

# Schedule

## **FRIDAY DECEMBER 14, 2012**

08:00AM – 09:00AM	Breakfast and Registration	Cox Science Building Foyer
09:00AM – 09:15AM	Welcome	Cox 126
09:15AM – 10:15AM	<i>Plenary Talk 1</i> (Chair: Steve Cantrell) Yuan Lou, Evolution of Dispersal in Heterogeneous Landscapes	<b>Cox 126</b>

### ***Special Session Talks 1***

#### **1A. Epidemiology (Conveners: Michel Lanlais and Matthew Potts)** **Cox 126**

10:15AM – 10:45PM	Arnaud Ducrot, Uniform Boundedness and Spreading Speed for some Reaction-diffusion SI Systems
10:45AM – 11:15AM	Rebecca Tyson, Post-Harvest Diseases of Apples: From Spore Dispersal to Epidemiology
11:15AM – 11:45AM	John Beier, Sugar Sources that Influence Local Mosquito Movement Patterns Offer Valuable Insights for Novel Vector Control: Attractive Toxic Sugar Baits
11:45AM – 12:15PM	Wayne Getz, T-LoCoH: A Space-Time Characterization of Movement Over Real Landscapes

#### **1B. Nonlinear Analysis and PDE (Conveners: Hal Smith and Patrick DeLeenheer)** **Ungar 301**

10:15AM – 10:45PM	Thomas Hillen, Mathematical Modelling with Fully Anisotropic Diffusion
10:45AM – 11:15AM	Adrian Lam, Evolution of Conditional Dispersal: ESS in Spatial Models
11:15AM – 11:45AM	Junping Shi, Hopf Bifurcations in Models with Chemotaxis or Advection
11:45AM – 12:15PM	

#### **1C. Global Change (Conveners: Huaiping Zhu and Jorge Velasco-Hernandez)** **Ungar 311**

10:15AM – 10:45PM	Mark Lewis, Impact of Global Change on Predator-prey Relationships in Complex Environments
10:45AM – 11:15AM	Rongsong Liu, Modeling the Dynamics of Woody Plant-Herbivore Interactions with Age-Dependent Toxicity
11:15AM – 11:45AM	Guihong Fan, Oscillation and Driving Mechanism in a General Model for Vector-borne Diseases with Time Delay
11:45AM – 12:15PM	Huaiping Zhu, Modeling of Mosquito Abundance and West Nile Virus Risk Using Weather and Environment Conditions

#### **1D. Biological Synergies (Conveners: Carol Horvitz and Eelke Jongejans)** **Cox 145**

10:15AM – 10:45PM	Hal Caswell, Invasion Speed and Sensitivity Analysis in Periodic and Stochastic Environments
10:45AM – 11:15AM	Ran Nathan, A Movement Ecology Approach for Studying Dispersal Processes in Changing Environments
11:15AM – 11:45AM	Christopher Klausmeier, The Vertical Distribution of Phytoplankton
11:45AM – 12:15PM	Carol Horvitz, Spread of Fleshy-fruited Exotic Shrubs when Dispersal is Structured by Dispersers that Vary over Time

12:15PM – 01:15PM	Lunch	Cox Science Building Foyer
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### ***Special Session Talks 2***

#### **2A. Epidemiology (Conveners: Michel Lanlais and Matthew Potts)** **Cox 126**

01:15PM – 01:45PM	Matthew Potts, Interactive Dynamics of Wildlife Populations, Human Health and Household Wealth
01:45PM – 02:15PM	Pierre Magal, Some Mathematical Epidemic Models for Bacterial Hospital Infections
02:15PM – 02:45PM	Hideki Murakawa, A Role of Movement in Ecology: Reaction-diffusion Interaction and Nonlinear Diffusion
02:45PM – 03:15PM	Marisa Eisenberg, Cholera Dynamics, Multiple Transmission Pathways, and Disease Spread in Haiti

#### **2B. Nonlinear Analysis and PDE (Conveners: Hal Smith and Patrick De Leenheer)** **Ungar 301**

01:15PM – 01:45PM	Liang Kong, Positive Stationary Solutions and Spreading Speeds of KPP Equations in Locally Spatially Inhomogeneous Media
01:45PM – 02:15PM	Yu Jin, Metrics for Population Persistence in Rivers

