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Using numerical relativity to explore fundamental physics and astrophysics

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Recent years have seen a major progress in numerical relativity and the solution of the simplest and yet among the most challenging problems in classical general relativity: that of the evolution of two objects interacting only gravitationally. I will review the results obtained so far when modelling binaries of black holes or of neutron stars and also discuss the impact these studies have in detection of gravitational-waves, in astrophysics, and in our understanding of general relativity.