

Abstract Submitted
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Extracting equation of state parameters from black hole-neutron star mergers BENJAMIN LACKEY, Princeton University, KOUTAROU KYUTOKU, MASARU SHIBATA, Kyoto University, PATRICK BRADY, JOHN FRIEDMAN, University of Wisconsin-Milwaukee — Information about the neutron-star equation of state is encoded in the waveform of a black hole-neutron star system through tidal interactions and the possible tidal disruption of the neutron star. During the inspiral this information depends on the tidal deformability Λ of the neutron star, and we find that Λ is the best measured parameter during the merger and ringdown as well. We have performed 134 simulations where we systematically varied the equation of state as well as the mass ratio, neutron-star mass, and black hole spin, and we have calibrated an inspiral-merger-ringdown waveform model to these simulations. We use this model to determine the measurability of Λ as well as correlations with other waveform parameters for Advanced LIGO and the proposed Einstein Telescope.

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