



Applied and Computational Mathematics Seminar

Title: Classical amplitudes for the two-body problem in general relativity

Speaker: Riccardo Gonzo

Date: Mon 21st March 2022 at 3:00PM

Location: Seminar Room SCN 1.25

Abstract: I will discuss some recent advances in perturbative classical gravity calculations for the two-body problem, which are relevant for the inspiral phase of the merging of compact objects in GR. Using an effective field theory approach, it is possible to study the gravitational scattering of point particles with modern scattering amplitudes techniques. I will introduce the KMOC formalism in order to connect classical observables, like the waveform, to quantum scattering amplitudes. In particular, I will explain in detail how classical gravitational waves emerge from the scattering of gravitons. Finally, I will briefly discuss how the perturbative self-force approach can be studied with classical amplitudes and what are the future challenges in the field.

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