

Meeting: 1003, Atlanta, Georgia, SS 30A, AMS Special Session on Analysis Problems in Modern Physics, I

1003-81-1507 **Deborah A. Koslover*** (dkoslove@math.uci.edu), Department of Mathematics, 103 MSTB, University of California, Irvine, CA 92697, and **Svetlana Ya. Jitomirskaya** and **Melinda S. Schulteis**. *Bloch Electron in a Perpendicular Magnetic Field*.

We study a model for electrons subjected to a perpendicular magnetic field and two dimensional periodic potentials with anisotropic nearest and next nearest neighbor coupling. We show localization almost everywhere throughout the region of positive Lyapunov exponents. Further, we show that this result cannot be extended to everywhere as the spectrum is singular continuous for generic frequencies and phases. Finally, we show strong dynamical localization throughout the same region. This generalizes results for the almost Mathieu operator. (Received October 05, 2004)