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Comparing effective-one-body and gravitational self-force results for black hole binaries with a spinning secondary

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We present the first comparison of waveforms evaluated using the effective-one-body (EOB) approach and gravitational self-force (GSF) theory for inspiralling black hole binaries with a non-spinning primary and a spinning secondary. We explore the performance of two gauge choices for the gyro-gravitomagnetic functions entering the spin-orbit sector within the EOB dynamics, the standard “Damour-Jaranowski-Schäfer” (DJS) gauge and a second one labelled anti-DJS. By drawing comparisons both in the time and in the frequency domain, we find that the anti-DJS gauge brings the EOB spin contribution at 1st post-adiabatic order closer to the GSF one.

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