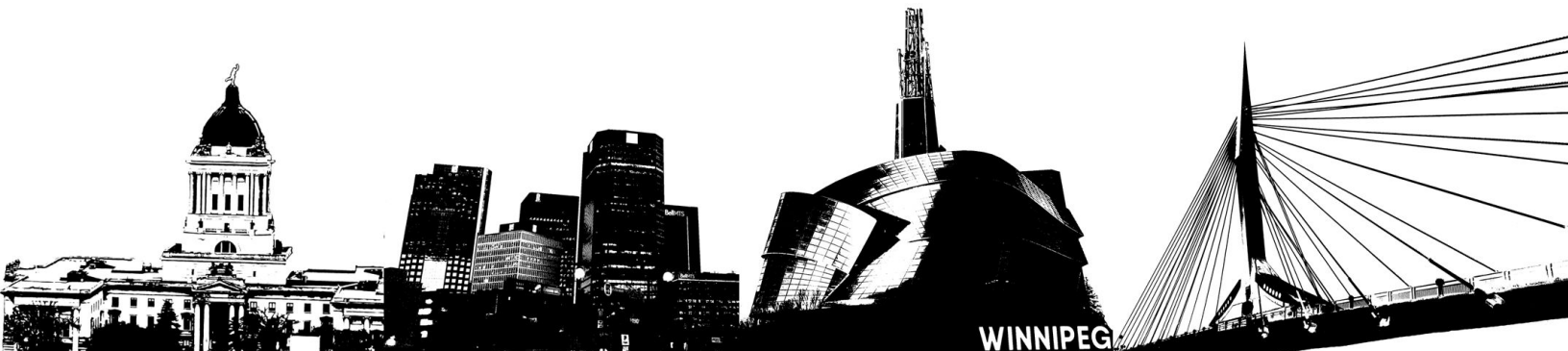
CMPD6

Sixth conference on Computational and Mathematical Population Dynamics

University of Manitoba
Winnipeg
23-27 May 2023

Abstracts & Participants list



CMPD6 abstracts

Table of contents

Azmy Ackleh - A Multiple-Strain Susceptible-Infected Model with Diffusion Formulated on the Space of Radon Measures

University of Louisiana at Lafayette
USA

Minisymposium presentation
(Ecological and Epidemiological Models with Dispersal)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Folashade Agusto - Exploring the effects of prescribed fire and rising temperature on tick-borne diseases

University of Kansas
USA

Minisymposium presentation
(Vector-Borne Disease Dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Folashade Agusto - From cultural practices to risky behaviors to public sentiment: Modeling human behavior and disease transmission

University of Kansas
USA

Plenary presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Ephraim Agyingi - Modeling immune system priming: the miracle that saved Sub-Sahara Africa from COVID-19

Rochester Institute of Technology, Rochester, New York
USA

Minisymposium presentation
(Within-host and between-host mathematical models of biological dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Vitalii Akimenko - Numerical Method for the Age-structured SIPCV Epidemic Model of Healthy cells, Dysplasia, Cervical Cancer Cells and HPV Dynamics

University of Manitoba
Canada

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Asami Anzai - Estimating importation cases using mobility data

Kyoto University
Japan

Minisymposium presentation
(Real time epidemiology in various geographic scales)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Julien Arino - Role of case introductions in the community spread of infectious diseases

University of Manitoba
Canada

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Joseph Baafi - Modelling the Impact of Seasonality on Mosquito Population Dynamics: Insights for Vector Control Strategies.

Memorial University of Newfoundland
Canada

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Rebecca Bekker - Black Holes in TIME: the Effect of GRID Radiation on the Tumor-Immune Micro-environment

H. Lee Moffitt Cancer Center and Research Institute
USA

Minisymposium presentation
(Within-host and between-host mathematical models of biological dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Ranjini Bhattacharya - Angiogenesis in Cancer: A Tragedy of Commons

Moffitt Cancer Center
USA

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Amanda Bleichrodt - Multi-model forecasts in the context of the Mpox outbreak in multiple countries (July 28th, 2022 through January 26th, 2023)

