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Effects of neutron-star dynamic tides on gravitational waveforms within the effective-one-body approach TANJA HINDERER, Univ of Maryland-College Park, ANDREA TARACCHINI, AEI Potsdam, FRANCOIS FOUCART, UC Berkeley, ALESSANDRA BUONANNO, JAN STEINHOFF, AEI Potsdam, MATTHEW DUEZ, Univ of Washington — Extracting the unique information on ultradense nuclear matter from the gravitational waves emitted by merging neutron-star binaries requires robust theoretical models of the signal. I will discuss a novel effective-one-body waveform model that includes for the first time dynamic (instead of only adiabatic) tides of the neutron star and also describes the merger signal for neutron-starblack-hole binaries. We demonstrate the importance of the dynamic tides by comparing the predictions of this model against results from numerical relativity simulations. I will also show that the impact of the dynamical tidal effects can be approximately captured by a simple effective description that makes explicit the influence of the neutron star matter through two key parameters (for each multipole): tidal deformability and fundamental oscillation frequency.

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