02:15PM – 02:45PM **Dung Le**, Holder Continuity of BMO Weak Solutions to Strongly Coupled Elliptic Systems  
02:45PM – 03:15PM **Horst Thieme**, Persistence in Structured Populations with Short Reproductive Season

**2C. Global Change (Conveners: Huaiping Zhu and Jorge Velasco-Hernandez) Ungar 311**

01:15PM – 01:45PM **Donald Olson**, Population Ranges in Changing Climates  
01:45PM – 02:15PM **Brian Coburn**, Targeting Discordant Couples to Mitigate HIV Epidemics in Africa: Modeling the Incidence, Impact, and Feasibility  
02:15PM – 02:45PM **Jorge Alfaro-Murillo**, A Time Since Last Infection-Dependent Epidemiological Model  
02:45PM – 03:15PM **Chunhua Shan**, The Dynamics of Growing Islets and Transmission of Schistosomiasis Japonica in the Yangtze River

**2D. Biological Synergies (Conveners: Carol Horvitz and Elke Jongejans) Cox 145**

01:15PM – 01:45PM **Helene Mueller-Landau**, How the Spatial Scales of Seed Dispersal and Natural Enemy Attack Influence the Strength of Population Regulation, Invasion Growth Rates, and Ultimately Plant Diversity  
01:45PM – 02:15PM **Marco Visser**, The Fitness Consequences of Dispersal for a Tropical Palm; the Role of Dispersers, Natural Enemies and Negative Density Dependence  
02:15PM – 02:45PM **James Bullock**, Using Analytical Models in Applied Ecology: When is it Good to Simplify?

03:15PM – 03:30PM Break Cox Science Foyer

03:30PM – 04:30PM **Plenary Talk 2** (Chair: Suzanne Lenhart) **Cox 126**  
**Don DeAngelis**, Keep Moving: Evolutionarily Stable Strategy for Movement among Patches When There Are Travel Losses

**Special Session Talks 3**

**3A. Epidemiology (Conveners: Michel Langlais and Matthew Potts) Cox 126**

04:30PM – 05:00PM **Juan Gutierrez**, Multi-scale Modeling of Malaria: From Endemicity to Elimination  
05:00PM – 05:30PM **Daozhou Gao**, Modeling the Spatial Spread of Rift Valley Fever in Egypt  
05:30PM – 06:00PM **Suzanne Robertson**, Habitat Selection under the Risk of Infectious Disease  
06:00PM – 06:30PM **Michel Langlais**, A Plant-pathogen Multiscale Model System

**3B. Nonlinear Analysis and PDE (Conveners: Hal Smith and Patrick De Leenheer) Ungar 301**

04:30PM – 05:00PM **Wei-Ming Ni**, Complete Dynamics of a Heterogeneous Competition-Diffusion System  
05:00PM – 05:30PM **Dan Ryan**, A Cross-diffusion Model for Avoidance Behavior in an Intraguild Predation Community  
05:30PM – 06:00PM **Chuan Xue**, How Do Swimming Bacteria Disperse in Response to Chemical Signals  
06:00PM – 06:30PM **Sebastian Schreiber**, Persistence of Structured, Interacting Populations in Stochastic Environments

**3C. Global Change (Conveners: Huaiping Zhu and Jorge Velasco-Hernandez) Ungar 311**

04:30PM – 05:00PM **Juping Zhang**, Two-patch Model for the Spread of West Nile Virus  
05:00PM – 05:30PM **Xiaotian Wu**, Calculating Basic Reproductive Ratio of a Stage-structured Population System with Periodic Delay  
05:30PM – 06:00PM **Folashade B. Augusto**, Malaria Drug Resistance: The impact of Human Movement and Spatial Heterogeneity  
06:00PM – 06:30PM **Jorge X. Velasco Hernandez**, Spatiotemporal Dynamics of Telegraph Reaction-Diffusion Predator-Prey Models

