

## Compact binary coalescences: Constraints on waveforms

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To obtain gravitational waveforms, results of analytical approximations for the early phase of compact binary coalescences are ‘stitched’ with –or calibrated against– numerical simulations for the late phase. Each of these calculations requires external inputs and there are additional ambiguities associated with the stitching procedure. Nonetheless, the resulting waveforms have been invaluable for the initial detections by the LIGO-Virgo collaboration. We are now entering an era of abundant detections, requiring greater theoretical precision not only for a better estimation of source parameters assuming general relativity (GR), but also for testing GR itself using gravitational waves data. In this talk I will show that full non-linear GR imposes an infinite number of sharp constraints on the CBC waveforms which can be used as clear-cut measures (i) to evaluate the accuracy of any waveform in the template bank against exact GR, and (ii) to discriminate between various choices that have to be made to resolve the ambiguities.

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