



# Banff International Research Station

## 2023 Banff Calendar

### JANUARY

1/8 – 1/13 The Mathematics of Microbial Evolution: Lindi Wahl (UWO), Helen Alexander (U. Edin.), Sylvain Gandon (CNRS), Sally Otto (UBC)

1/15 – 1/20 Arithmetic Aspects of Deformation Theory: Patrick Allen (McGill U.), Chandrashekhara Khare (UCLA), Preston Wake (MSU)

1/22 – 1/27 Computational Modelling of Cancer Biology and Treatments: Morgan Craig (CHU Sainte-Justine Research Centre/ UdeM), Adrienne Jenner (QUT)

1/29 – 2/3 Applications of Hodge Theory on Networks: Alexander Strang (U. Chicago), Anthea Monod (ICL), David Rosenbluth (Lockheed Martin Corp)

### FEBRUARY

2/5 – 2/10 Women in Nonlinear Dispersive PDEs: Mihaela Ifrim (UW-Madison), Birgit Schörkhuber (UIBK), Katharina Schratz (Sorbonne U.)

2/12 – 2/17 Non-Markovianity in Open Quantum Systems: Marco Merkli (MUN), Susana Huelga (Ulm U.), Kavan Modi (Monash U.), Francesco Petruccione (Stellenbosch U), Nicole Yunger Halpern (NIST)

2/19 – 2/24 Neostability: Thomas Scanlon (UC – Berkeley), Alf Onshuus (U. de los Andes), Anand Pillay (U. Notre Dame), Caroline Terry (OSU), Frank Wagner (U. Claude Bernard Lyon 1)

2/26 – 3/3 Explicit Moduli Problems in Higher Dimensions: Kenneth Ascher (UC - Irvine), Dori Bejleri (Harvard U.), Kristin DeVleming (UMass Amherst)

2/26 – 3/3 Around Symmetries of  $K_3$  Surfaces: Jimmy Dillies (U. Georgia), Paola Comparin (UFRO), Nathan Priddis (BYU), Alessandra Sarti (U. Poitiers) ●

### MARCH

3/5 – 3/10 Perspectives on Matrix Computations: Erin Carson (Charles U.), Daniel Kressner (EPFL), Joerg Liesen (TU-Berlin), Nikhil Srivastava (UC - Berkeley), Richard Peng (U. Waterloo)

3/5 – 3/10 Sex Differences in Physiology: Mathematical Modelling and Analysis: Aurélie Carlier (UM), Anita Layton (U. Waterloo) ●

3/12 – 3/17 Algebraic Aspects of Matroid Theory: Matthew Baker (Georgia Tech), June Huh (Princeton U.), Felipe Rincón (QMUL), Kris Shaw (U. Oslo)

3/19 – 3/24 Mathematical Approaches of Atmospheric Constituents Data Assimilation and Inverse Modeling: Marc Bocquet (ENPC), Kayo Ide (U. Maryland), Dylan Jones (U. Toronto), Richard Menard (ECCC), Sahani Pathiraja (UNSW)

3/19 – 3/24 A Convergence of Computable Structure Theory, Analysis, and Randomness: Timothy McNicholl (ISU), Johanna Franklin (Hofstra U.), Linda Westrick (PSU) ●

3/26 – 3/31 WIN6: Women in Numbers 6: Shabnam Akhtari (U. Oregon), Alina Bucur (UC - San Diego), Jennifer Park (OSU), Renate Scheidler (U. Calgary)

### APRIL

4/2 – 4/7 Compensated Compactness and Applications to Materials: Jean-Francois Babadjian (Paris Saclay U.), Flaviana Lurlano (CNRS/Sorbonne U.), Filip Rindler (U. Warwick)

4/2 – 4/7 Interactions between Topological Combinatorics and Combinatorial Commutative Algebra: Sara Faridi (Dalhousie U.), Mina Bigdeli (IPM), Satoshi Murai (Waseda U.), Adam Van Tuyl (McMaster U.) ●

4/9 – 4/14 Interactions between Symplectic and Holomorphic Convexity in 4 Dimensions: Thomas Mark (UVA), Laura Starkston (UC - Davis), Bulent Tosun (U. Alabama)

4/9 – 4/14 Dynamics of Hénon Maps: Real, Complex and Beyond: Jasmin Raissy (U. Bordeaux), Tatiana Firsova (KSU), Liviana Palmisano (KTH), Gabriel Vigny (UPJV) ●

4/16 – 4/21 Random Algebraic Geometry: Paul Breiding (MPI MIS), Sonja Petrovic (Illinois Tech), Gregory G. Smith (Queen's U.)

4/16 – 4/21 Differential-Algebraic Equations and Operator Pencils: Felix Schwenninger (U. Twente), Mark Embree (Virginia Tech), Kirsten Morris (U. Waterloo), Timo Reis (TU Ilmenau) ●

4/23 – 4/28 Systematic Effects and Nuisance Parameters in Particle Physics Data Analyses: Sara Algeri (U. Minnesota), Olaf Behnke (DESY Hamburg), Lydia Brenner (Nikhef), Richard Lockhart (SFU), Louis Lyons (ICL & Oxford U.)

