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Pacific Institute *for the*
Mathematical Sciences

PIMS MONTHLY CONNECTION | **September 2021**



University of
Lethbridge



Hello from PIMS

As we head into fall, PIMS will continue to hold our events online, unless otherwise posted. We are hopeful that we can see all your faces in real life again soon.

Applications for the PIMS Postdoctoral Awards are now open. We invite nominations of outstanding young researchers in the mathematical sciences for postdoctoral fellowships beginning in the academic year 2022–2023.

We are pleased to welcome the [2021 cohort of PIMS Post-doctoral Fellows](#). Our **Emergent Research Postdoc Seminar Series** returns this fall with a talk from **Hui Huang** (UCalgary) on Sept 15 and **Elizabeth Carlson** (UVictoria) on Sept 29.

PIMS supports the mathematical sciences community by funding events and collaborations. We provide significant sponsorship for events in all areas of mathematical science research. **We are accepting proposals for 2022 events/activities until Oct 1, 2021.**

Our **Network-wide Colloquium Series**, which began this year as part of PIMS 25th Anniversary, continues this month with a presentation from **Assaf Naor** on Sept 23. Join us monthly for these distinguished speaker presentations. More details are on the events section below.

And you still have time to submit your nominations for the annual CRM- Fields- PIMS Prize. This is the premier prize for research awarded jointly by the three Canadian mathematics institutes. As part of our commitment to equity, diversity, and inclusion, we encourage nominations of women and of members of underrepresented groups.

See below for more details on this month's news, featured events, and publications.

Sincerely,
The PIMS Team



EDUCATION HIGHLIGHT: Math Summer School for Elementary School Teachers

Throughout July, elementary school math teachers from districts all over BC met with PIMS Education Coordinator, Melania Alvarez, and UWaterloo Lecturer, Cameron Morland. Together they practiced various exercises, shared ideas, watched inspiring videos—all for the purpose of getting their students

The material was diverse and touched multiplication, algebra, and fractions. Concepts were explored in

geometry, barter systems with beans, triangles with compass, origami, and fractions. Hands-on activities, along with small group interactions, allowed participants to share and learn with each other.

Key takeaways from the course include:

- Slowing down and taking the time to really explore numbers and ensure the students are understanding
- Using puzzles and games that were open-ended, allowed for multiple solutions and approaches
- Process vs. product — the process in which students learn is more important than the product

Two participants, Harvinder Notay and Tim Zacharias created a brief presentation to share to express their gratitude for the workshop, the invaluable learning they received, and the connections that were made. [Math Summer Camp 2021—Journey of discovery for Harvinder Notay and Tim Zacharias](#)

"The course was interesting, engaging and fun. I really enjoyed exploring new concepts in a new and exciting way. Melania and Cameron helped me to think outside the box, discuss math concepts with friends and family and genuinely renewed my love for math. Thank you to everyone who made this course possible; it should be a staple for all elementary teachers!" —Participant

"This course has reshaped my thinking. I now see math as more subjective than I used to. I now appreciate the process more than the result and want to create learners who stay on a problem and creatively find solutions. I want to foster learners who have a growth mindset and embrace the art of thinking that true mathematics brings to light." —Participant

NEWS & ANNOUNCEMENTS



 Pacific Institute for the Mathematical Sciences

PIMS Postdoctoral Competition Call for Applications 2022–2023

PIMS invites nominations of outstanding young researchers in the mathematical sciences for postdoctoral fellowships beginning in the academic year 2022-2023.

Applications open from Sept 1, 2021 to December 1, 2021

[PIMS Postdoctoral Competition - Call for Applications 2022- 2023](#)

The Pacific Institute for the Mathematical Sciences invites nominations of outstanding young researchers in the mathematical sciences for postdoctoral fellowships beginning in the academic year 2022-2023.

Candidates must be nominated by a scientist or department affiliated with PIMS. These fellowships are intended to supplement the support provided by the sponsor, and are tenable at any of the PIMS Canadian member universities: the University of Alberta, the University of British Columbia, the University of Calgary, the University of Lethbridge, the University of Manitoba, the University of Regina, the University of Saskatchewan, Simon Fraser University and the University of Victoria. For the 2022 competition, the amount of the award will be \$30,000 and the sponsor(s) is (are) required to provide additional funds to finance a minimum stipend of \$55,000. **Applications open September 1 - December 1, 2021**

[Mitacs Globalink Research Award Thematic Call - open on September 1](#)

Mitacs is pleased to launch a special initiative, in cooperation with several international partners, to foster future opportunities for researcher mobility and help plant the seeds for recovery to tackle global challenges. Themes include: Advanced computing (Quantum and AI), Achieving Net Zero (Environment), and Global Health.

