

Chez Pierre

Presents ...

Monday, October 23, 2017

12:00pm Noon

MIT Room 4-331

Chez Pierre Seminar

Qian Niu- University of Texas

“Geometrodynamics of electrons in deforming crystals”

Semiclassical dynamics of Bloch electrons in a slowly varying deforming crystal is developed in the geometric language of a lattice bundle. Berry curvatures and gradients of energy are introduced in terms of lattice covariant derivatives, with connections given by the gradient and rate of strain. A number of physical effects are discussed: an effective post-Newtonian gravity, polarization induced by spatial gradient of strain, orbital magnetization induced by strain rate, and transverse electron viscosity.

