

Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-81-601 **Mason Alexander Porter*** (mason@math.gatech.edu), 110 Skiles Building, School of Mathematics, Georgia Tech, Atlanta, GA 30332-0160. *Bose-Einstein Condensates in Optical Lattices and Superlattices.*

The macroscopic behavior of Bose-Einstein condensates (BECs), first observed experimentally in 1995, is modeled at zero temperature using the Gross-Pitaevskii equation (a nonlinear Schrodinger equation with an external potential). When loaded into an optical lattice or superlattice, BECs exhibit spatial resonances. In this talk, I will overview recent results describing both resonant and non-resonant wave functions in cigar-shaped (quasi-one-dimensional) BECs in lattice and superlattice potentials. (Received September 23, 2004)