At-a-Glance Schedule

Conference on the Life Sciences
June 10–13, 2024
Hilton Portland Downtown • Portland, Oregon, U.S.

Conference on Mathematics of Planet Earth
June 10–12, 2024
Hilton Portland Downtown • Portland, Oregon, U.S.

Online Program and Mobile App
Attendees are encouraged to visit the following to view the Online Program Schedule:

LS24 https://www.siam.org/conferences/cm/program/program-and-abstracts/ls24-program-abstracts
or
MPE24 https://www.siam.org/conferences/cm/program/program-and-abstracts/mpe24-program-abstracts
to view the Online Program Schedules.

The Mobile App and Online Program Schedule contain the most up-to-date information.
A searchable abstract document is also posted.

SIAM Events Mobile App

www.tripbuildermedia.com/apps/siam
Sunday, June 9

4:00 p.m. – 6:00 p.m.
Registration
Atrium/Pavilion Foyer - Plaza Level

Monday, June 10

7:45 a.m. – 5:15 p.m.
Registration
Atrium/Pavilion Foyer - Plaza Level

8:30 a.m. – 8:45 a.m.
Opening Remarks
Grand I - Ballroom Level

8:45 a.m. – 9:30 a.m.
IP1 Quantitative Ecology of Host-associated Microbiomes
Lei Dai, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China
Grand I - Ballroom Level

9:30 a.m. – 10:00 a.m.
Coffee Break
Atrium/Pavilion Foyer - Plaza Level

9:30 a.m. – 5:00 p.m.
Exhibitor Hours
Atrium/Pavilion Foyer - Plaza Level

10:00 a.m. – 12:00 p.m.
Concurrent Sessions
MS1 Biomechanics and Biofluids in Physiology and Morphogenesis
Grand I - Ballroom Level

MS2 Mathematical Modeling Applications in Women’s and Children’s Health - Part I of II
Pavilion East - Plaza Level

MS3 Stochastic Processes in Cellular Signaling - Part I of II
Pavilion West - Plaza Level

MS4 Mechanisms of Cell Migration from Intracellular to eXtracellular Interactions - Part I of II
Galleria III - Ballroom Level

MS5 Biological Dynamics Across the Many Natural Scales - Part I of II
Broadway I - Plaza Level

MS6 Epidemiological Modeling Across Scales - Part I of II
Broadway II - Plaza Level

MS7 Discrete Biological Network Models in Biology - Part I of II
Broadway III - Plaza Level

MS8 Data-driven Modeling and Learning Methods in Biology and Medicine - Part I of II
Broadway IV - Plaza Level

CP1 Mathematical Modeling of Cellular Dynamics and Pattern Formation
Parlor A - Ballroom Level

CP2 Network in Biology
Parlor B - Ballroom Level

CP3 Mathematical Modeling of Vector-Borne Diseases
Parlor C - Ballroom Level

12:00 p.m. – 1:30 p.m.
Lunch Break

1:30 p.m. – 2:15 p.m.
IP2 Investigating Single-scale and Multi-scale Heterogeneous Immune Responses During Cancer Evolution
Raluca Eftimie, University of Franche-Comté, France
Grand I - Ballroom Level

2:15 p.m. – 2:45 p.m.
Coffee Break
Atrium/Pavilion Foyer - Plaza Level

2:45 p.m. – 4:45 p.m.
Concurrent Sessions
MT1 Parameter Inference
Grand I - Ballroom Level

MS9 Mathematical Modeling Applications in Women’s and Children’s Health - Part II of II
Pavilion East - Plaza Level

MS10 Stochastic Processes in Cellular Signaling - Part II of II
Pavilion West - Plaza Level

MS11 Mechanisms of Cell Migration from Intracellular to eXtracellular Interactions - Part II of II
Galleria III - Ballroom Level

MS12 Biological Dynamics Across the Many Natural Scales - Part II of II
Broadway I - Plaza Level

MS13 Epidemiological Modeling Across Scales - Part II of II
Broadway II - Plaza Level

MS14 Discrete Biological Network Models in Biology - Part II of II
Broadway III - Plaza Level

MS15 Data-driven Modeling and Learning Methods in Biology and Medicine - Part II of II
Broadway IV - Plaza Level

MS16 Mathematical Models of Cancer Dynamics Under Treatment
Parlor A - Ballroom Level

MS17 Dynamics of Cell Regulatory Proteins with Connections to Cellular Processes
Parlor B - Ballroom Level

