Pacific Institute *for the* Mathematical Sciences

PIMS MONTHLY CONNECTION | February 2020

University of Lethbridge

Hello from PIMS

It's the second month of the decade and year! We hope your year is continuing well and that you are enjoying the crisp mornings! **The PIMS Post Doctorate Panel met in January and we will begin to announce the awardees this month.** Stay updated for the results! Meanwhile, preparations for Summer Programs at PIMS member universities are in full swing. Please check out list of programs to review the dates and events.

IMPORTANT NOTICES AND DEADLINES:

1. **Feb 3:** Funding application deadline for the Canadian Western Algebraic Geometry Symposium**.** Learn More
2. **Feb 7:** PIMS - UVictoria Distinguished Colloquium: Soumik Pal. Learn more
3. **Feb 28:** PIMS - UBC Distinguished Colloquium: Inwon Kim. Learn more
4. **Feb 28:** PIMS - ULethbridge Distinguished Colloquium: Monica Nevins**.** Learn more
5. **March 1:** Application deadline for the PIMS - Germany Summer School on Eigenvarieties **Learn more**.

Take a look at the full list of all our great events on the PIMS activity calendar.

Sincerely,
The PIMS Team

FEATURE EVENTS

PIMS - ULethbridge Distinguished Colloquium: Monica Nevins

February 28: Representing Everything

Mathematics is often about understanding objects through their symmetries. But what do you do when the group of symmetries is nightmarishly complicated? Answer: You turn the problem into one where you can apply math's ultimate weapon: linear algebra. This process is called representation theory, and it has applications everywhere from number theory, to physics, to the development of space-time codes. We'll use these examples to share some of the successes, and some of the open problems, of representation theory today; by the end, you, too, will be representing everything.

PIMS - UVictoria Distingushed Colloquium: Soumik Pal

February 7: From portfolio theory to optimal transport and Schrodinger bridge in-between

A large part of stochastic portfolio theory, as initiated by Robert Fernholz in the 1990s, is concerned with construction of practical equity portfolios that can beat the stock market index by active rule-based trading. The truly remarkable part of the theory is that it requires no probabilistic modeling on the future behavior of stock prices. There is a Monge-Kantorovich optimal transport problem that naturally arises in the construction of such portfolios. This transport problem is a multiplicative analog of the well-studied quadratic Kantorovich- Wasserstein transport with equally striking properties. We will see aspects of this transport problem from theoretical uses such as defining gradient flows in a non-metric setting to practical uses such as in determining the right frequency of trading. Interesting probability theory comes in as we consider entropic relaxation of this problem giving rise to multiplicative Schrodinger bridges.

bcdata Colloquium: Caroline Colijn

February 27: Coronavirus 2019: the math and stats behind the news, and the role of genetic data

We are pleased to have Caroline Colijn from SFU speak at the next bcdata event on February 27. Details and registration are available on the bcdata site here.

Click below for all events|February 2020

Scientific

Educational

NEWS & ANNOUNCEMENTS

Liam Watson named PIMS- UBC Mathematical Sciences Young Faculty Award Recipient

PIMS is pleased to announce that Dr. Liam Watson, is the recipient of the 2019 Pacific Institute for the Mathematical Sciences - UBC Mathematical Sciences Young Faculty Award. The announcement was made mid-January by the PIMS UBC Site Director, Prof Brian Marcus. As the recipient of this award, Dr. Watson will receive $1000 and will give an invited colloquium at UBC this academic year. Dr. Watson is an Associate Professor of Mathematics at UBC, with a research focus on Low Dimensional Topology. Watson received his PhD in 2009, from the University of Quebec at Montreal (and is also an alum of UBC). Watson had won teaching awards from UBC, the University of Glasgow and UCLA; held a tier 2 Canada Research Chair award, and a CRM- Simons professorship. Dr. Watson's research and distinctive partnership with other topologists has resulted in a successful PIMS Collaborative Research Group Award. We congratulate Liam for another win!

This prize was created by two founding donors, Anton Kuipers and Darrell Duffie, to recognize UBC researchers for their leading edge work in mathematics or its applications in the sciences.Please visit here for more information on PIMS prizes and awards and to see our past recipients.