Georgia State University
USA

Minisymposium presentation
(Real time epidemiology in various geographic scales)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Anuraag Bukkuri - Models of Resistance in State-Structured Cancer Populations

Moffitt Cancer Center and Lund University
USA

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jacques Bélair - Population models with state-dependant delays

Université de Montréal
Canada

Minisymposium presentation
(Delay-differential equations in applications)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jacques Bélair - Modeling the use of Fangsang Shelter Hospitals in Wuhan

Université de Montréal
Canada

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Robert Stephen Cantrell - Resource Matching in Spatial Ecology and Evolutionary Advantage

University of Miami
USA

Minisymposium presentation
(Ecological and Epidemiological Models with Dispersal)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Fabian Cardozo-Ojeda - Mathematical modeling of gene and cell therapy for HIV cure

Fred Hutchinson Cancer Center
USA

Minisymposium presentation
(Multiscale models of infectious diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Bernard Cazelles - Modeling infectious disease dynamics: the challenge of non-stationarity

Sorbonne Université
France

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Stanca Ciupe - Multiscale models of SARS-CoV-2 infection

Virginia Tech
USA

Minisymposium presentation
(Multiscale models of infectious diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Adriana-Stefania Ciupeanu - Dynamics of COVID-19 Variants of Concern

University of Manitoba
Canada

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jessica Conway - Heterogeneity in HIV viral rebound

Penn State
USA

Minisymposium presentation
(Mathematical and computational approaches to modelling immunology)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jessica Conway - Modeling PrEP-on-demand strategies to prevent HIV transmission

Penn State
USA

Minisymposium presentation
(Multiscale models of infectious diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Morgan Craig - Delays in the cell cycle: implications in immune responses

Sainte-Justine University Hospital Research Centre / Université de Montréal
Canada

Minisymposium presentation
(Delay-differential equations in applications)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Morgan Craig - The TME determines the efficacy of immunotherapies to treat glioblastoma

Sainte-Justine University Hospital Research Centre / Université de Montréal
Canada

Minisymposium presentation
(Modelling the Cancer Microenvironment)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jim Cushing - Discrete-time models of infectious diseases: a project in memory of Aziz-Abdul Yakubu

University of Arizona
USA

Plenary presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Tanuja Das - An eclipse-phase lag drives oscillations in a viral infection model with a general growth function

University of New Brunswick, New Brunswick
Canada

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Tanuja Das - Effect of a novel generalized incidence rate function in SIR model: stability switches and bifurcations

University of New Brunswick, New Brunswick
Canada

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Xiaoyan Deng - Predicting heterogeneous CD8+ immune memory responses in COVID-19 using a virtual patient cohort

Université de Montréal
Canada

Minisymposium presentation
(Within-host and between-host mathematical models of biological dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Clotilde Djuikem - Impulsive modelling of rust dynamics and predator releases

Université Côte d'Azur, Inria, INRAE, CNRS, Université Paris Sorbonne, BIOCORE, France
France

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Marisa Eisenberg - Models to inform wastewater-based epidemiology: identifiability, uncertainty, and opportunities

University of Michigan, Ann Arbor
USA

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Marisa Eisenberg - Identifiability and infectious disease interventions: exploring when uncertainty matters

University of Michigan, Ann Arbor
USA

Plenary presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Blessing Emerenini - Data Assimilation of Quorum Sensing Regulation of Bacteria-Phage Interaction in Biofilm

Rochester Institute of Technology
USA

Minisymposium presentation
(Within-host and between-host mathematical models of biological dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Guihong Fan - Delayed model for the transmission and control of COVID-19 with Fangcang Shelter Hospitals

Columbus State University
USA

Minisymposium presentation
(Delay-differential equations in applications)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Suzan Farhang-Sardroodi - Mathematical model of muscle wasting in cancer cachexia incorporated with immunology

Department of Mathematics, university of Manitoba
Canada

Minisymposium presentation
(Mathematical and computational approaches to modelling immunology)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Suzan Farhang-Sardroodi - Mathematical Modelling of the Impact of Human Immune Diversity on COVID-19 transmission

Department of Mathematics, university of Manitoba
Canada

Minisymposium presentation
(Multiscale models of infectious diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jonathan Forde - Modeling the challenges of optimal resource deployment for epidemic prevention

