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Precision gravitational wave spin observables from EFT

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Computing sufficiently precise theoretical gravitational wave observables for realistic systems such as compact object binaries remains an essential and notoriously challenging task. In this talk, I will discuss a post-Newtonian effective field theory approach to this problem, focusing specifically on objects with spin. Using this framework, I will present new results at next-to-leading order and compare with those obtained using other formalisms for both spin-orbit and spin-spin contributions. In particular, we obtain the contribution of these effects to the orbital frequency and accumulated orbital phase as well as the adiabatic invariants and flux-balance laws. Importantly, this approach offers a straightforward path forward to systematically push the state-of-the-art to higher orders.

Summary

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