**SATURDAY DECEMBER 15, 2012**

08:00AM – 09:00AM Breakfast Cox Science Building Foyer

**Special Session Talks 4**

**4A. Evolution of Dispersal (Conveners: Priyanka Amarasekare and Vlastimil Krivan) Cox 126**

09:00AM – 09:30AM **Ross Cressman**, Game-theoretic Methods for Functional Response and Optimal Foraging Behavior

09:30AM – 10:00AM **Dan Munther**, The Ideal Free Strategy with Weak Allee Effect  
10:00AM – 10:30AM **Vlastimil Krivan**, The Ideal Free Distribution: From Hypothesis to Tests  
10:30AM – 11:00PM **Andrew Nevai**, Resource Theft and Spatial Population Dynamics

**4B. Nonlinear Analysis and PDE (Conveners: Hal Smith and Patrick DeLeenheer) Ungar 301**

09:00AM – 09:30AM  
09:30AM – 10:00AM **Bingtuan Li**, Traveling Wave Solutions in Partially Degenerate Cooperative Reaction-Diffusion Systems  
10:00AM – 10:30AM **Patrick De Leenheer**, Optimal placement of Marine Protected Areas  
10:30AM – 11:00PM **Xiaoqiang Zhao**, Principal Eigenvalues and Basic Reproduction Numbers for Reaction-Diffusion Models

**4C. Biological Synergies (Conveners: Carol Horvitz and Eelke Jongejans) Ungar 311**

09:00AM – 09:30AM **Luca Giuggioli**, Sigmergy: Collective Action and Animal Social Spacing  
09:30AM – 10:00AM **Denise Hardesty**, Applying Biogeochemical and Genetic Markers to Understand Movement in Complex Systems  
10:00AM – 10:30AM **Patrick Jansen**, Extensive Secondary Seed Dispersal Revealed by Telemetric Seed Tags

**4D. Nonlocal Dispersal (Conveners: Salomé Martínez and Frithjof Lutscher) Cox 145**

09:00AM – 09:30AM **Jon Jacobsen**, Integrodifference Models for Persistence in Temporally Varying Habitats  
09:30AM – 10:00AM **Jeffrey Musgrave**, How Dispersal in Patchy Landscapes Affects Population Spread  
10:00AM – 10:30AM **Mike Neubert**, Invasion Speeds of Sex- and Age-structured Populations  
10:30AM – 11:00PM **Ying Zhou**, Non-local Dispersal Models for a Population under Global Change

11:00AM – 12:00PM **Plenary Talk 3** **Cox 126**  
**Wei-Ming Ni**, Competition-Diffusion in Heterogeneous Environments

12:00PM – 01:00PM Lunch Cox Science Building Foyer

**Special Session Talks 5**

**5A. Evolution of Dispersal (Conveners: Priyanga Amarasekare and Vlastimil Krivan) Cox 126**

01:00PM – 01:30PM **Peter Abrams**, A Defense of Fitness-based Movement  
01:30PM – 02:00PM **Greta Bocedi**, Uncertainty, Information and Evolution of Context Dependent Emigration  
02:00PM – 02:30PM **John Fryxell**, Evolution of Migration in a Changing World  
02:30PM – 03:00PM **Justin Travis**, The Evolution of Dispersal (Emigration, Movement and Settlement Rules) During Range Expansion

**5B. Biological Synergies (Conveners: Carol Horvitz and Eelke Jongejans) Ungar 302**

01:00PM – 01:30PM **Eelke Jongejans**, Geographic Coupling of Juvenile and Adult Habitat Shapes Spatial Population Dynamics of a Coral Reef Fish  
01:30PM – 02:00PM **Ellen Damschen**, Seed Dispersal by Wind in Fragmented Landscapes with Corridors  
02:00PM – 02:30PM **Pedro Jordano**, Frugivores, Pollinators, Seeds, and Genes: Tracking Long-distance Dispersal and its Consequences  
02:30PM – 03:00PM **Bette Loiselle**, Predicting Effective Seed Dispersal Kernels Based on Animal Movement and Habitat Use

