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**Shi Jin\*** ([jin@math.wisc.edu](mailto:jin@math.wisc.edu)), Department of Mathematics, University of Wisconsin-Madison, Madison, WI 53706, and **Kyle Novak**. *A semiclassical transport model for thin quantum barrier.*

We present a time-dependent semiclassical transport model for mixed state scattering with thin quantum barriers. The idea is to use a multiscale approach to connect regions for which a classical description of the system dynamics is valid across regions for which the classical description fails, such as when the gradient of the potential is undefined. We do this by first solving a stationary Schrodinger equation in the quantum region to obtain the scattering coefficients. These coefficients allow us to build the interface condition to the particle flux, as done in the Hamiltonian-preserving schemes of Jin and Wen for classical barriers, that bridges the quantum region, connecting two classical regions. Away from the barrier, the problem may be solved by traditional numerical methods. The overall numerical cost is roughly the same as solving a classical barrier. (Received August 03, 2007)