4/23 – 4/28 A unified view of Quasi-Einstein Manifolds: Eric Woolgar (U. Alberta), Eric Bahuaud (Seattle U.), Natasa Sesum (Rutgers U.), Anna Siffert (U. Muenster), Guofang Wei (UC - Santa Barbara) ●

4/30 – 5/5 Applications of Stochastic Control to Finance and Economics: Jakša Cvitanić (Caltech), George Georgiadis (NWU), Dylan Possamai (ETH Zürich), Nizar Touzi (École Polytechnique)

### MAY

5/7 – 5/12 Recent Advances in Banach lattices: Vladimir Troitsky (U. Alberta), Marcel de Jeu (Leiden U.), Niushan Gao (Ryerson U.), Pedro Tradacete (CSIC)

5/14 – 5/19 Mathematical Methods in Cancer Biology, Evolution and Therapy: Quaid Morris (MSK Cancer Center), Ronglai Shen (MSK Cancer Center), Peter Van Loo (Francis Crick Institute), Wenyi Wang (U. Texas MD Anderson Cancer Center)

5/14 – 5/19 Extremal Graphs arising from Designs and Configurations: Gabriela Araujo (UNAM), Marien Abreu (Unibas), Robert Jajcay (Comenius U.), Alejandra Ramos (U. Ljubljana), Jean Paul Zerafa (Comenius U.) ●

5/21 – 5/26 Joint Spectra and related Topics in Complex Dynamics and Representation Theory: Raul Curto (U. Iowa), Nguyen-Bac Dang (U. Paris Saclay), Rostislav Grigorchuk (TAMU), Rongwei Yang (SUNY Albany)

5/21 – 5/26 Formalization of Cohomology Theories: Adam Topaz (U. Alberta), Anne Baanen (VU Amsterdam), Matthew Ballard (USC), Johan Commelin (Freiburg U.), Heather Macbeth (Fordham U.) ●

5/28 – 6/2 Random Growth Models and KPZ Universality: Ivan Corwin (Columbia U.), Jessica Lin (McGill U.), Jeremy Quastel (U. Toronto), Firas Rassoul-Agha (U. Utah), Benedek Valko (UW - Madison)

5/28 – 6/2 Spinorial and Octonionic Aspects of  $G_2$  and  $Spin(7)$  Geometry: Spiro Karigiannis (U. Waterloo), Ilka Agricola (Philipps U. Marburg), Shubham Dwivedi (HU Berlin), Sergey Grigorian (UTRGV), Jason Lotay (U. Oxford) ●

### JUNE

6/4 – 6/9 Quantum Information Theory in Quantum Field Theory and Cosmology: Arpan Bhattacharyya (IITGN), Saurya Das (U. Lethbridge), Shajid Haque (U. Cape Town)

6/11 – 6/16 Geometry, Topology and Control System Design: Mohamed Ali Belabbas (UIUC), Anthony Bloch (U. Michigan), Xudong Chen (CU Boulder), Monique Chyba (U. Hawaii), Angelia Nedich (ASU)

6/18 – 6/23 Scientific Machine Learning: Brendan Keith (Brown U.), Lu Lu (UPenn), Zhiping Mao (Xiamen U.), Siddhartha Mishra (ETH Zürich), Tom O'Leary-Roseberry (UT Austin)

6/25 – 6/30 Women in Operator Algebras III: Astrid an Huef (VUW), Sarah Plosker (Brandon U.), Sarah Reznikoff (KSU), Maria Grazia Viola (Lakehead U.)

### JULY

7/2 – 7/7 Single-Cell Plus – Data Science Challenges in Single-Cell Research: Jean Yee Hwa Yang (U. Sydney), Joshua Ho (U. Hong Kong), Sunduz Keles (UC - Davis), Sara Mostafavi (UW), Hongyu Zhao (Yale U.)

7/9 – 7/14 3D Generative Models: Michael Bronstein (Oxford U.), Ke Li (SFU), Lingjie Liu (MPI-INF), Andrea Tagliasacchi (U. Toronto), Graham Taylor (U. Guelph), Steve Seitz (U. Washington)

7/16 – 7/21 Inverse Problems and Nonlinearity: Tracey Balehowsky (U. Calgary), Lauri Oksanen (U. Helsinki), Leo Tzou (U. Amsterdam), Gunther Uhlmann (UW)

7/23 – 7/28 - New Trends in Fluids and Collective Dynamics: Roman Shvydkoy (UIC), Theodore Drivas (SBU), Nancy Rodriguez (CU Boulder), Eitan Tadmor (U. Maryland)

7/23 – 7/28 Putting Together Resources to Support Current and Future Elementary School Teachers: Melania Alvarez-Adem (UBC), Pamela Britain (Fields Institute), Shawn Desaulniers (U. Alberta), John McLoughlin (UNB), Louise Poirier (U. Montréal)

