

General Relativity and Quantum Cosmology

Next-to-next-to-leading order post-Newtonian spin(1)-spin(2) Hamiltonian for self-gravitating binaries

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We present the next-to-next-to-leading order post-Newtonian (PN) spin(1)-spin(2) Hamiltonian for two self-gravitating spinning compact objects. If both objects are rapidly rotating, then the corresponding interaction is comparable in strength to a 4PN effect. The Hamiltonian is checked via the global Poincare algebra with the center-of-mass vector uniquely determined by an ansatz.

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