Hobart and William Smith Colleges
USA

Minisymposium presentation
(Multiscale models of infectious diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Samaneh Gholami - Mathematical Modeling of Immune Response to Protein Subunit COVID-19 Vaccines

York University
Canada

Minisymposium presentation
(Within-host and between-host mathematical models of biological dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Abba Gumel - Mathematical Assessment of the Role of Pre-Exposure Prophylaxis on the HIV Pandemic

University of Maryland
USA

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Abba Gumel - Mathematics of Wolbachia-based biocontrol of mosquito-borne diseases

University of Maryland
USA

Minisymposium presentation
(Vector-Borne Disease Dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Donglin Han - Retrospective estimation of proportion of total infections of COVID-19 during the first wave in Alberta

University of Alberta
Canada

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Katsuma Hayashi - Reconstructing the temporal dynamics of clustering from cluster surveillance of COVID-19

Kyoto University
Japan

Minisymposium presentation
(Real time epidemiology in various geographic scales)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jane Heffernan - Seasonality and Influenza pH1N12009 Vaccination Impact

York University
Canada

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jane Heffernan - Modelling Immunity to SARS-CoV-2

York University
Canada

Plenary presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Esteban A. Hernandez-Vargas - The Shapes of Immunological Data during Respiratory Infections

University of Idaho
USA

Plenary presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Sarafa Iyaniwura - Understanding the efficacy of capsid protein allosteric modulators using a multiscale model of hepatitis B virus

Los Alamos National Laboratory
USA

Minisymposium presentation
(Within-host and between-host mathematical models of biological dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Sana Jahedi - Addressing Waning Immunity Against Measles: Reevaluating the MMR Vaccination Program

McMaster University, Biology department
Canada

Minisymposium presentation
(Mathematical and computational approaches to modelling immunology)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Harsh Vardhan Jain - A quantitative evaluation of an anti-cancer vaccine for treating advanced prostate cancer

Department of Mathematics and Statistics, University of Minnesota Duluth
USA

Minisymposium presentation
(Mathematical modeling and analysis in cancer immunotherapy)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Marek Kimmel - Site frequency spectra and estimation of clonal dynamics of tumors

Departments of Statistics and Bioengineering, Rice University
USA

Minisymposium presentation
(Stochastic population models: Theory and applications in Cancer Research)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jude Kong - Mpox dynamic model: incorporating adaptive behavioural changes, different control strategies in the MSM community & under-reporting

York University
Canada

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jude Kong - Leveraging mathematical models to support early management of an emerging disease outbreak: the case of Covid-19 and Africa

York University
Canada

Minisymposium presentation
(Within-host and between-host mathematical models of biological dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Chapin Korosec - Longitudinal immunological outcomes from three doses of COVID-19 vaccines in people living with HIV: antibodies, memory-B cells, cytokines, and a novel within-host immunological model

York University
Canada

Minisymposium presentation
(Mathematical and computational approaches to modelling immunology)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Christopher Kribs - Impact of tetravalent dengue vaccination with screening, ADE, and altered infectivity on dengue and Zika transmission

University of Texas at Arlington
USA

Minisymposium presentation
(Vector-Borne Disease Dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Furkan Kurtoglu - Modeling Colorectal Cancer Spheroids using Agent-Based Modeling Including Metabolism

Indiana University
USA

Minisymposium presentation
(Modelling the Cancer Microenvironment)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Brandon Legried - Inferring phylogenetic birth-death models from extant lineages through time

Georgia Institute of Technology - School of Mathematics
USA

Minisymposium presentation
(Stochastic population models: Theory and applications in Cancer Research)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Kang-Ling Liao - The opposite functions and treatment outcomes of CD200-CD200R in cancer

Mathematics, University of Manitoba
Canada

Minisymposium presentation
(Mathematical modeling and analysis in cancer immunotherapy)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Ernesto Lima - Development and calibration of a stochastic, multiscale agent-based model for predicting tumor and vasculature growth

