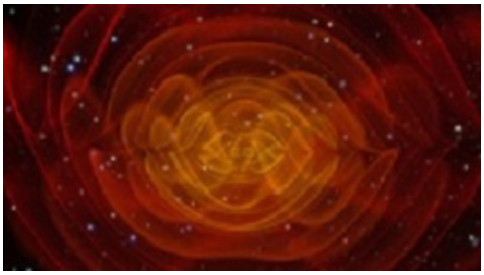

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Effective-one-body modeling of binary black holes in the era of gravitational-wave astronomy

Thursday, 22 June 2017 10:00 (50)

The direct observation and characterization of gravitational waves from the coalescence of binary black holes by the LIGO and Virgo Collaborations is a testament to the crucial role played by waveform modeling in these discoveries. I will review the effective-one-body approach to describing the whole process of inspiral, merger and ringdown. This model implements the idea of a unified description of the dynamics of compact binaries, from the comparable-mass regime to the test-particle limit, with the goal of incorporating analytical and numerical information from different areas of relativity. I will highlight synergetic efforts with black-hole perturbation theory and gravitational self-force. I will also discuss applications of this model to the data analysis of the first gravitational-wave detections.

Primary author(s) : Dr. TARACCHINI, Andrea (Max Planck Institute for Gravitational Physics Potsdam)

Presenter(s) : Dr. TARACCHINI, Andrea (Max Planck Institute for Gravitational Physics Potsdam)