PIMS / AMI Seminar

Tuesday, March 24, 2015
3:00 p.m.
CAB 281

"On a Discrete Selection-Mutation Model: Competitive Exclusion and Uniform Persistence"

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Abstract

A discrete-time population model in which individuals are distributed over a discrete phenotypic trait-space is studied. It is shown that, for an irreducible mutation matrix Γ, if mutation is small, then an interior equilibrium exists, that is globally asymptotically stable in $\mathbb{R}^n \backslash \{0\}$, while for arbitrary large mutation each trait persists uniformly. For the model reduced to only two traits, conditions for the global stability of the interior equilibrium are provided. When structure is introduced in the model, namely when mutation matrix Γ has block-diagonal form, with each diagonal block being irreducible, competitive exclusion among traits is analyzed and sufficient conditions are given for one trait to drive all the other traits to extinction.

Refreshments will be served in CAB 649 at 2:30 p.m.