7/30 – 8/4 Applied and Computational Differential Geometry and Geometric PDEs: David Glickenstein (U. Arizona), Joel Hass (UC - Davis), Yanyan Li (Rutgers U.), Yunan Yang (ETH Zürich), Haomin Zhou (Georgia Tech)

### AUGUST

8/6 – 8/11 Curves: Algebraic, Tropical, and Logarithmic: Yoav Len (U. St Andrews), Hannah Markwig (Eberhard Karls U. Tübingen), Dhruv Ranganathan (U. Cambridge)

8/13 – 8/18 Women in Mathematical Physics II: Nezhla Aghaei (U. Southern Denmark), Ana Ros Camacho (Cardiff U.)

8/20 – 8/25 Isogeny Graphs in Cryptography: Victoria de Quehen (ISARA Corp), Chloe Martindale (U. Bristol), Christophe Petit (U. Birmingham)

8/27 – 9/1 New Directions in Applied Linear Algebra: Jon Cockayne (U. U. Southampton), John Pearson (U. Edinburgh), Jennifer Pestana (U. Strathclyde), David Silvester (U. Manchester), Valeria Simoncini (U. Bologna)

### SEPTEMBER

9/3 – 9/8 Mathematical Methods for Exploring and Analyzing Morphological Shapes across Biological Scales: Khanh Dao Duc (UBC), Nina Miolane (UC - Santa Barbara), Ashok Prasad (CSU), Padmini Rangamani (UCSD)

9/10 – 9/15 Mechanics of Cells and Polymer Networks: Moumita Das (RIT), Adriana Dawes (OSU), Paul Janmey (UPenn), Fred MacKintosh (Rice U.), David Sept (UMich)

9/17 – 9/22 Approximation Algorithms and the Hardness of Approximation: Zachary Friggstad (U. Alberta), Jochen Konemann (U. Waterloo), Euiwoong Lee (UMich), Britta Peis (RWTH Aachen U.)

9/24 – 9/29 Women in Geometry 3: Ghazal Geshnizjani (U. Waterloo), Raquel Perales (UNAM), Tracy Payne (Idaho State U.), Catherine Searle (Wichita State U.)

### OCTOBER

10/1 – 10/6 Fluid Equations, A Paradigm for Complexity: Anna Mazzucato (PSU), Tai-Peng Tsai (UBC), Kazuo Yamazaki (TTU), Yao Yao (NUS)

10/8 – 10/13 Motives and Invariants: Theory and Applications to Algebraic Groups and their Torsors: Stephen Scully (U. Victoria), Stefan Gille (U. Alberta), Detlev Hoffmann (TU Dortmund), Anne Quéguiner-Mathieu (U. Sorbonne Paris Nord)

10/15 – 10/20 Complex Lagrangians, Mirror Symmetry, and Quantization: John Alexander Cruz Morales (UNAL) Olivia Dumitrescu (UNC - Chapel Hill), Elba Garcia Failde (Sorbonne U.), Motohico Mulase (UC - Davis), Laura Schaposnik (UIC)

10/22 – 10/27 Mathematics and Physics of Moire Superlattices: Svetlana Jitomirskaya (UC - Irvine), Eunah Kim (Cornell U.), Lin Lin (UC - Berkeley), Mitchell Luskin (U. Minnesota), Allan MacDonald (U. Texas)

10/29 – 11/3 Astrostatistics in Canada and Beyond: Pauline Barmby (Western U.), Gwendolyn Eadie (U. Toronto), Gregory Siavkoff (U. Alberta), David Stenning (SFU)

### NOVEMBER

11/5 – 11/10 Infinite Dimensional Geometry and Fluids: Martin Bauer (FSU), Boris Khesin (U. Toronto), Klas Modin (Chalmers/U. Gothenburg), Stephen Preston (Brooklyn College), Cornelia Vizman (UVT)

11/12 – 11/17 Canadian Network for Modelling Infectious Diseases: David Earn (McMaster U.), Caroline Colijn (SFU), Irena Papst (McMaster U.)

11/19 – 11/24 Harmonic Analysis and Convexity: Alexander Koldobsky (U. Missouri), Dmitry Ryabogin (KSU), Kateryna Tatarko (U. Waterloo), Vladyslav Yaskin (U. Alberta), Artem Zvavitch (KSU)

11/26 – 12/1 Spaces of Manifolds: Thomas Goodwillie (Brown U.), Manuel Krannich (KIT), Alexander Kupers (U. Toronto), Mona Merling (UPenn)

### DECEMBER

12/3 - 12/8 Subfactors and Fusion (2-)Categories: Terry Gannon (U. Alberta), Theo Johnson-Freyd (Dalhousie U.), David Penneys (OSU), Julia Plavnik (Indiana U.)

\* 2023 events will take place either in the Banff Centre or at the Juniper Hotel ●

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