

COLLOQUIUM
UNIVERSITY OF PITTSBURGH
FRIDAY FEBRUARY 27, 2009
704 THACKERAY HALL
4:00 P.M.

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APPROXIMATING STATIONARY STATISTICAL PROPERTIES
IN DISSIPATIVE CHAOTIC DYNAMICAL SYSTEMS

ABSTRACT: It is well-known that physical laws for large chaotic systems are revealed statistically. We consider temporal approximation of stationary statistical properties of dissipative chaotic dynamical systems. We demonstrate that appropriate time discretization viewed as discrete dynamical system is able to capture asymptotically the stationary statistical properties of the underlying continuous dynamical system provided that two conditions are satisfied:

1. The discrete dynamical system inherits the dissipativity of the original system uniformly (with respect to time step) in some appropriate sense;
2. The discrete dynamical system converges uniformly on the unit time interval $[0, 1]$ to the original system uniformly for initial data coming from the union of the global attractors. Application to the infinite Prandtl number model for convection will be discussed.

Refreshments served at 3:30 p.m.
in the Math Dept. COMMON ROOM, Thackeray 705