Wednesday, July 24

9:00–10:00: PLENARY

Helen Byrne, "Coming full circle in cancer modelling?"
Z-110, Pavillon Claire-McNicoll (streaming in Z-220 and Z-210)

10:00–10:30: BREAK/AARMS RECEPTION

10:30–12:30: MINISYMPOSIA

Z-209: Mathematical Modelling of Neuronal Networks

- 10:30–11:00: Horacio Rotstein, "Resonance-based mechanisms of generation of oscillations in networks of non-oscillatory neurons"
- 11:00–11:30: Kanika Bansal, "Data-driven brain network models differentiate individual cognitive variability"
- 11:30–12:00: Daniel Park, "Impact of adaptive myelination on synchrony in coupled oscillator networks"
- 12:00–12:30: Stefanos Folias, "Spatially Coherent Oscillations in Neuronal Networks"

Z-205: Mathematical models for infectious disease at population level

- 10:30–11:00: Christopher Kribs, "Invasion reproductive numbers for discrete and periodic systems"
- 11:00–11:30: Joan Ponce, "Dynamics of a childhood disease model with isolation"
- 11:30–12:00: Kyle Dahlin, "Enzootic Avian Malaria in Hawaiian Honeycreepers: modeling the effect of control"
- 12:00–12:30: Pradyuta Padmanabhan, "Influence of Preventative Measures on the Spread of the Zika Virus"

Z-200: Mathematical oncology from bench to bedside

- 10:30–11:00: Jacob Scott, "Controlling disease evolution: models and experiments to understand timescales, trajectories and outcomes"
- 11:00–11:30: Paul Macklin, "HPC- and learning-accelerated model investigations in cancer immunotherapy"
- 11:30–12:00: Russ Rockne, "Computational modeling of neural stem cell migration routes in the brain"
- 12:00–12:30: Gibin Powathil, "Multiscale Modelling of Cancer: Towards Predicting Multimodality Treatment Outcomes"

Z-210: Stochastic models in micro and macro biological systems

- 10:30–11:00: Jon Fintzi, "Fast Approximations for Stochastic Epidemic Models Fit to Partial Incidence Counts"
- 11:00–11:30: Lea Popovic, "Model Reduction for a Stochastic Evolutionary Game Model"
- 11:30–12:00: Forrest Crawford, "Randomization for the susceptibility effect of infectious disease interventions"
- 12:00–12:30: Wasiur Khudabukhsh, "Survival Dynamical Systems for the Population-level Analysis of Epidemics"

Z-215: Population dynamics in marine ecology

- 10:30–11:00: Frithjof Lutscher, "Movement behaviour of fish, harvesting-induced habitat degradation and the optimal size of marine reserves"
- 11:00–11:30: Frederic Guichard, "Non-resource effects of foundation species in marine meta-ecosystems"
- 11:30–12:00: Peter Harrington, "A next generation model for the spread of marine organisms between population patches"
- 12:00–12:30: Joany Marino, "Population-level consequences of symbiosis in a stage-structured energy budget model"

Z-220: Individual- and agent-based models of within-host disease dynamics

- 10:30–11:00: Gary An, "An agent-based model of host response to infection as a proxy system for control discovery using evolutionary computation and game-playing Artificial Intelligence"
- 11:00–11:30: Stephanie Evans, "Unraveling the role of fibrosis in the TB Granuloma"
- 11:30–12:00: Jill Gallaher, "Systemic dynamics of multiple metastases during adaptive therapy"
- 12:00–12:30: Jesse Kreger, "Effect of synaptic cell-to-cell transmission on HIV recombination dynamics"

Z-245: Multiscale modeling of cytoskeleton-mediated cellular transport and aggregation

- 10:30–11:00: Adriana Dawes, "Holes, rings and clusters: Characterizing large scale structures in filamentous networks"
- 11:00–11:30: Daniel Cortes, "Building agent-based models of non-muscle myosin II filaments"
- 11:30–12:00: Garegin Papoian, "Entropy Production and Cytoskeletal Avalanches in Actin Networks"
- 12:00–12:30: Ying Zhang, "A switch-like behavior in membrane-confined bimolecular reactions with respect to diffusivity and molecular reach"

Z-255: Wave propagation in biological media

- 10:30–11:00: Yuanwei Qi, "Traveling Wave of Some Reaction-Diffusion Systems, Results and Open Questions"
- 11:00–11:30: Kun Zhao, "Analysis of Keller-Segel Models with Logarithmic Sensitivity"
- 11:30–12:00: Huang Rui, "On the Traveling Waves for Degenerate Reaction-Diffusion Equation"
- 12:00–12:30: Chunhua Jin, "Global Solvability and Stabilization to a Cancer Invasion Model with Remodelling of ECM"