## 2020 PIMS Education Prize: Nominations Open

The PIMS Education Prize is be awarded annually to a member of the PIMS community who has made a significant contribution to education in the mathematical sciences. This prize is intended to recognize individuals from the PIMS universities, or other educational institutions in Alberta, British Columbia, Manitoba and Saskatchewan who have played a major role in encouraging activities which have enhanced public awareness and appreciation of mathematics, as well as fostering communication among various groups and organizations concerned with mathematical training at all levels. **Nomination deadline is March 15, 2020**. More details are available here.

Callysto, a two year project run by PIMS and Cybera is hosting it's second Call for Proposals . Deadline is **February 15, 2020**. This initiative funds activities that help Grades 5-12 teachers and students in Canada learn digital literacy skills. These skills can include coding, data analysis, computational thinking, computer programming, and more. Visit the Call for Proposals page for more proposal requirements and to fill out the online application form. For feedback about proposal ideas or to answer questions in advance of the deadline, please email proposals@callysto.ca

MEDIA
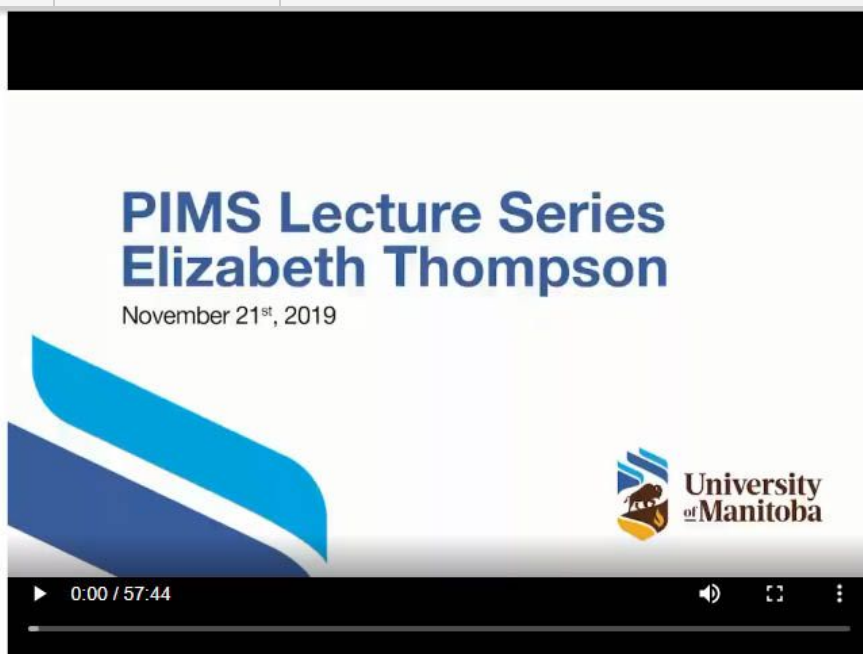
Elizabeth Thompson: Variation in the descent of genome: modelling and inference

For more lectures and PIMS resources, please visit mathtube.org

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PIMS COMMUNITY RECENT PUBLICATIONS

1. B. Adcock, S. Brugiapaglia, M. King–Roskamp (2019). Do log factors matter? On optimal wavelet approximation and the foundations of compressed sensing, Found. Comput. Math.
2. E. Bayer-Fluckiger, U. A. First and M. Huruguen, Orders that are etale-locally isomorphic,Algebra i Analiz 31 (2019), no. 4, 1{15. MR3985253
3. N. Lam; A. Maalaoui; A. Pinamonti. "Characterization of anisotropic high order Sobolev spaces". Asymptotic Analysis, vol. 113, no. 4, pp. 239-260, 2019.

ABOUT PIMS

The Pacific Institute for the Mathematical Sciences (PIMS) was created in 1996 to promote **discovery**, **understanding** and **awareness** in the mathematical sciences. PIMS has expanded from the mathematics community of **Alberta** and **British Columbia** to include **Washington State**, **Saskatchewan** and **Manitoba**. We are proponents of mathematical **collaboration with industry**, **innovation in mathematics education** from K-12 to graduate level initiatives, **public outreach** and **partnerships** with similar organizations around the globe. We fund Collaborative Research Groups, Post-Doctoral Fellowships, individual events, and competitive prizes in mathematics.

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