The University of Texas at Austin
USA

Minisymposium presentation
(Modelling the Cancer Microenvironment)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Xiaochen Long - A Branching Process Model of Clonal Hematopoiesis

Rice University
USA

Minisymposium presentation
(Stochastic population models: Theory and applications in Cancer Research)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Loïc Louison - A Population Harvesting Model with Time and size Competition Dependence Function

Université de Guyane
France

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Nadia Loy - A non-local kinetic model for cell migration : a study of the interplay between contact guidance and steric hindrance

Politecnico di Torino
Italy

Minisymposium presentation
(Modelling the Cancer Microenvironment)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Chinwendu Emilian Madubueze - Modelling transmission dynamics of Lassa fever transmission with two environmental pathway transmissions

York university Toronto, Ontario
Canada

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Anna Marciniak-Czochra - Evolution of stem cell populations: Mechanistic mathematical modelling vs single cell data

Heidelberg University
Germany

Plenary presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Fabio Milner - A mosquito-bird-human model for West Nile virus disease transmission

Arizona State University
USA

Minisymposium presentation
(Vector-Borne Disease Dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jemal Mohammed-Awel - Mathematics model for assessing the impacts of pyrethroid resistance and temperature on population abundance of malaria mosquitoes

Morgan State University
USA

Minisymposium presentation
(Vector-Borne Disease Dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Nicola Mulberry - A nested model for pneumococcal population dynamics

Simon Fraser University
Canada

Minisymposium presentation
(Bridging the scale from within-host to epidemic models)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Toshiyuki Namba - Unexpected coexistence and extinction in an intraguild predation system

Osaka Metropolitan University
Japan

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jay Newby - Dynamic self organization and microscale fluid properties of nucleoplasm

University of Alberta
Canada

Plenary presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Hiroshi Nishiura - Night-time population consistently explains the transmission dynamics of coronavirus disease 2019 in three megacities in Japan

Kyoto University
Japan

Minisymposium presentation
(Real time epidemiology in various geographic scales)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Ryo Oizumi - Analytical Representation of Eigensystem in Multiregional Leslie Matrix Model: Application to Sensitivity Analysis of Population Declining in Japan

National Institute of Population and Social Security Research
Japan

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Lorenzo Pellis - Multi-scale time-since-infection models in evolutionary epidemiology

The University of Manchester
UK

Minisymposium presentation
(Bridging the scale from within-host to epidemic models)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Tin Phan - Modeling the emergence of viral resistance in SARS-CoV-2 patients treated with an anti-spike monoclonal antibody

Los Alamos National Laboratory
USA

Minisymposium presentation
(Mathematical and computational approaches to modelling immunology)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Tin Phan - Integrating wastewater surveillance data with epidemic models: challenges and opportunities

Los Alamos National Laboratory
USA

Minisymposium presentation
(Multiscale models of infectious diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Tanya Philippsen - A retrospective modelling analysis of the effect of control measures on the transmission of SARS-CoV-2 in Canada

University of Victoria
Canada

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Andrea Pugliese - Combining data from surveillance on mosquitoes and corvids to understand the factors affecting the dynamics of West Nile Virus in Emilia-Romagna, Italy

Dept. of Mathematics, University of Trento
Italy

Minisymposium presentation
(Vector-Borne Disease Dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Erica Rutter - Modeling and Estimating Intratumoral Heterogeneity in Cancer

University of California, Merced
USA

Minisymposium presentation
(Modelling the Cancer Microenvironment)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Erica Rutter - Global Sensitivity Analysis of a Structured Model of COVID-19 Transmission on a College Campus

University of California, Merced
USA

Minisymposium presentation
(Multiscale models of infectious diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Paul Salceanu - Robust uniform persistence for structured models of delay differential equations

University of Louisiana at Lafayette
USA

Minisymposium presentation
(Ecological and Epidemiological Models with Dispersal)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Leili Shahriyari - Digital twins of cancer patients: a step toward personalized treatments

Department of Mathematics & Statistics, University of Massachusetts Amherst
USA

Minisymposium presentation
(Mathematical modeling and analysis in cancer immunotherapy)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Zhisheng Shuai - Heterogeneity and Aggregation in Modeling Infectious Diseases

