Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Propagators for Hamiltonians with Spin-Orbit Coupling BAILEY HSU, JEAN-FRANCOIS VAN HUELE, Brigham Young University — Quantum mechanical propagators can be used to understand the dynamics of electrons in confined electromagnetic environments. We extend the propagator formalism to include the spin degree of freedom for spin-orbit coupling potentials in two-dimensional geometries. The 2x2 spin propagators allow us to follow the evolution in time and space of the spin-components of localized wave packets. We apply the technique to Rashba and Dresselhaus interactions and present graphical displays of the corresponding spin motions.

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Date submitted: 26 Nov 2007 Electronic form version 1.4