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Recent advances in spinning black holes dynamics from scattering amplitudes

Content

I will present our recent calculation of quartic-in-spin contributions to the conservative binary dynamics of black hole scattering. The calculation is based on two-loop scattering amplitudes in Einstein-Hilbert Gravity combined with a recently introduced spin-interpolation method. The latter allows to extract spin-casimir terms, i.e. S^2 contributions, by interpolating between a tower of fixed spin-representation theories. In the past those contributions have eluded us, as for fixed-spin representations we have $S^2 = s(s+1)\hbar^2$ and therefore those terms are indistinguishable from quantum corrections.

Summary

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