University of Central Florida
USA

Plenary presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Nourridine Siewe - TGF-beta inhibition can overcome cancer primary resistance to PD-1 blockade: a mathematical model

Rochester Institute of Technology
USA

Minisymposium presentation
(Mathematical modeling and analysis in cancer immunotherapy)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Nourridine Siewe - Increase Hemoglobin Level in Severe Malarial Anemia while Controlling Parasitemia: A Mathematical Model

Rochester Institute of Technology
USA

Minisymposium presentation
(Vector-Borne Disease Dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Nourridine Siewe - Breast cancer exosomal microRNAs facilitate pre-metastatic niche formation in the bone: A mathematical model

Rochester Institute of Technology
USA

Minisymposium presentation
(Within-host and between-host mathematical models of biological dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Stacey Smith? - Coupling the within-host process and between-host transmission of COVID-19 suggests vaccination and school closures are critical

The University of Ottawa
Canada

Minisymposium presentation
(Multiscale models of infectious diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Tracy Stepien - Deciphering Glioma Microenvironment Entry Mechanisms of Myeloid-Derived Suppressor Cells

University of Florida
USA

Minisymposium presentation
(Modelling the Cancer Microenvironment)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Yasuhiro Takeuchi - Stability analysis of a single-species logistic model with time delay and constant inflow

Aoyama Gakuin University
Japan

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Ryan Thiessen - Travelling waves of a new glioma invasion model

University of Alberta
Canada

Minisymposium presentation
(Modelling the Cancer Microenvironment)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Necibe Tuncer - Determining Reliable Parameter Estimates for Within-host and Within-vector models of Zika Virus

Florida Atlantic University
USA

Minisymposium presentation
(Vector-Borne Disease Dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Necibe Tuncer - Immuno-epidemiological co-a ection model of HIV infection and opioid addiction

Florida Atlantic University
USA

Minisymposium presentation
(Within-host and between-host mathematical models of biological dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Sonja Türpitz - Considering Subpopulations in Modelling Facultative Mutualism Reveals a New Approach to Model Interspecific Interactions

Friedrich Schiller University Jena, Germany
Germany

Contributed presentation

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Marie Betsy Varughese - Incorporating Health Seeking Behaviour in a Deterministic Model for Influenza

University of Alberta
USA

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jorge Velasco-Hernandez - Modeling a traffic light warning system for acute respiratory infections

Universidad nacional Autónoma de México
Mexico

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Jorge Velasco-Hernandez - The Ross-Mcdonald model revisited: linking transmission and within-host dynamics

Universidad nacional Autónoma de México
Mexico

Minisymposium presentation
(Vector-Borne Disease Dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Amy Veprauskas - The interplay between dispersal and Allee effects in discrete-time population models

University of Louisiana at Lafayette
USA

Minisymposium presentation
(Ecological and Epidemiological Models with Dispersal)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Amy Veprauskas - Pathogen dynamic in a tick-host system: A discrete-time modeling approach

University of Louisiana at Lafayette
USA

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Ren-Yi Wang - Analysis of A Countable-Type Branching Process Model for the Tug-of-War Cancer Cell Dynamics

Rice University
USA

Minisymposium presentation
(Stochastic population models: Theory and applications in Cancer Research)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Xuyuan Wang - Detecting and Resolving Nonidentifiability In Infectious Diseases Modeling

University of Alberta
Canada

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Kathleen Wilkie - Modelling the Evolution of the Immune Response to Cancer

Toronto Metropolitan University
Canada

Minisymposium presentation
(Mathematical and computational approaches to modelling immunology)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Kathleen Wilkie - Modelling Radiation Cancer Treatment with Ordinary and Fractional Differential Equations

Toronto Metropolitan University
Canada

Minisymposium presentation
(Modelling the Cancer Microenvironment)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Pei Yuan - Modelling for informing public health policy on prevention and control of COVID-19 epidemics in Toronto, Canada

York University
Canada

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Veronika Zarnitsyna - Competing Heterogeneities in Vaccine Effectiveness Estimation

Department of Microbiology and Immunology, Emory University School of Medicine
USA