CP4 Neuroscience
Parlor C - Ballroom Level

Tuesday, June 11

8:15 a.m. – 5:15 p.m.
Registration
Atrium/Pavilion Foyer - Plaza Level

8:40 a.m. – 8:45 a.m.
Remarks
Grand I - Ballroom Level

8:45 a.m. – 9:30 a.m.
IP3 Modeling Life: A SLAcer’s Journey
Erica J. Graham, Bryn Mawr College, U.S.
Grand I - Ballroom Level

9:30 a.m. – 10:00 a.m.
Coffee Break
Atrium/Pavilion Foyer - Plaza Level

9:30 a.m. – 5:00 p.m.
Exhibitor Hours
Atrium/Pavilion Foyer - Plaza Level

10:00 a.m. – 12:00 p.m.
Concurrent Sessions
MS18 Emergent Collective Behaviors in Biology
Grand I - Ballroom Level

MS19 Mathematics in the Pharmaceutical Sciences: An Industry Perspective
Pavilion East - Plaza Level

MS20 The Role of Mathematics for Life Science Education
Pavilion West - Plaza Level

MS21 Dynamics of Socially- and Behaviorally-structured Multi-population and Multiagent Systems - Part I of II
Galleria III - Ballroom Level

MS22 Models and Simulations of Hemostasis and Thrombosis - Part I of II
Broadway I - Plaza Level

MS23 Statistical Mechanics of Cellular Differentiation and Reprogramming - Part I of II
Broadway II - Plaza Level

MS24 Mathematical Insights in Neuroscience: From Theory to Reality - Part I of II
Broadway III - Plaza Level

MS25 Evolutionary Game Theory for Modeling Biological and Social Systems - Part I of II
Broadway IV - Plaza Level
Tuesday, June 11

CP5 Immunology and Oncology
Parlor A - Ballroom Level

CP6 Ecology
Parlor B - Ballroom Level

CP7 Epidemiology Viral Transmission
Parlor C - Ballroom Level

12:00 p.m. – 1:30 p.m.
Lunch Break

1:30 p.m. – 2:15 p.m.
JP1 LS/MPE24 Joint Plenary Presentation - Thermal Dynamics of Host-Parasite Systems: Modelling and Predicting Disease Emergence and Range Changes in a Warming Climate
Péter Molnár, University of Toronto, Canada
Grand I - Ballroom Level

CP8 Ophthalmology & Imaging
Parlor B - Ballroom Level

4:45 p.m. – 5:00 p.m.
Intermission

5:00 p.m. – 6:00 p.m.
PD1 Career Panel: Shedding Light on Opportunities for Applied Mathematicians in Industry and Government
Grand I - Ballroom Level

6:00 p.m. – 7:00 p.m.
PD2 Funding Panel
Grand I - Ballroom Level

Wednesday, June 12

8:15 a.m. – 3:00 p.m.
Registration
Atrium/Pavilion Foyer - Plaza Level

8:40 a.m. – 8:45 a.m.
Remarks
Grand I - Ballroom Level

8:45 a.m. – 9:30 a.m.
IP4 Role of Mathematical Modeling in Development and Roll Out of Vaccines
Elamin Elbasha, Merck & Co., Inc., U.S.
Grand I - Ballroom Level

9:30 a.m. – 10:00 a.m.
Coffee Break
Atrium/Pavilion Foyer - Plaza Level

9:30 a.m. – 5:00 p.m.
Exhibitor Hours
Atrium/Pavilion Foyer - Plaza Level

10:00 a.m. – 12:00 p.m.
Concurrent Sessions

MS39 Challenges in Modeling Ecological and Epidemiological Processes
Broadway II - Plaza Level

MS40 Data-driven Approaches in Infectious Disease Modeling - Part I of II
Broadway III - Plaza Level

MS41 Decision-making in Dynamic Environments
Broadway IV - Plaza Level

MS42 Intersection of Cancer and Cardiovascular Modeling
Parlor A - Ballroom Level

CP9 Multi-Scale Disease Dynamics
Parlor B - Ballroom Level

CP10 Modeling and Analysis Across Scales I
Parlor C - Ballroom Level

12:00 p.m. – 1:30 p.m.
Lunch Break

1:30 p.m. – 2:15 p.m.
IP5 The Future of Pandemic Modeling in Support of Decision Making: Lessons Learned from COVID-19
Sara Del Valle, Los Alamos National Laboratory, U.S.
Grand I - Ballroom Level

2:15 p.m. – 2:45 p.m.
Coffee Break
Atrium/Pavilion Foyer - Plaza Level

2:45 p.m. – 4:45 p.m.
Concurrent Sessions

MS44 Data-driven Modeling of Spatial Subcellular Processes - Part II of II
Pavilion East - Plaza Level

