

Abstract Submitted
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Analytic propagators for systems with spin-orbit-type interactions BAILEY HSU, JEAN-FRANCOIS VAN HUELE, Brigham Young University — We discuss propagators in spin-orbit-type systems. In addition to the kinetic energy, these systems exhibit potentials that mix position, momentum and spin operators. We give analytic expressions for propagators for constrained spin-orbit coupling Hamiltonians $H = \frac{\mathbf{p}^2}{2m} + f(\mathbf{x}, \mathbf{p}, \sigma) + \frac{1}{2}m\eta^2(x^2 + y^2)$ for some specific functions f . We discuss the applicability of two propagator construction methods and we obtain the evolution of particles with spin.

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