



Fields Institute's Mathematics for Climate Change (MfCC) Network & Waterloo Institute for Complexity and Innovation (WICI)

"Math for Complex Climate Challenges" Workshop May 1 - 4, 2023

University of Waterloo - St. Jerome's University Academic Centre (SJ2)
290 Westmount Road North, Waterloo, Ontario

AGENDA

DAY ONE

| Time | Event | Room |
|----------------------|---|----------|
| 8:00 a.m. | Breakfast Meet-and-greet | Atrium |
| 8:30 a.m. | Welcoming Remarks <ul style="list-style-type: none">● Kumar Murty, Director, Fields Institute● Vanessa Schweizer, Director, Waterloo Institute for Complexity and Innovation● Gregory Flato, Acting Director, Climate Research Division, Environment and Climate Change Canada● Mark Giesbrecht, Dean of Mathematics, University of Waterloo● Johanna Wandel, Acting Dean of Environment, University of Waterloo | SJ2 1002 |
| 9:00 - 10:20 a.m. | "The Climate System-Biophysical and Social Interactions" <i>Invited talk with Sarah Burch</i> , Executive Director, Waterloo Climate Institute | SJ2 1002 |
| 10:20 - 10:40 a.m. | Break (20 minutes) | Atrium |
| 10:40 a.m. - 12 p.m. | "Understanding Cross-Scale Systems and Feedbacks" <i>Invited talk with Francis Poulin</i> , Professor (Applied Mathematics), University of Waterloo | SJ2 1002 |

| | | |
|--|---|------------------|
| 12 - 1:30 p.m. | Lunch & networking | SJ2 Café |
| 1:30 - 2:45 p.m. 1:30 p.m. 1:45 p.m. 2:00 p.m. | 15 Minute talks – “Urban Climate Challenges” <ul style="list-style-type: none"> ● Bouchra Nasri, Assistant Professor (Social and Preventive Medicine), Université de Montréal ● Rodrigo Costa, Assistant Professor (Systems Design Engineering), University of Waterloo ● Poornima Unnikrishnan, Postdoctoral Fellow, University of Waterloo | SJ2 2003 |
| 1:30 p.m. 1:45 p.m. 2:00 p.m. | 15 Minute talks – “Aquatic Ecosystems” <ul style="list-style-type: none"> ● Frederic Guichard, Professor (Biology), McGill University ● Guillaume Durand, Science Lead for Laboratories Canada ASEC, National Research Council ● Ella-Kari Muhl, PhD Candidate, University of Waterloo | SJ2 2007 |
| 2:15 - 2:45 p.m. | 30 Minute small group question harvesting | SJ2 2003/2007 |
| 2:45-3:15 p.m. | Coffee break | Atrium |
| 3:15 - 4:45 p.m. 3:15 p.m. 3:30 p.m. 3:45 p.m. 4:00 p.m. | (Round 2) 15 Minute talks – “Climate Modelling” <ul style="list-style-type: none"> ● Chris Fletcher, Associate Professor (Geography and Environmental Management), University of Waterloo ● Andrea Scott, Associate Professor (Systems Design Engineering), University of Waterloo ● Julio Valdes, Research Officer , National Research Council ● Daniel Dylewsky, Postdoctoral Fellow, University of Waterloo | SJ2 2003 |
| 3:15 - 4:15 p.m. | “The Graph Model for Conflict Resolution (GMCR): Reflections on Three Decades of Development” <i>Invited talk with Keith W. Hipel O.C., Professor, (Systems Design Engineering), University of Waterloo</i> | SJ2 2007 |
| 4:15 - 4:45 p.m. | 30 Minute small group question harvesting | SJ2 2003/2007 |
| 4:45 - 5:00 p.m. | Interactive commenting & wrap up discussion <i>(via Miro virtual whiteboard or poster board)</i> | TBC |

