

The PhenomX Suite of Phenomenological Waveform Models

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In this talk I present IMRPhenomX, a suite of high-fidelity, low-bias waveform models calibrated to quasi-circular, non-precessing binaries. Accurate models for the dominant $\ell = m = 2$ mode provide the foundation for incorporating further physics into our waveforms: higher modes, precession, tidal effects, eccentricity and parameterised tests of General Relativity. In this talk I highlight the progress and pitfalls in recent modelling efforts, with a particular focus on incorporating extreme mass ratios and double spin effects in the strong field regime. I discuss the impact on gravitational wave data analysis and highlight future avenues for further improvements to phenomenological waveform models.