MS45 Biological Applications of the Immersed Boundary Method - Part II of II
Pavilion West - Plaza Level

MS46 Digital Twins Versus Virtual Populations in Quantitative Systems Pharmacology Modeling - Part II of II
Galleria III - Ballroom Level

MS47 Mathematics and Machine Learning in Biophysics - Part II of II
Broadway I - Plaza Level

MS48 Mechanistic Learning: at the Interface of Mechanistic Mathematical Modeling and Data Science
Broadway II - Plaza Level

MS49 Data-driven Approaches in Infectious Disease Modeling - Part II of II
Broadway III - Plaza Level

MS50 The Use of First Principles for Modeling Biosystems
Broadway IV - Plaza Level

CP11 Biofilm & Motility
Parlor A - Ballroom Level

CP12 Evolution and Ecology
Parlor B - Ballroom Level
**Wednesday, June 12**

CP13 Modeling and Analysis Across Scales II  
*Parlor C - Ballroom Level*

4:45 p.m. – 5:00 p.m.  
Intermission

5:00 p.m. – 5:45 p.m.  
SIAG/LS Business Meeting  
*Complimentary beer and wine will be served*

**Thursday, June 13**

8:15 a.m. – 3:00 p.m.  
Registration  
*Atrium/Pavilion Foyer - Plaza Level*

8:45 a.m. – 9:30 a.m.  
IP6 Epigenetic Cell Memory: Digital or Analog?  
Domitilla Del Vecchio, Massachusetts Institute of Technology, U.S.  
*Grand I - Ballroom Level*

9:30 a.m. – 10:00 a.m.  
Coffee Break  
*Atrium/Pavilion Foyer - Plaza Level*

9:30 a.m. – 5:00 p.m.  
Exhibitor Hours  
*Atrium/Pavilion Foyer - Plaza Level*

10:00 a.m. – 12:00 p.m.  
Concurrent Sessions  
MS34 Insights from Stochasticity in Intracellular Processes - Part I of II  
*Grand I - Ballroom Level*

**ABBREVIATION KEY**

CP = Contributed Presentation Session  
IP = Invited Plenary Speaker  
MS = Minisymposium  
MT = Minitutorial  
PD = Panel Discussion  
PP = Poster Session  
SP = Special Lecture
### Sunday, June 9
- **4:00 p.m. – 6:00 p.m.**
  - Registration
  - *Atrium/Pavilion Foyer - Plaza Level*

### Monday, June 10
- **7:45 a.m. – 9:00 a.m.**
  - Registration
    - *Atrium/Pavilion Foyer - Plaza Level*
  - **8:30 a.m. – 8:45 a.m.**
    - Opening Remarks
    - *Grand II - Ballroom Level*
  - **8:45 a.m. – 9:30 a.m.**
    - IP1
    - Tipping Points in Coupled Human-environment Systems
    - Madhur Anand, University of Guelph, Canada
    - *Grand II - Ballroom Level*
  - **9:30 a.m. – 10:00 a.m.**
    - Coffee Break
    - *Atrium/Pavilion Foyer - Plaza Level*
  - **9:30 a.m. – 5:00 p.m.**
    - Exhibitor Hours
    - *Atrium/Pavilion Foyer - Plaza Level*
  - **10:00 a.m. – 12:00 p.m.**
    - Concurrent Sessions
      - MS1
      - Accelerating Uncertainty Quantification for Models of Climate and Weather - Part I of II
      - *Grand II - Ballroom Level*
      - MS2
      - Can You Trust Your Machine-learning Model?
      - *Galleria I - Ballroom Level*
      - MS3
      - Advances in the Numerical and Statistical Modeling of Wildland Fires - Part I of III
      - *Council - 3rd Floor*
      - MS4
      - Shallow Water Simulation Using Moment Models and New Numerical Methods - Part I of II
      - *Forum - 3rd Floor*
      - MS5
      - Applications of AI for Exploring Community Systems Transition to Clean Energy - Part I of II
      - *Directors - 3rd Floor*
      - MS6
      - Computational Frameworks for MPE Applications
      - *Studio - 3rd Floor*
  - **12:00 p.m. – 1:30 p.m.**
    - Lunch Break