[Activities in 2022](#)

PIMS is currently accepting proposals for events in 2022 and beyond. Proposals for events such as conferences, workshops, summer schools, Distinguished Visitors, Focus Periods, Collaborative Research Groups and related activities in the mathematical sciences are accepted.

Activities should occur after April 1, 2022 or later. **Proposals will be accepted until October 1, 2021.**



CRM-Fields-PIMS Prize 2022

Nominations now Open!

Deadline: November 1, 2021

The prize recognizes exceptional achievement in the mathematical sciences



[2022 CRM-Fields-PIMS Prize - Submit your Nominations!](#)

The prize recognizes exceptional achievement in the mathematical sciences. It was established by the Centre de recherches mathématiques and the Fields Institute as the CRM-Fields prize in 1994. In 2005, PIMS became an equal partner. The winner, selected by a committee appointed by the three institutes, receives a monetary award, and an invitation to present a lecture at each institute within one year after the award is announced. We encourage nominations of women and of members of underrepresented groups. **Nominations close on November 1, 2021.**

FEATURE EVENTS

[The PIMS Postdoctoral Fellow Seminar: Hui Huang](#)

Sept 15.

Join us in the first talk of our Emergent Research PDF Series, **Large Systems of Interacting Particles and their Application in Optimization.**

[The Vancouver DataJam](#)

Sept 18.

2021 Theme: Health in our Communities. Join data science enthusiasts for the Vancouver DataJam: a virtual event with a focus on supporting members of gender and racial minorities get their careers in data science kickstarted.

PIMS Network-Wide Colloquium Series

September 23, 1:30pm Pacific

Assaf Naor

Princeton University



Pacific Institute for the Mathematical Sciences



Isomorphic Reverse Isoperimetry and Lipschitz Extension: In the Lipschitz extension problem we are given a pair of metric spaces X, Y and ask for the smallest K such that for any subset A of X every L -Lipschitz mapping from A to Y can be extended to a KL -Lipschitz mapping from X to Y . Most of this talk will be devoted to an introductory overview of part of the large amount of knowledge that has accumulated on this question over the past century, and its multifaceted connections to various mathematical areas.

[The PIMS Postdoctoral Fellow Seminar: Elizabeth Carlson](#)

Sept 29.

Using Observations to Accurately and Efficiently Model Turbulent Flows: Parameter Recovery, Sensitivity Analysis, Nonlinear Data Assimilation Algorithms, and a Real-World Implementation.

Click below for upcoming events

Scientific

Education

MEDIA



[Meet PIMS PDF Hui Huang](#)

"My research focuses on the analysis of complex dynamical systems and their related kinetic equations. This ends up touching on a lot of interesting subjects, such as partial differential equations, probability theory, stochastic calculus, numerical analysis, optimization, and control theory." —Hui Huang



[Meet PIMS PDF Elizabeth Carlson](#)

"My work has been directly tied to the core of what drives my passion for research: the rigor of theoretical mathematics provides deeper insights into observations of the physical world, and observations provide intuition for directions to explore in theoretical mathematics." —Elizabeth Carlson

To view past lectures and other PIMS resources, please visit mathtube.org

PIMS COMMUNITY RECENT PUBLICATIONS

1. Kexue Zhang, Elena Braverman. [Time-delay systems with delayed impulses: A unified criterion on asymptotic stability](#). *Automatica*. 125, 2021
2. Boyu Li. [C*-envelope and dilation theory of semigroup dynamical systems](#). *Integral Equations and Operator Theory*. 93 (3), 2021

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, Postdoctoral Fellowships, individual events, and competitive prizes in mathematics.

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Your Support Makes a Difference

PIMS education and outreach programs touch countless educators, students, and Indigenous communities. Some of our activities include summer schools, mathematics contests and meetings for educators [Learn more](#)

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We acknowledge with gratitude that PIMS central office is located on the unceded, traditional, and occupied territory of the Coast Salish peoples. This includes the territories of the xwməθkwəyəm (Musqueam), Skwxwú7mesh (Squamish), and Seíílweta?/Selilwitulh (Tsleil-Waututh) Nations.
www.native-land.ca