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Towards detailed comparison between effective-one-body models

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TEOBResumS and SEOBNR are the two mainstream analytical waveform models (informed by numerical-relativity information) that accurately describe the dynamics of two coalescing compact objects of masses m1 and m2 and spins S1 and S2 up to merger and ringdown. Both use the effective-one-body (EOB) approach, which maps the relative dynamics of two objects into the dynamics of a (spinning) particle of mass mu=m1m2/(m1+m2) and spin moving in a deformed Kerr metric. In doing so, the post-Newtonian expanded Hamiltonian is resummed in special ways so to improve its behavior and its predictability in the strong-field, fast-velocity regime up to merger. We compare in detail the analytical choices made in the two models, focusing in particular on the treatment of spin-orbit and spin-spin effects.

Summary

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