Abstract Submitted
for the TSF10 Meeting of
The American Physical Society

Quantum diffusion in optical lattices TAYLOR BAILEY, CARLOS BERTULANI, Texas A&M University-Commerce, EDDY TIMMERMANS, Los Alamos National Laboratory — We study quantum diffusion in optical lattices. After an initial transient, atoms diffuse thought the lattice with a non-linear dependence on the lattice parameters. We demonstrate these results through numerical work on one-dimensional and three-dimensional solution of the time-dependent wave equation. We provide an analytical insight of the diffusion time on the lattice parameters. Furthermore, we present a applications to experimental results.

Taylor Bailey
Texas A&M University-Commerce

Date submitted: 23 Sep 2010 Electronic form version 1.4