Z-260: Recent advances on modeling and dynamics of vector-borne diseases

- 10:30–11:00: Zhigui Lin, "The Impact of Climate Warming and Spatial Heterogeneity on the Spreading of the West Nile Virus"
- 11:00–11:30: Luana Bassani, "A Matrix Population Forecasting Model for Aedes aegypti Considering Daily Weather and Its Impact over the Dormancy State"
- 11:30–12:00: Ahmed Abelrazec, "Mathematical Assessment of the Role of Temperature and Rainfall on Multi-Species Interactions in West Nile virus"
- 12:00–12:30: Bruna Santos, "Assessing Weather Effects on *Aedes aegypti* Population in Brazil"

Z-305: Mentoring Room

12:30–13:30: LUNCH

Pavillon Jean-Coutu
Z-110: Annual General Meeting

14:00–15:00: PLENARY

Caroline Colijn, "Mathematical models, genomic data and prediction in infectious disease"
Z-110, Pavillon Claire-McNicoll (streaming in Z-220 and Z-210)

15:00–16:00: CONTRIBUTED TALKS

Z-200

- Uduak George, "Stretching the Embryonic Lung Tissue May Affect the Length of its Epithelial Tubes"
- Mehrshad Sadria, "Network Analysis of Eye-Gaze Pattern in Autism"
- Elisa Stefaniak, "On the probability distribution of resource allocation strategies in plants"

Z-205

- Lloyd Bridge, "LINEAR TRANSIT COMPARTMENT PHARMACOKINETIC MODELS AND EQUI-DOSING REGIMEN REGIONS"
- Thulasi Jegatheesan, "Model-Based Analysis of Recovery of Gut Microbiota after Antibiotic Disturbance"
- Laura Strube, "Activation of the integrated stress response: Does it tune or tame?"

Z-209

- Feng Fu, "Evolutionary Game Theory with Applications to Behavioral Epidemiology"
- Tricia Phillips, "Modeling the Heroin Epidemic"
- Marissa Renardy, "Evaluating vaccination strategies for tuberculosis in endemic and non-endemic settings"

Z-210

- Ensela Mema, "Modeling the Influence of Social Interactions on Physical Fitness"
- Alexandria Volkening, "Forecasting elections using compartmental models of infection"
- Ping Ye, "Prenatal alcohol exposure in American Indian and Caucasian mothers in the US Northern Plains"

Z-215

- Joe Latulippe, "A mathematical model of the effects of Amyloid beta on IP3 signaling mechanisms"
- James MacLaurin, "Phase Reduction and Synchronization Through Environmental Noise in Stochastic Biochemical Oscillations"
- Lucas Stolerman, "Stability analysis of a bulk-surface model for membraneprotein clustering"

Z-220

- Michelle Przedborski, "A systems biology approach to study adaptive drug resistance in acute myeloid leukemia"
- Mark Robertson-Tessi, "Evolution of T-cell receptors in the context of cancer and self-antigens"

- Luis Sordo Vieira, "An intracellular model linking iron metabolism to the cell cycle"

Z-245

- Maryam Basiri, "Pushing Boundaries: The existence of solutions for a free boundary problem modelling the spread of ecosystem engineers"
- Justin Marleau, "When activators become inhibitors: emergent spatial patterns in meta-ecosystems"
- Lawrence Sheppard, "Examining the plankton paradox with timescale-specific predictors of abundance changes"

Z-255

- Vincent Calcagno, "Life is not a long quiet river: modelling population genetic divergence when migration is fluctuating"
- Tricia Morris, "Modelling the evolution of flowering onset in perennial plants"
- Shawn Ryan, "Mathematics Provides Insight into Self-Organization in Biology"

Z-305: Mentoring Room

16:00–16:30: BREAK

16:30–18:30: MINISYMPOSIA

Z-110: Mathematical psychology and psychiatry

- 16:30–17:00: Monica Hurdal, "Parameters Influencing Brain Folding Pattern Development"
- 17:00–17:30: John Murray, "Biophysically-based circuit modeling of large-scale brain dynamics: applications for computational psychiatry"
- 17:30–18:00: Amy Cochran, "Robust estimation of factor loadings with application to postpartum depression"
- 18:00–18:30: Jeff Dunworth, "Modeling the circadian effects of mood"

Z-200: Modeling approaches in the development of cancer immuno-therapies and their combinations

- 16:30–17:00: Vincent Lemaire, "Identifying biological signals differentiating responders and non-responders in cancer immunotherapy"
- 17:00–17:30: Mary Spilker, "Mechanistic Modeling for Hypothesis Testing in Preclinical Immuno-Oncology Drug Discovery"
- 17:30–18:00: Roy Song, "QSP model development for receptor-mediated immuno-oncology therapies"
- 18:00–18:30: Andrzej Kierzek, "Mechanistic model for E7046, a PGE_2 Receptor Type 4 Antagonist for Cancer Immunotherapy"

Z-205: Agent-based models in mathematical biology

- 16:30–17:00: Christopher Strickland, "Modeling movement and persistence of small organisms in flow"
- 17:00–17:30: Jasmine Kreig, "Determining harvest strategies of pheasants and biomass using an agent-based model"
- 17:30–18:00: Brittany Stephenson, Comparing Intervention Strategies for Reducing *Clostridium difficile* Transmission: An Agent-Based Modeling Study
- 18:00–18:30: Andrew Bernoff, "Agent-Based and Continuous Models of Locust Hopper Bands"

