

Abstract for an Invited Paper
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Interplaying analytical and numerical relativity in modeling binary black hole coalescences

ALESSANDRA BUONANNO, University of Maryland

The coalescence of two black holes is one of the most energetic events in the Universe, emitting 2-8% of the initial rest-mass energy in gravitational waves. I will review how recent work at the interface between analytical and numerical relativity is improving our understanding of the binary black hole dynamics and gravitational-wave emission throughout inspiral, merger and ringdown phases. I will discuss the implications of those results in the search for gravitational-waves with ground and space based detectors, and in astrophysics, notably for the distribution of recoil velocities from merging black holes.