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Gravitational Waveforms, Soft Theorems and Scattering Amplitudes

Tuesday, June 3, 2025 10:15 AM (2 hours)

Scattering amplitudes provide a convenient strategy to calculate gravitational-wave observables characterizing compact binaries in the weak-field or post-Minkowskian (PM) regime, when the two objects remain far away from each other. Conversely, classical soft theorems encode exact information about the dynamics of such systems and do not rely on the PM expansion, while of course restricting to the low-frequency band of the gravitational wave spectrum. In this talk I will illustrate recent progress on these two complementary approaches to the gravitational two-body problem, focusing in particular on predictions for the waveforms, the radiated energy spectrum and the angular momentum loss.

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