

Abstract Submitted
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Higher order spin effects in inspiralling compact objects binaries¹

SYLVAIN MARSAT, University of Maryland / NASA GSFC — We present recent progress on higher order spin effects in the post-Newtonian dynamics of compact objects binaries. We present first an extension of a Lagrangian formalism for point particle with spins, where finite size effects are represented by an additional multipolar structure. When applied to the case of a spin-induced octupole, the formalism allows for the computation of the cubic-in-spin effects that enter at the order 3.5PN. We also report on results obtained for quadratic-in-spin effects at the next-to-leading order 3PN. In both cases, we recover existing results for the dynamics, and derive for the first time the gravitational wave energy flux and orbital phasing. These results will be useful for the data analysis of the upcoming generation of advanced detectors of gravitational waves.

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