

**Department of Applied Mathematics and Statistics
The Johns Hopkins University**

SEMINAR

Mark Freidlin
Department of Mathematics
University of Maryland at College Park

February 12, 2004
304 Whitehead Hall
Refreshments: 3:30 p.m.
Seminar: 4:00 p.m.

STOCHASTIC RESONANCE AND RELATED PROBLEMS

ABSTRACT

Dynamical systems perturbed by a noise of small intensity will be considered. I will show that such a noise can lead to (not random) stable (in a sense) equilibriums or periodic oscillations, which are absent in the non-perturbed system. These effects are a manifestation of the laws of large deviations for stochastic processes.

Quasi-deterministic approximation of a stochastically perturbed dynamical system, based on the large deviation theory, will be introduced. This approximation allows for the description of the stochastic resonance spectrum in general situations.