



The
Department of Mathematics
at the University of Toronto

Presents the 16th Annual R.A. Blyth Lectures in Mathematics



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(CNRS, IMPA and Fields Institute Distinguished Visitor)

Lyapunov exponents, KAM, and the spectral dichotomy for one-frequency Schrödinger operators

A central theme in the theory of dynamical systems is the interplay between elliptic and hyperbolic phenomena. The transition from one to the other, with the breakdown of robust quasiperiodic behavior of KAM theory and the emergence of nonuniform hyperbolicity is however, poorly understood.

Perhaps the simplest class of dynamical systems where both phenomena can occur is that of one-frequency cocycles. These are remarkable objects which arise naturally in the analysis of one-frequency Schrödinger operators. In the dynamical/spectral theory dictionary, KAM behavior corresponds to the 'metallic' low-disorder regime and nonuniform hyperbolicity is associated to the Anderson localization characteristic of large disorder. While both 'local theories' of low/high disorder have been intensively developed since the 1970's, no approach existed, until recently, for a 'global theory' encompassing the phase transition.

We will describe this in these lectures.

Lecture 1

Wed., March 16
4:10 PM
BA1130

Lecture 2

Thurs., March 17
4:10 PM
BA1130

Lecture 3

Fri., March 18
4:10 PM
BA1170

Reception to follow Lecture 1 -- All are Welcome
Mathematics Lounge, 6th floor, Bahen Centre
Food and Beverages will be Provided

More information can be found at: <http://www.math.toronto.edu/cms/blyth-lecture-series/>
All lectures and the reception are held in the Bahen Centre for Information Technology at 40 St. George St., Toronto, ON