DAY TWO

| Time | Event | Room |
|----------------------|---|---------------|
| 8:00 a.m. | Breakfast Meet-and-greet | Atrium |
| 8:45 a.m. | Welcoming Remarks <ul style="list-style-type: none"> ● Vanessa Schweizer, Director, Waterloo Institute for Complexity and Innovation ● Mallika Das, Head of Strategy, Fields Institute | SJ2 1002 |
| 9:00 - 10:20 a.m. | “Wetlands - Scale and Connectivity” <i>Invited talk with Nandita Basu, Professor (Global Water Sustainability and Ecohydrology), University of Waterloo</i> | SJ2 1002 |
| 10:20 - 10:40 a.m. | Break (20 minutes) | Atrium |
| 10:40 a.m. - 12 p.m. | “Modelling Coupled Social-Climate systems and using Data-driven Dynamical Systems to Predict Climate Tipping Points” <i>Invited talk with Chris Bauch, Professor (Applied Mathematics), University of Waterloo</i> & Madhur Anand , Professor (Environmental Science), University of Guelph | SJ2 1002 |
| 12 - 1:30 p.m. | Lunch & networking | SJ2 Café |
| 1:30 - 2:45 p.m. | 15 Minute talks – “Complex Coupled-Human Natural Systems Modelling” <ul style="list-style-type: none"> ● Taylor Anderson, Assistant Professor (Geography and Geoinformation Science), George Mason University ● Rebecca Saari, Assistant Professor (Civil and Environmental Engineering), University of Waterloo ● Roberto Guglielmi, Assistant Professor (Applied Mathematics), University of Waterloo | SJ2 2003 |
| 1:30 - 2:45 p.m. | 15 Minute talks – “Energy Networks; Supply Chains-Design and Resilience” <ul style="list-style-type: none"> ● Sajjad Ghaemi, Research Scientist, National Research Council ● Jianjun Yang, Research Officer, National Research Council ● Ryan Hennessey, PhD Candidate, University of Waterloo | SJ2 2007 |
| 2:15 - 2:45 p.m. | 30 Minute small group question harvesting | SJ2 2003/2007 |

| | | |
|------------------|---|------------------|
| 2:45 - 3:15 p.m. | Coffee break | Atrium |
| 3:15 - 4:45 p.m. | (Round 2) 15 Minute talks - “Urban Blue-Green Infrastructure and Urban Climate Challenges” <ul style="list-style-type: none"> 3:15 p.m. ● Luna Khirfan, Associate Professor (Planning), University of Waterloo 3:30 p.m. ● Liam O’Brien, Professor (Architectural Conservation and Sustainability Engineering), Carleton University 3:45 p.m. ● Kumaraswamy Ponnambalam, Professor (Systems Design Engineering), University of Waterloo & Kumary Chiquinquirá Ponnambalam, Carbon Trade Economies & Regenerative Economies Researcher 4:00 p.m. ● Amir Salehi, Grad student, University of Waterloo | SJ2 2003 |
| 3:15 - 4:45 p.m. | (Round 2) 15 Minute talks - “Social Networks and Social Imitation/Contagion/Norm Adoption” <ul style="list-style-type: none"> 3:15 p.m. ● Amrita Punnavajhala, PhD candidate, University of Waterloo 3:30 p.m. ● Rui Wang, PhD candidate, University of Massachusetts Amherst 3:45 p.m. ● Mackenzie Cameron, Grad student, University of Waterloo 4:00 p.m. ● Athira Satheesh Kumar, Grad student, University of Waterloo | SJ2 2007 |
| 4:15 - 4:45 p.m. | 30 Minute small group question harvesting | SJ2 2003/2007 |
| 4:45 - 5:00 p.m. | Interactive commenting & wrap up discussion (<i>virtual whiteboard or poster board</i>) | TBC |
| 5:00 - 6:00 p.m. | Art Reception <ul style="list-style-type: none"> ● Kumary Chiquinquirá Ponnambalam, Carbon Trade Economies & Regenerative Economies Researcher ● Adrienne Mason, Grad student, University of Waterloo | Atrium |

