Applied and Computational Mathematics Seminar

Title: Topics in post-Newtonian theory and hybridization with self-force waveforms

Speaker: David Trestini (University of Southampton)

Date: Thu 20th March 2025 at 11:00AM

Location: (See abstract)

Abstract: This seminar will take place in Beech Hill C2.27.

After a brief review of post-Newtonian theory, I will present the result for the 4.5PN flux and will focus more particularly on the computation of a particular hereditary effect in the multipolar post-Minkowskian iteration, the 'tails of memory'. I will show how the techniques developed for this can be applied to the computation of the 'cubic memory', which could potentially give rise to a 'memory distortion' effect, similar to the one recently discovered in the self-force context. In the second part of my talk, I will review the PN computations of the fluxes for eccentric orbits, as well as its gauge-invariant formulation. For that, I will present the computation of 4PN periastron advance for eccentric orbits. Finally, I will discuss how these results enter hybrid models, and the current challenges we are encountering.