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H. Rüter: Hyperbolic-like encounters of binary black holes with the numerical relativity code SpEC

Monday 19 December 2022 10:00 (15 minutes)

We present results on the encounter of two black holes that are initially on a hyperbolic-like orbit simulated with the numerical relativity code SpEC. We discuss the dynamical capture scenario as well as the scattering scenario, in which the black holes remain unbound during the encounter. In dynamical captures the binary becomes bound due to the emission of gravitational waves, which poses a possible formation scenario of highly eccentric binary mergers. We present the waveforms for both scenarios and discuss key features like the beaming of radiation and the memory effect.

Session Classification: Session 1