

## Scattering Amplitudes in Effective Gravitational Theories

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Since the first detection of gravitational waves (GWs) from a binary black hole coalescence was announced in 2016, it has become increasingly pressing to provide high precision theoretical predictions for the modeling of GW templates. In this context, various methods have been employed to push the precision of the computations higher such as EOB Hamiltonian, PNEFT, Scattering Amplitudes etc. The aim of this talk is to give an overview of the PNEFT(NRGR), the connections/intersections with the Scattering Amplitudes computations and the presentation of our latest results concerning the complete gravitational cubic-in-spin effective action at the next-to-leading order for the interaction of generic compact binaries via the effective field theory for gravitating spinning objects which enters at the fourth and a half post-Newtonian (4.5PN)

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