Minisymposium presentation
(Bridging the scale from within-host to epidemic models)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Huaiping Zhu - A two-stage model with distributed delay for mosquito population dynamics

York University
Canada

Minisymposium presentation
(Delay-differential equations in applications)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Huaiping Zhu - Predictive modelling and forecasting of the mosquito abundance and risk of West Nile virus in Ontario Canada

York University
Canada

Minisymposium presentation
(Vector-Borne Disease Dynamics)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

Pauline van den Driessche - Disease-Induced Hydra Effect

University of Victoria, BC
Canada

Minisymposium presentation
(Recent Advances in Modelling Infectious Diseases)

Mathematical modelling is an important tool for understanding and controlling the spread of infectious diseases. Heterogeneity, which refers to differences in factors such as demographics, behaviour, susceptibility, infectiousness, and disease severity within a population, plays a critical role in disease transmission and control. Incorporating heterogeneity into models can help researchers better understand disease spread across subpopulations and design more targeted control strategies. However, heterogeneous models can be high-dimensional and complex, leading to theoretical challenges in modelling analysis. Moreover, data collections in the field are often in the forms of aggregation, making modeling implementation challenging. In this talk, we will discuss recent developments and remaining challenges in modeling infectious diseases with a focus on heterogeneity and aggregation. The goal is to provide attendees with valuable insights into the significance of incorporating heterogeneity into models and effective ways to address associated challenges.

List of participants

Azmy Ackleh
Mathematics
University of Louisiana at Lafayette
United States
azmy.ackleh@louisiana.edu

Folashade Agusto
Ecology and Evolutionary Biology
University of Kansas
United States
fbagusto@ku.edu

Ephraim Agyingi
Mathematical Sciences
Rochester Institute of Technology
United States
eoasma@rit.edu

Vitalii Akimenko
Mathematics
University of Manitoba
Canada
vitaliiakm@gmail.com

Asami Anzai
Graduate School of Medicine
Kyoto University
Japan
anzai.asami.43c@st.kyoto-u.ac.jp

Julien Arino
Mathematics
University of Manitoba
Canada
julien.arino@umanitoba.ca

Joseph Baafi
Biology
Memorial University
Canada
jbaafi@mun.ca

Jacques Bélair
Mathematics and Statistics
Université de Montréal
Canada
jacques.belair@umontreal.ca

Ranjini Bhattacharya
Integrated Mathematical Oncology
Moffitt Cancer Center
United States
ranjini.bhattacharya@moffitt.org

Tijotop Ahmed Binjibon
Mathematics
University of Manitoba
Canada
binjibot@myumanitoba.ca

Amanda Bleichrodt
Population Health Sciences
Georgia State University
United States
ableichrodt1@student.gsu.edu

Ernesto Augusto Bueno da Fonseca Lima
Oden Institute
The University of Texas at Austin
United States
ernesto.lima@utexas.edu

Anuraag Bukkuri
Integrated Mathematical Oncology
Moffitt Cancer Center
United States
anuraag.bukkuri@moffitt.org

Robert Stephen Cantrell
Mathematics
University of Miami
United States
rsc@math.miami.edu

Erwing Cardozo-Ojeda
Vaccine and Infectious Disease Division
Fred Hutchinson Cancer Center
United States
ecojeda@fredhutch.org

Bernard Cazelles
UMMISCO
IRD Sorbonne Université
France
cazelles@biologie.ens.fr

Stanca Ciupe
Mathematics
Virginia Tech
United States
stanca@vt.edu

Adriana-Stefania Ciupeanu
Mathematics
University of Manitoba
Canada
ciupeana@myumanitoba.ca

Jessica Conway
Mathematics
Penn State
United States
jmc90@psu.edu

Morgan Craig
Immune disorders and cancer & Mathematics and Statistics
Sainte-Justine University Hospital Research Centre & Université de Montréal
Canada
morgan.craig@umontreal.ca

Jim Cushing
Mathematics
University of Arizona
United States
cushing@math.arizona.edu

Tanuja Das
Mathematics and Statistics
University of New Brunswick
Canada
tanujamanidas@gmail.com

Xiaoyan Deng
Mathematics and Statistics
Université de Montréal
Canada
xiaoyan.deng@umontreal.ca