DAY THREE

| Time | Event | Room |
|----------------------|---|---------------|
| 8:00 a.m. | Breakfast Meet-and-greet | Atrium |
| 8:45 a.m. | Welcoming Remarks <ul style="list-style-type: none"> ● Blake Phillips, Director, School of Accounting and Finance, University of Waterloo ● Jenn Lynes, Co-Director, Sustainability and Financial Management Program, University of Waterloo | SJ2 1002 |
| 9:00 - 10:20 a.m. | “Climate and Sustainable Finance” <i>Invited talk with Olaf Weber, Professor (Environment, Enterprise and Development), University of Waterloo</i> | SJ2 1002 |
| 10:20 - 10:40 a.m. | Break (20 minutes) | Atrium |
| 10:40 a.m. - 12 p.m. | “Statistics for Complex Climate Problems” <i>Invited talk with David Saunders, Associate Professor (Statistics and Actuarial Science), University of Waterloo</i> | SJ2 1002 |
| 12 - 1:30 p.m. | Lunch & networking | SJ2 Café |
| 1:30 - 2:45 p.m. | 15 Minute talks – “Climate Economics and Governance” <ul style="list-style-type: none"> ● Andrea Macrina, Professor (Mathematics), University College London ● Mikael Homanen, Head of Product Innovation and Research, Principles for Responsible Investment ● William White, Senior Fellow, C.D. Howe Institute | SJ2 2003 |
| 1:30 - 2:45 p.m. | 15 Minute talks – “Decarbonization, Carbon Currencies, and Climate Risk” <ul style="list-style-type: none"> ● Peter Tankov, Professor (Quantitative Finance), ENSAE Paris ● Gael Giraud, Founder and Director, Environmental Justice Program, Georgetown University ● Chrystopher Nehaniv, Professor (Systems Design Engineering), University of Waterloo | SJ2 2007 |
| 2:15 - 2:45 p.m. | 30 Minute small group question harvesting | SJ2 2003/2007 |
| 2:45-3:15 p.m. | Coffee break | Atrium |

| | | |
|------------------|---|--------------------|
| 3:15 - 4:30 p.m. | (Round 2) 15 Minute talks – “Climate Economics and Governance” | SJ2 2003 |
| 3:15 p.m. | <ul style="list-style-type: none"> ● Tony Wirjanto, Professor (Statistics and Actuarial Science), University of Waterloo | |
| 3:30 p.m. | <ul style="list-style-type: none"> ● Jona David C. Gehring, Scholar, Winchester College UK, Co-chair of the Global Youth Council on Science, Law and Sustainability | |
| 3:45 p.m. | <ul style="list-style-type: none"> ● Marie-Claire Cordonier Segger, Visiting Chair in Sustainable Development Law and Policy, University of Cambridge and Professor of Law, University of Victoria ● Truzaar Dordi, Postdoctoral Fellow, University of Victoria | |
| 3:15 - 4:30 p.m. | (Round 2) 15 Minute talks – “Carbon Sequestration” | SJ2 2007 |
| 3:15 p.m. | <ul style="list-style-type: none"> ● Cornelis Van Kooten, Professor (Economics), University of Victoria | |
| 3:30 p.m. | <ul style="list-style-type: none"> ● Yuri Leonenko, Associate Professor (Geological Engineering), University of Waterloo | |
| 3:45 p.m. | <ul style="list-style-type: none"> ● Gennaro Notomista, Assistant Professor (Electrical and Computer Engineering), University of Waterloo | |
| 4:00 - 4:30 | 30 Minute small group question harvesting | SJ2 2003/2007 |
| 4:30 - 4:45 p.m. | Break (15 minutes) | |
| 4:45 - 5:00 p.m. | Select breakout rooms for grant development groups | SJ2 1002 |
| 6:00 - 8:00 p.m. | Dinner Federation Hall is located on the main University of Waterloo campus, approximately a 10 minute walk from St. Jerome’s. Parking lot M is the closest visitor parking lot. | Federation Hall |

DAY FOUR

Day 4 envisions three topic moderators to lead planning on three research topics (identified during days 1-3), with target grant proposal development in mind.

| Time | Event | Room |
|----------------------|---|-----------------------|
| 8:00 a.m. | Breakfast | Atrium |
| 8:50 a.m. | Welcoming Remarks Deirdre Haskell , Deputy Director, Fields Institute | Atrium |
| 9:00 - 10:20 a.m. | <i>Research Planning Workshops</i> | SJ2 1002, 2001 & 2002 |
| 10:20 - 10:40 a.m. | Break (20 minutes) | Atrium |
| 10:40 a.m. - 12 p.m. | <i>Research Planning Workshops (rotate rooms)</i> | SJ2 1002, 2001 & 2002 |
| 12 - 1:30 p.m. | Closing remarks & Lunch | SJ2 Café |
| 1:30 - 3:30 p.m. | MfCC Steering Committee Meeting (<i>TBC</i>) | SJ2 2001 |