6th Symposium on Analysis and PDEs

Purdue University, June 1–4, 2015

Yuan Lou, Ohio State University *June 2, 11:30–12:20pm*

Asymptotic Behavior of the Smallest Eigenvalue of an Elliptic Operator and its Applications to Evolution of Dispersal.

We investigate the effects of diffusion and drift on the smallest eigenvalue of an elliptic operator with zero Neumann boundary condition. Various asymptotic behaviors of the smallest eigenvalue, as diffusion and drift rates approach zero or infinity, are derived. As an application, these qualitative results yield some insight into the evolution of dispersal in heterogeneous environments.