### Tuesday, June 11
- **8:15 a.m. – 5:15 p.m.**
  - Registration
    - *Atrium/Pavilion Foyer - Plaza Level*
  - **8:40 a.m. – 8:45 a.m.**
    - Remarks
    - *Grand II - Ballroom Level*
  - **8:45 a.m. – 9:30 a.m.**
    - IP3
    - Process and Data Informed Models: “New” Approaches, Old Ideas, and Challenges
    - Christopher Wikle, University of Missouri, U.S.
    - *Grand II - Ballroom Level*
  - **9:30 a.m. – 10:00 a.m.**
    - Coffee Break
    - *Atrium/Pavilion Foyer - Plaza Level*
  - **10:00 a.m. – 12:00 p.m.**
    - Concurrent Sessions
      - MT1
      - Differentiable Programming in Julia with Enzyme
      - *Grand II - Ballroom Level*
      - MS12
      - Data-Driven Approaches in Weather and Climate Science
      - *Galleria I - Ballroom Level*
      - MS13
      - Advances in the Numerical and Statistical Modeling of Wildland Fires - Part III of III
      - *Council - 3rd Floor*
      - MS14
      - Mathematical Modeling of Sea Ice - Part I of II
      - *Forum - 3rd Floor*
      - MS15
      - Unstructured Numerical Methods for Spherical Problems - Part I of II
      - *Studio - 3rd Floor*
      - CP2
      - Social, Climate and Land Modeling
      - *Directors - 3rd Floor*
  - **12:00 p.m. – 1:30 p.m.**
    - Lunch Break

### Monday, June 10
- **12:15 p.m. – 12:45 p.m.**
  - Poetry Session
    - Invited Plenary Speaker Madhur Anand, University of Guelph, Canada, reads and discusses poems on the theme of Mathematics of Planet Earth from her two published books “A New Index for Predicting Catastrophes” and “Parasitic Oscillations”
    - [https://www.penguinrandomhouse.ca/authors/259994/madhur-anand/](https://www.penguinrandomhouse.ca/authors/259994/madhur-anand/)
    - *Grand II - Ballroom Level*
- **1:30 p.m. – 2:15 p.m.**
  - IP2
  - AI for Climate: A Call for Application-driven Innovation
  - David Rolnick, McGill University and Mila, Canada
  - *Grand II - Ballroom Level*
- **2:15 p.m. – 2:45 p.m.**
  - Coffee Break
  - *Atrium/Pavilion Foyer - Plaza Level*
- **2:45 p.m. – 4:45 p.m.**
  - Concurrent Sessions
    - MS7
    - Accelerating Uncertainty Quantification for Models of Climate and Weather - Part II of II
    - *Grand II - Ballroom Level*
    - MS8
    - Advances in the Numerical and Statistical Modeling of Wildland Fires - Part II of III
    - *Council - 3rd Floor*
    - MS9
    - Dynamics-aware Dimension Reduction and Data Assimilation
    - *Forum - 3rd Floor*
    - MS10
    - Applications of AI for Exploring Community Systems Transition to Clean Energy - Part II of II
    - *Directors - 3rd Floor*
    - MS11
    - Shallow Water Simulation Using Moment Models and New Numerical Methods - Part II of II
    - *Studio - 3rd Floor*
    - CP1
    - Data-driven Methods for Earth Systems
    - *Galleria I - Ballroom Level*
  - **4:45 p.m. – 5:00 p.m.**
    - Intermission
  - **5:00 p.m. – 7:00 p.m.**
    - PP1 Joint Welcome Reception and Poster Session
    - *Atrium Ballroom - Plaza Level*

### Monday, June 11
- **8:15 a.m. – 8:45 a.m.**
  - Registration
    - *Atrium/Pavilion Foyer - Plaza Level*
- **8:40 a.m. – 8:45 a.m.**
  - Remarks
    - *Grand II - Ballroom Level*
- **8:45 a.m. – 9:30 a.m.**
  - IP3
  - Process and Data Informed Models: “New” Approaches, Old Ideas, and Challenges
  - Christopher Wikle, University of Missouri, U.S.
  - *Grand II - Ballroom Level*
- **9:30 a.m. – 10:00 a.m.**
  - Coffee Break
  - *Atrium/Pavilion Foyer - Plaza Level*
- **10:00 a.m. – 12:00 p.m.**
  - Concurrent Sessions
    - MT1
    - Differentiable Programming in Julia with Enzyme
    - *Grand II - Ballroom Level*
    - MS12
    - Data-Driven Approaches in Weather and Climate Science
    - *Galleria I - Ballroom Level*
    - MS13
    - Advances in the Numerical and Statistical Modeling of Wildland Fires - Part III of III
    - *Council - 3rd Floor*
    - MS14
    - Mathematical Modeling of Sea Ice - Part I of II
    - *Forum - 3rd Floor*
    - MS15
    - Unstructured Numerical Methods for Spherical Problems - Part I of II
    - *Studio - 3rd Floor*
    - CP2
    - Social, Climate and Land Modeling
    - *Directors - 3rd Floor*
  - **12:00 p.m. – 1:30 p.m.**
    - Lunch Break

### Monday, June 11
- **1:30 p.m. – 2:15 p.m.**
  - JP1
  - LS/MPE24 Joint Plenary Presentation - Thermal Dynamics of Host-Parasite Systems: Modelling and Predicting Disease Emergence and Range Changes in a Warming Climate
  - Péter Molnár, University of Toronto, Canada
  - *Grand II - Ballroom Level*
- **2:15 p.m. – 2:45 p.m.**
  - Coffee Break
  - *Atrium/Pavilion Foyer - Plaza Level*
Tuesday, June 11

2:45 p.m. – 4:45 p.m.
Concurrent Sessions
MT2 Differentiable Earth System Models in Julia
Grand II - Ballroom Level
MS16 Mathematical Modeling of Social-Ecological Systems - Part I of III
Galleria I - Ballroom Level
MS17 Mathematical Modeling of Sea Ice - Part II of II
Forum - 3rd Floor
MS18 Meshless Method Applications for Climate Change and Clean Energy Solutions
Directors - 3rd Floor
MS19 Unstructured Numerical Methods for Spherical Problems - Part II of II
Studio - 3rd Floor

2:45 p.m. - 5:05 p.m.
CP3 Foundations for the Mathematics of Planet Earth and its Extremes
Council - 3rd Floor

5:00 p.m. – 6:00 p.m.
PD1 Career Pathways for MPE Enthusiasts
Grand II - Ballroom Level

6:00 p.m. – 6:15 p.m.
Intermission

6:15 p.m. – 7:00 p.m.
SIAG/MPE Business Meeting
*Complimentary beer and wine will be served*
Grand II - Ballroom Level

Wednesday, June 12

8:15 a.m. – 3:00 p.m.
Registration
Atrium/Pavilion Foyer - Plaza Level

8:40 a.m. – 8:45 a.m.
Closing Remarks
Grand II - Ballroom Level

8:45 a.m. – 9:30 a.m.
IP4 Evaluating Forecasts of Extreme Events
Thordis Thorarinssdottir, University of Oslo, Norway
Grand II - Ballroom Level

9:30 a.m. – 10:00 a.m.
Coffee Break
Atrium/Pavilion Foyer - Plaza Level

9:30 a.m. – 5:00 p.m.
Exhibitor Hours
Atrium/Pavilion Foyer - Plaza Level

10:00 a.m. – 12:00 p.m.
Concurrent Sessions
MS20 Mathematical Modeling of Social-Ecological Systems - Part II of III
Grand II - Ballroom Level
MS21 Ecological and Evolutionary Directions in Invasive Species/Pest Control - Part I of II
Galleria I - Ballroom Level
MS22 Scenario Generation for Extreme Weather Event Resilience
Forum - 3rd Floor
MS23 Connecting Climate to the Undergraduate Curriculum - Part I of II
Directors - 3rd Floor
MS24 Consistent Coupling in Models of Geophysical Fluid Dynamics - Part I of II
Studio - 3rd Floor
CP4 Synergistic Computational and Modeling Techniques for Earth Systems
Council - 3rd Floor

12:00 p.m. – 1:30 p.m.
Lunch Break

1:30 p.m. – 2:30 p.m.
SP1 Activity Group on Mathematics of Planet Earth (SIAG/MPE) Early Career Prize Presentation, and the SIAG/MPE Prize Lecture - A Circuitous Journey of Computational Science around the Earth
Katherine J. Evans, Oak Ridge National Laboratory, U.S.
Grand II - Ballroom Level

2:30 p.m. – 2:45 p.m.
Coffee Break
Atrium/Pavilion Foyer - Plaza Level

2:45 p.m. – 4:45 p.m.
Concurrent Sessions
MS25 Mathematical Modeling of Social-Ecological Systems - Part III of III
Grand II - Ballroom Level
MS26 Ecological and Evolutionary Directions in Invasive Species/Pest Control - Part II of II
Galleria I - Ballroom Level
MS27 Rigorous Methods for Bayesian Computation and Reduced Order Modeling
Forum - 3rd Floor
MS28 Connecting Climate to the Undergraduate Curriculum
Directors - 3rd Floor
MS29 Consistent Coupling in Models of Geophysical Fluid Dynamics - Part II of II
Studio - 3rd Floor
CPS Topics on Ocean Modeling
Council - 3rd Floor

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MT = Minitutorial
PD = Panel Discussion
PP = Poster Session
SP = Special Lecture
SIAM and the Organizing Committee wish to extend their thanks and appreciation to the U.S. National Science Foundation and DOE Office of Advanced Scientific Computing Research for their support of these conferences.

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