Z-209: Population dynamics in heterogeneous landscapes: models, tool and data

- 16:30–17:00: Nazanin Zaker, "The effect of movement behavior on population density in fragmented landscapes"
- 17:00–17:30: James Powell, "Invasion speeds in highly variable landscapes: multiple scales, homogenization and the migration of trees"
- 17:30–18:00: Martha Garlick, "Using Homogenization to Estimate Random-Walk Motility from Telemetry Data in Heterogeneous Landscapes"
- 18:00–18:30: JaneShaw MacDonald, "The impact of edge behaviour on population persistence in a moving habitat mode"

Z-210: Stochastic models in micro and macro biological systems

- 16:30–17:00: Grzegorz Rempala, "Survival Dynamical Systems on Random Graphs"
- 17:00–17:30: Daniel Linder, "Statistical Methods for Reaction Network Inference"
- 17:30–18:00: Hye-Won Kang, "A Mathematical Model for Enzyme Clustering in Glucose Metabolism"
- 18:00–18:30: Boseung Choi, "Bayesian method for Modeling household transmission dynamics"

Z-215: Modeling the impact of vector behavior, pathogen ecology, and environmental factors on the transmission of vector borne diseases

- 16:30–17:00: Fadoua El Moustaid, "Understanding the effect of temperature on Bluetongue disease risk in livestock"
- 17:00–17:30: Cynthia Lord, "Temperature-dependent mosquito mortality and effects on Chikungunya virus transmission"
- 17:30–18:00: Miranda Teboh-Ewungkem, "Capturing the Gonotrophic Cycle Contributions in a Mosquito Demographic focused Mathematical Model for Malaria"
- 18:00–18:30: Martha Shocket, "Comparing temperature-dependent transmission models for 16 mosquito-borne diseases"

Z-220: Modelling gene transcription

- 16:30–17:00: Huy Vo, "NEW TOOLS FOR DESIGN AND ANALYSIS OF STOCHASTIC SINGLE-CELL EXPERIMENTS"
- 17:00–17:30: Barbel Finkenstadt, "Statistical Inference for Circadian pacemaking"
- 17:30–18:00: Giorgos Minas, "Transcription regulation as a cellular decision making process: the NF-κB case study"
- 18:00–18:30: Rache Waymack, "Shining light on shadow enhancers regulation of transcriptional dynamics and noise"

Z-245: Analysis of doomed invasions in oncology, epidemiology and ecology

- 16:30–17:00: Ohad Vilk, "Extinction Risk of a Metapopulation Under the Allee Effect"
- 17:00–17:30: Malwina Luczak, "Near-criticality in mathematical models of epidemics"
- 17:30–18:00: Kaniz F Nipa, "Demographic Variability, Environmental Variability, and Periodic Fluctuations in Stochastic Epidemic Models with Two Patches"
- 18:00–18:30: Julien Arino, "ON THE DURATION OF THE STOCHASTIC PHASE OF AN EPIDEMIC"

Z-255: Modeling in-host bacterial infections for prediction and prevention of disease

- 16:30–17:00: Denise Kirschner, "Multiscale Mathematical and Computational Models capturing Mycobacterium tuberculosis inhibition of Immunity during Tuberculosis infection"
- 17:00–17:30: Martin López-García, "A stochastic multi-scale model of *Francisella tularensis* infection"
- 17:30–18:00: Matthew Jenior, "Combining metabolic modeling and microbiome analyses to uncover novel mechanisms of metabolism-linked Clostridium difficile virulence regulation"
- 18:00–18:30: Samantha Erwin, "Characterizing *C. difficile* toxin production through networks and mechanistic mathematical modeling"

Z-260: Recent advances on modeling and dynamics of vector-borne diseases

- 16:30–17:00: Daozhou Gao, "Effects of Travel Frequency on Malaria Persistence"
- 17:00–17:30: Haitao Song, "Is There a Risk of Chikungunya Outbreak with Autochthonous Transmission in Ontario Canada?"
- 17:30–18:00: Chengjun Sun, "Impact of Disparity in Vaccination Coverage on Disease Transmission in the Setting of Multiple Patches"
- 18:00–18:30: Xianghong Zhang, "Models to Assess the Effects of Wolbachia-carrying Mosquito Augmentations on the Control of Dengue"

Z-305: Modeling to conquer: Understanding and controlling deleterious diseases using dynamical systems

- 16:30–17:00: Adam Rhodes, "Mathematical Modeling of the Immune-Mediated Theory of Metastasis"
- 17:00–17:30: Gregory Kimmel, "Evolutionary dynamics of non-Hodgkins lymphoma CAR T cell therapy"
- 17:30–18:00: Zoi Rapti, "Steady-state stability in diseases with diffusion"
- 18:00–18:30: Celeste Vallejo, "The effect of small and unvaccinated subpopulations on polio elimination"

19:30: BANQUET

Mythik, Centre Bell, Entrée via Cour Rio Tinto, 1909 Avenue des Canadiens-de-Montréal