

Time-domain post-merger model for non-spinning binary neutron stars

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Abstract

We present a time-domain model of gravitational waves emitted by the remnant of non-spinning binary neutron star merger. The model is developed from numerical relativity data of the CoRe collaboration and captures the main spectral features of the gravitational-wave transient emitted by remnant on timescales up to tens of millisecond after merger. We discuss the accuracy of the model using mismatches and injection studies and present applications to GW170817. The model is designed so to complete effective-one-body waveforms in the high-frequency regime, effectively achieving a complete spectrum of binary neutron stars for the entire range of ground-based interferometers.