



Pacific Institute *for the* Mathematical Sciences

PIMS MONTHLY CONNECTION | November 2019



Hello from PIMS

Happy Halloween to everyone in the PIMS community! We have some outstanding events coming up in November, covering a broad spectrum of topics and happening all across the PIMS university sites. Take a look at the highlighted events below as well as the latest news and announcements from PIMS.

IMPORTANT NOTICES:

1. PIMS - SFU Hugh Morris Lecture: Marsha Berger, SFU, Nov 1. [Learn more.](#)
2. PIMS - UNBC Distinguished Colloquium: Steven J. Miller, UNBC, Nov 14. [Learn more.](#)
3. PIMS - UManitoba Distinguished Lecture: Elizabeth Thompson, UManitoba, Nov 20. [Learn more.](#)
4. 2019 Combinatorial Potlatch, Western Washington University, Bellingham, Nov 23. [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 - UManitoba Distinguished Lecture: Elizabeth Thompson](#)

November 20, University of Manitoba.

Title: "Variation in the descent of genome: modeling and inference."

In meiosis, DNA is copied from parents to offspring, so that individuals who share common ancestors may have identical DNA copies from those ancestors through repeated meiosis. This identical-by-descent (IBD) DNA underlies the similarities between relatives, at both the family level and at the population level. However, the process of meiosis is quite variable, and DNA is inherited generation-to-generation in large segments. The patterns of IBD genome among relatives are complex, and in remote relatives segments of IBD DNA are rare but not short. Modern genetic data on millions of markers across the genome allows estimation of shared DNA, but accurate estimation requires modelling the processes that give rise to these complex IBD patterns.



[PIMS - SFU Hugh Morris Lecture: Marsha Berger](#)

November 1 at Simon Fraser University

Title: Modeling and Simulation of Asteroid-Generated Tsunamis

Could an asteroid that explodes over the ocean generate a tsunami threatening coastal populations far away?

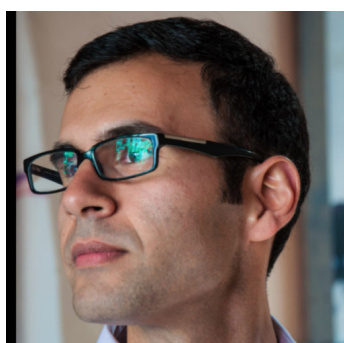


[The Calgary R User's Group Meeting](#)

November 20 at the Cenovus Odd Fellows Building

The group continues to meet on a monthly basis. This meeting will feature three talks:

- Rig State Detection by David Shakleton
- Model Agnostic Approach by Alastair Muir
- Asset Failure Susceptibility Ranking, using LambdaMART, by Busayo Akinloye



[bcddata colloquium: Data Challenges and Solutions for Autonomous Vehicles](#)

November 21 at Avigilon, Vancouver

There are challenges in building self-driving cars and one of the key challenges is the data-availability. In this talk, Yaser Khaligi from Caliber Data Labs will address the challenges in data collection, management, labelling, and validation in the autonomous vehicle industry. We will also address some of the solutions that bridge the data gaps in this domain.



November 22 at the University of British Columbia

Title: Microswimmers propelled by helical flagella: Modeling, Simulations & Analysis.

In this talk, I will introduce two microorganisms, and will focus on how bacteria can swim and reorient swimming course for survival and how Mathematics can help to understand the swimming mechanism of such bacteria.



[PIMS - Lethbridge PIMS Distinguished Speaker Series: Ben Adcock](#)

November 22, at the University of Lethbridge

Title: Instabilities in deep learning

Deep learning implementations have a tendency to be unstable, and vulnerable to adversarial attacks. In this talk, I will give an overview of these instabilities, their potential consequences in applications, and inverse problems in imaging.



[A Workshop from John Braun on "Using R" - the University of Calgary](#)

December 4, 12 pm, at the University of Calgary

R is becoming the leading software package for statistical analysis and presentation, and is widely used in academia and industry. The workshop will present an introduction to using R in the morning, and move onto more advanced topics such as developing packages and Shiny apps in R in the afternoon.

[Click below for all events | November 2019](#)

[Scientific](#)

[Educational](#)

[Industrial](#)

NEWS & ANNOUNCEMENTS



[bcdata Alum, Stefan Hannie, Gives Talk at Recent bcddata Event](#)

Many thanks to Stefan Hannie for his recent talk on 'Mapping the Internet' as part of the PIMS bcdata initiative. It was another great event that was well attended by a broad cross-section of Vancouver's data community.

Mitacs

Two Mitacs opportunities for postdoctoral fellows

PIMS is pleased to announce the return of two popular Mitacs postdoctoral research and training programs this fall.

1. The [Mitacs Accelerate industrial postdoc](#) provides up to 3 years of funding valued at \$55,000/year for research with a company or not-for-profit, as well as access to professional skills training courses. This special initiative offers better leveraging than standard Mitacs Accelerate internships. Postdoctoral fellows partner with a company or not-for-profit organization and build a longer-term research collaboration. This limited-time offering closes on **December 6, 2019**.

2. [Mitacs Elevate](#) provides two years of postdoctoral funding valued at \$60,000/year plus extensive customized professional development training (\$7,500/year non-cash value). Postdoctoral fellows develop business-ready skills in leadership, financial literacy, management and negotiation, project management, problem-solving and much more. *NEW* We accept cross-provincial Elevate applications, where the partner and university are in different provinces. We are accepting until **February 19, 2020**.

MEDIA



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

PIMS COMMUNITY RECENT PUBLICATIONS

1. Hu. F., Li. S., Lepoutre. M., Mishna. M., "[Free abelian group actions on normal projective varieties: sub-maximal dynamical rank case](#)" 2019, submitted to the Canadian Journal of Mathematics.
2. Ghioca. D., Hu. F., Scanlon. T., Shimokawa. K., Zannier. U., "[A variant of the Mordell–Lang conjecture](#)" accepted in Mathematical Research Letters.
3. Aiex. N., "[Partition function zeros of adsorbing Dyck paths.](#)" accepted in Mathematical Research Letters.
4. Adcock. B., Brugiapaglia. S., "[General sharp weighted Caffarelli–Kohn–Nirenberg inequalities](#)" Proceedings of the Royal Society of Edinburgh: Section A Mathematics, 149

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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