Submittee: Mark Lewis
Date Submitted: 2018-03-08 05:42
Title: PIMS-UAlberta Distinguished Lecture (Mathematical Biology Seminar Series)
Event Type: Other

Location:
University of Alberta

Dates:
September 16-20, 2017

Topic:
Mathematical biology and ecology

Methodology:
Distinguished visitor

Objectives Achieved:
Deliver distinguished lecture, meet with graduate students and faculty to discuss research

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Scientific Highlights:
* MathBio Seminar â€“ September 18
* Informal meetings with graduate students â€“ Lewis Lab Meeting â€“ September 18
* Mathematical Biology Journal Club â€“ September 19

Organizers:
Lewis, Mark, Mathematical and Statistical Sciences, Alberta

Speakers:
Sebastian Shreiber, University of California, Davis

Persistence of species in the face of environmental stochasticity

Stochastic fluctuations in temperature, precipitation and a host of other environmental factors occur at multiple spatial and temporal scales. As the survival and reproduction of organisms, whether they be plants, animals, or viruses, depend on these environmental factors, these environmental fluctuations can drive fluctuations in population abundances. This leads to a fundamental question in population biology: ``Under what conditions do environmental fluctuations hinder or facilitate species

persistence?â€™â€™ This question is particularly pressing in light of global climate models predicting increasing temporal variation in many climatic variables over the next century. One fruitful approach to tackling this question is the development and analysis of stochastic models accounting for species interactions, population structure, and environmental stochasticity. I will discuss recent progress on a mathematical theory of persistence and extinction for such models. The theory will be illustrated with examples involving checkerspot butterflies in California, northern pike in Lake Windermere, and prairie grass in Kansas.

Links:
