



PURDUE UNIVERSITY

Department of Mathematics Colloquium

Speaker: Professor Terry Loring, University of New Mexico
Title: “Almost Commuting Matrices and Localized States for Electrons”
Date: Tuesday, December 8, 2009
Time: 4:30 P.M.
Place: MATH 175

Abstract

Abstract: Lattice models for Fermions are connected with approximate representations of equations in matrices. Just as K-theory naturally arises in the study of almost commuting matrices, K-homology arises in the study of finite models in solid state physics. This talk will present recent joint work with Matthew Hastings on finite models related to the quantum hall effect that do not have translational symmetry. We present a new result in the old subject of almost commuting matrices: there are triples of self-dual Hermitian matrices that almost commute, are near a triple of commuting Hermitian matrices, but far from commuting triples of self-dual Hermitian matrices. This introduces an invariant that is probably based on real K-theory, but is for now seen as an easily computed invariant based on the sign of a Pfaffian.

Refreshments will be served in the Math Library Lounge at 4:00 p.m.