Clotilde Djuikem
BIOCORE
INRIA Sophia Antipolis
France
clotilde.djuikem@inria.fr

Marisa Eisenberg
Epidemiology, Complex Systems & Mathematics
University of Michigan, Ann Arbor
United States
marisae@umich.edu

Blessing Emerenini
School of Mathematical Sciences
Rochester Institute of Technology
United States of America
boesma@rit.edu

Guihong Fan
Mathematics
Columbus State University
United States
fan_guihong@columbusstate.edu

Suzan Farhang-Sardroodi
Mathematics
University of Manitoba
Canada
suzan.farhangsardroodi@umanitoba.ca

Ghazale Farjam
Department of Mathematics
University of Manitoba
Canada
farjamg@myumanitoba.ca

Jonathan Forde
Mathematics and Computer Science
Hobart and William Smith Colleges
United States
forde@hws.edu

Samaneh Gholami
Mathematics and Statistics
York University
Canada
sama20@yorku.ca

Abba Gumel
Mathematics
University of Maryland
United States
agumel@umd.edu

Donglin Han
Mathematical and Statistical Sciences
University of Alberta
Canada
donglin3@ualberta.ca

Md. Mehadi Hasan
Mathematics
University of Manitoba
Canada
hasanmm4@myumanitoba.ca

Katsuma Hayashi
Hygiene
Kyoto University
Japan
hayashi.katsuma.7w@kyoto-u.ac.jp

Jane Heffernan
Mathematics and Statistics
York University
Canada
jmheffer@yorku.ca

Esteban A. Hernandez-Vargas
Mathematics and Statistical Science
University of Idaho
United States
esteban@uidaho.edu

Thomas Hillen
Mathematical and Statistical Sciences
University of Alberta
Canada
thillen@ualberta.ca

Jannatun Irana Ira
Mathematics
University of Manitoba
Canada
iraji@myumanitoba.ca

Sarafa Iyaniwura
Mathematics
University of British Columbia
Canada
iyaniwura@math.ubc.ca

Harsh Jain
Mathematics and Statistics
University of Minnesota Duluth
United States
hjain@umn.edu

Ali Karoobi
Mathematics
University of Manitoba
Canada
karoobia@myumanitoba.ca

Marek Kimmel
Statistics
Rice University
United States
kimmel@rice.edu

Jude Kong
Mathematics and Statistics
York University
Canada
jdkong@yorku.ca

Chapin Korosec
Mathematics and Statistics
York University
Canada
chapwaite@gmail.com

Christopher Kribs
Mathematics & Curriculum and Instruction
University of Texas at Arlington
United States
kribs@uta.edu

Brandon Legried
Mathematics
Georgia Institute of Technology
United States
blegried3@gatech.edu

Kang-Ling Liao
Mathematics
University of Manitoba
Canada
Kang-Ling.Liao@umanitoba.ca

Xiaochen Long
Department of Statistics
Rice University
United States
xl81@rice.edu

Pedro Lopez Gascon
Mathematics
University of Manitoba
Canada
lopezgap@myumanitoba.ca

Loïc Louison
Sciences et technologie
Université de Guyane
France
loic.louison@univ-guyane.fr

Nadia Loy
DISMA-P.IVA 00518460019
Politecnico di Torino
Italy
nadia.loy@polito.it

Chinwendu Emilian Madubueze
Mathematics and Statistics
York University
Canada
ce.madubueze@gmail.com

Anna Marciniak-Czochra
Institute of Applied Mathematics
Heidelberg University
Germany
Anna.Marciniak@iwr.uni-heidelberg.de

Solomon Mensah
Mathematics
University of Manitoba
Canada
mensahs2@myumanitoba.ca

Fabio Milner
Simon Levin MCMD Center & School of Mathematical and Statistical Sciences
Arizona State University
United States
fmilner@asu.edu

Negar Mohammadnejad
Mathematics
University of Manitoba
Canada
mohamm58@myumanitoba.ca

Jemal Mohammed-Awel
Mathematics
Morgan State University
United States
jemal.mohammed-awel@morgan.edu