**5C. Nonlocal Dispersal (Conveners: Salomé Martínez and Frithjof Lutscher) Cox 145**

01:00PM – 01:30PM **Jimmy Garnier**, Long Distance Dispersal Accelerates Range Expansions  
01:30PM – 02:00PM **Frithjof Lutscher**, Global and Local Averaging for Integrodifferential Equations  
02:00PM – 02:30PM **Salomé Martínez**, Asymptotic Behavior of a Nonlocal Equation  
02:30PM – 03:00PM **Jorge Ramirez**, Population Persistence under Advection-diffusion in River Networks

03:00PM – 03:15PM Break Cox Science Building Foyer

## Special Session Talks 6

### 6A. Evolution of Dispersal (Conveners: Priyanga Amarasekare and Vlastimil Krivan) Cox 126

- 03:15PM – 03:45PM **Bob Holt**, Theoretical Studies of the Coevolution of Dispersal, Plasticity, and Local Adaptation in Heterogeneous Landscapes
- 03:45PM – 04:15PM **Fei Xu**, Strategic Effects of Mobility in Predator-prey Systems
- 04:15PM – 04:45PM **Pradeep Pillai**, Counterintuitive Patterns of Dispersal Evolution in a Trophic Metacommunity
- 04:45PM – 05:15PM **Douglas Morris**, Some Causes and Consequences of Dispersal in Real and Model Systems

### 6B. Nonlinear Analysis and PDE (Conveners: Hal Smith and Patrick DeLeenheer) Ungar 301

- 03:15PM – 03:45PM
- 03:45PM – 04:15PM **Julián López-Gómez**, Complex Dynamics Caused by Facilitation in Competitive Environments within Polluted Habitat Patches
- 04:15PM – 04:45PM **Zhi-Cheng Wang**, Lotka-Volterra Diffusion Systems with Strong Competition
- 04:45PM – 05:15PM **Hal Smith**, Spread of Viral Infection of Immobilized Bacteria

### 6C. Global Change (Conveners: Huaiping Zhu and Jorge Velasco-Hernandez) Ungar 311

- 03:15PM – 03:45PM **Ahmed Abdelrazec**, Optimal Control of West Nile Virus in Mosquitoes, Birds and Humans with Seasonality
- 03:45PM – 04:15PM **Mayra Núñez-López**, Pattern Formation in a Predator-prey System Characterized by a Spatial Scale of Interaction
- 04:15PM – 04:45PM **Tim Reluga**, Dynamical-systems Insights into Migration
- 04:45PM – 05:15PM **Lydia Bourouiba**, Environmental Dispersal of Pathogens: A Fluid Dynamics Perspective

### 6D. Nonlocal Dispersal (Conveners: Salomé Martínez and Frithjof Lutscher) Cox 145

- 03:15PM – 03:45PM **Jerome Coville**, Convergence to the Equilibria in Some Mutation-Selection Model
- 03:45PM – 04:15PM **Thomas Mueller**, Linking Individual Movements and Population Patterns in Dynamic Landscapes
- 04:15PM – 04:45PM **Grégoire Nadin**, Effect of Habitat Fragmentation on Persistence and Spreading of Populations
- 04:45PM – 05:15PM **Andrew Noble**, Spatiotemporal Complexity in Metapopulations, no Chaos Required

08:00PM Banquet Hyatt Coral Gables

## SUNDAY DECEMBER 16, 2012

- 08:00AM – 09:00AM Breakfast Cox Science Building Foyer
- 09:00AM - 10:00AM Plenary Talk 4 (Chair: Shigui Ruan) **Cox 126**  
**Suzanne Lenhart**, Using Optimal Control of Parabolic PDEs to Investigate Population Questions
- 10:00AM – 11:00AM Plenary Talk 5 (Chair: Shigui Ruan) **Cox 126**  
**Jianhong Wu**, Disperse to the North: Climate Impact on Tick Expansion and Lyme Disease Spread
- 11:00AM – 12:00PM Plenary Talk 6 (Chair: Steve Cantrell) **Cox 126**  
**Bill Fagan**, Riverine Landscapes: Exploring Connectivity, Extinction Risk, and Biogeography in an Alternative Geometry
- 12:00PM – 01:00PM Lunch Cox Science Building Foyer
- 01:00PM – 02:00PM **Panel Discussion** (Chris Cosner) **Cox 126**
- 02:00PM EDM Disperses