CREIGHTON, JOHN L. FRIEDMAN, University of Wisconsin Milwaukee — Properties of the neutron star equation of state can potentially be measured via gravitational wave observations, by measuring departures from the point-particle limit of the waveform produced in the late inspiral of a neutron star binary. Numerical waveforms from simulations of inspiraling neutron star binaries, computed for equations of state with varying stiffness, are compared. As the stars approach their final plunge and merger, the gravitational wave phase accumulates more rapidly for smaller values of the neutron star compactness. This suggests that gravitational wave observations at frequencies around ~ 1 kHz will be able to measure a compactness parameter and constrain the possible neutron star equations of state.

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