Nicola Mulberry
Mathematics
Simon Fraser
Canada
nicola_mulberry@sfu.ca

Toshiyuki Namba
Graduate School of Science
Osaka Metropolitan University
Japan
tnamba@omu.ac.jp

Syeda Atika Batool Naqvi
Mathematics
University of Manitoba
Canada
naqvisab@myumanitoba.ca

Jay Newby
Mathematical and Statistical Sciences
University of Alberta
Canada
jnewby@ualberta.ca

Hiroshi Nishiura
School of Public Health
Kyoto University
Japan
nishiura.hiroshi.5r@kyoto-u.ac.jp

Ryo Oizumi
Department of International Research and Cooperation
National Institute of Population and Social Security Research
Japan
ooizumi-ryou@ipss.go.jp

Lorenzo Pellis
Mathematics
The University of Manchester
United Kingdom
lorenzo.pellis@manchester.ac.uk

Tin Phan
Theoretical Biology and Biophysics
Los Alamos National Laboratory
United States
ttphan@lanl.gov

Tanya Philippsen
Mathematics and Statistics
University of Victoria
Canada
tanya.philippsen@gmail.com

Stephanie Portet
Mathematics
University of Manitoba
Canada
stephanie.portet@umanitoba.ca

Andrea Pugliese
Mathematics
Università degli Studi di Trento
Italy
andrea.pugliese@unitn.it

Erica Rutter
Applied Mathematics
University of California, Merced
United States
erutter2@ucmerced.edu

Paul Salceanu
Mathematics
University of Louisiana at Lafayette
United States
salceanu@louisiana.edu

Leili Shahriyari
Mathematics and Statistics
University of Massachusetts Amherst
United States
lshahriyari@umass.edu

Zhisheng Shuai
Mathematics
University of Central Florida
United States
Zhisheng.Shuai@ucf.edu

Nourridine Siewe
Mathematics
Rochester Institute of Technology
United States
nxssma@rit.edu

Stacey Smith?
Mathematics
The University of Ottawa
Canada
stacey.smith@uottawa.ca

Tracy Stepien
Mathematics
University of Florida
United States
tstepien@ufl.edu

Yasuhiro Takeushi
Mathematical Sciences
Aoyama Gakuin University
Japan
takeuchi@math.aoyama.ac.jp

Ryan Thiessen
Mathematical and Statistical Sciences
University of Alberta
Canada
rjt128@mail.usask.ca

Sonja Tuerpitz
Bioinformatics
Friedrich Schiller University Jena
Germany
sonja.tuerpitz@uni-jena.de

Necibe Tuncer
Mathematical Sciences
Florida Atlantic University
United States
ntuncer@fau.edu

Pauline van den Driessche
Mathematics and Statistics
University of Victoria
Canada
pvdd@math.uvic.ca

Marie Betsy Varughese
Mathematical and Statistical Sciences
University of Alberta
Canada
mvarughe@ualberta.ca

Jorge Velasco-Hernandez
Instituto de Matemáticas
UNAM
Mexico
jx.velasco@im.unam.mx

Amy Veprauskas
Mathematics
University of Louisiana at Lafayette
United States
amy.veprauskas@louisiana.edu

Ren-Yi Wang
Statistics
Rice University
United States
rw47@rice.edu

Xuyuan Wang
Mathematical and Statistical Science
University of Alberta
Canada
xuyuan@ualberta.ca

Kenton Watt
Mathematics
University of Manitoba
Canada
wattk2@myumanitoba.ca

Adam Wieler
Mathematics
University of Manitoba
Canada
wielera1@myumanitoba.ca

Kathleen Wilkie
Mathematics
Toronto Metropolitan University
Canada
kpwilkie@torontomu.ca

Xiangye Xu
Mathematics
University of Manitoba
Canada
xux8@myumanitoba.ca

Pei Yuan
Mathematics and Statistics
York University
Canada
yuanp45@yorku.ca

Veronika Zarnitsyna
Microbiology and Immunology
Emory University
United States
veronika.i.zarnitsyna@emory.edu

Huaiping Zhu
Mathematics and Ststistics
York University
Canada
huaiping@yorku.ca