Submittee: Daniel Coombs
Date Submitted: 2012-11-13 14:20
Title: IGTC Summit 2012
Event Type: Conference-Workshop

Location:
Naramata, BC

Dates:
October 12-14, 2012

Topic:
Graduate student training event in mathematical biology for students from BC and Alberta (IGTC event). Specific topic of lectures by invited speaker Steve Krone (Idaho): Interacting particle systems.

Methodology:
Poster session, lectures and student research talks. Also, a session on finding new research topics.

Objectives Achieved:
N/A

Scientific Highlights:
N/A

Organizers:
Tyson, Rebecca, Mathematics, UBC-Okanagan // Coombs, Daniel, Mathematics, UBC-Vancouver

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Speakers:
Steve Krone (Mathematics, U. of Idaho): Educational lectures // Title: Individual-based stochastic spatial models and population biology // Abstract: These talks will provide an introduction to individual-based stochastic spatial models (sometimes called interacting particle systems or stochastic cellular automata). We will proceed from very simple basic models to more elaborate ones, illustrating the ideas with examples of spatial biological population dynamics. We will compare these models and results with analogous differential equations (ODE and PDE) and see how they are connected. Biological topics will include spatial population growth and spread, epidemics, evolution of pathogens, and antibiotic resistance plasmids. Throughout, we will point out situations in which spatial structure can dramatically influence the ecology and evolution of populations. //

Research Talk by Dr Stephen Krone // Title: Spontaneous pattern formation in spatial populations with cyclic dynamics // Abstract: There are many examples in nature where a system goes through a succession of states that are cyclically related. Examples include ecological succession in a forest and SIRS models of epidemics. When such populations are spatially arranged (as are *all* populations to some degree), these cyclic dynamics can sometimes lead to the spontaneous formation of spatial patterns such as spiral waves. We will explore this phenomenon via interacting particle system models and related differential equations.

Links:
