



Pacific Institute *for the*
Mathematical Sciences

PIMS MONTHLY CONNECTION | **SEPTEMBER 2023**



Hello from PIMS

Welcome to the September edition of the PIMS Newsletter!

Each of our PIMS sites will be starting a new semester this September--we're looking forward to seeing new and returning faces at our campuses! Also returning this September is the **PIMS Network-wide Colloquium** series. We start off the series with a lecture from Ravi Vakil (Stanford University) on September 21 (more details below).

Mark your calendars! [PIMS Day and the PIMS Directorate Open House](#) will take place virtually on September 22. We are excited to showcase research and researchers supported by PIMS, and the impact of their work across the PIMS network. Please join us!

The [PIMS Postdoctoral Competition](#) is now open. We invite nominations of outstanding early-career researchers in the mathematical sciences for postdoctoral fellowships beginning in the academic year 2024-2025. To qualify for the competition, candidates must be nominated by a faculty member or department affiliated with PIMS.

The PIMS **Call for Proposals** is open. PIMS provides significant sponsorship for events in active areas of mathematical sciences research, and we encourage members of the PIMS network to submit proposals. This year's deadline for applications will be **October 1st, 2023**. Also, if you are interested in funding collaborative research with mathematical scientists in France, submit your application for the [PIMS-Europe Fellowship](#) before October 1, 2023, and for the [PIMS CNRS Postes Rouges](#) before October 6, 2023. More details on these programs will be shared at PIMS Day.

The **Mathemalchemy** exhibition is still open, so if you can, stop by for a visit. The installation is located at the Beaty Biodiversity Museum and will run until October 31, 2023. This installation invites you to let go of preconceptions or classroom experiences about art or math and to explore with an open mind. Both art and math illuminate and describe our world and have the power to inspire our imaginations.

Important dates:

September 22: 2023 PIMS Day at 11:00AM - 2:30PM Pacific

October 1: Deadline for applications for PIMS funding

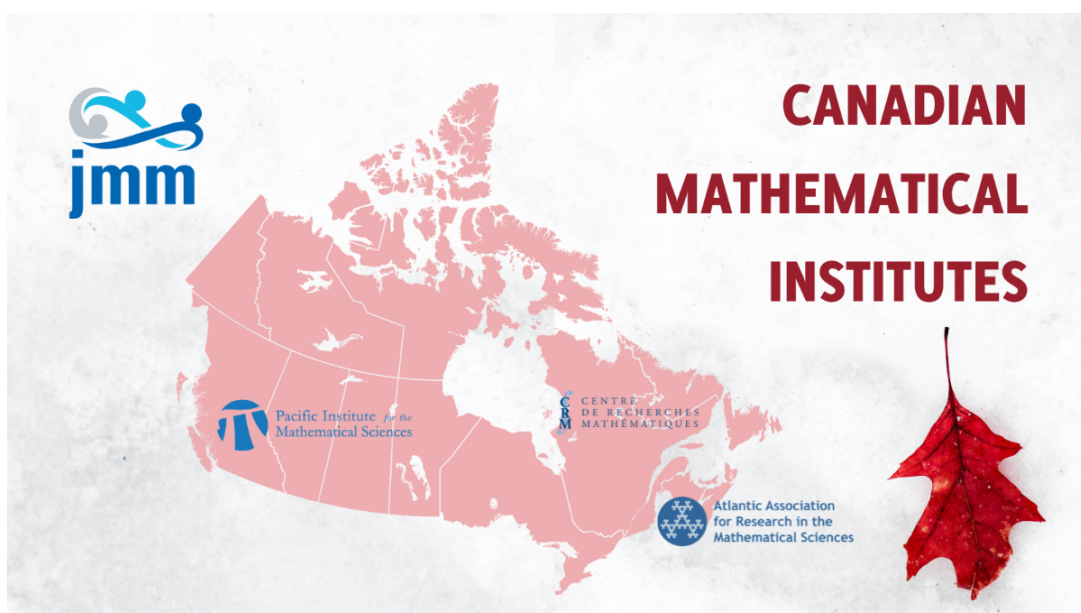
October 1: Deadline for applications for the PIMS Europe Fellowship

October 6: Deadline for applications for the PIMS CNRS Postes Rouges

December 1: Deadline for applications for the PIMS Postdoctoral Competition

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

IN THE NEWS



CRM, PIMS, and AARMS Are Newest JMM Partners.

The Centre de recherches mathématiques (CRM), Pacific Institute for the Mathematical Sciences (PIMS), and Atlantic Association for Research in Mathematical Sciences (AARMS) have signed a joint long-term partnership agreement with the American Mathematical Society (AMS) to organize a plenary address and an associated special session at the [Joint Mathematics Meetings](#) (JMM), beginning in 2024. They join fifteen other partner organizations to date, adding to an exciting and robust program.

The first [CRM-PIMS-AARMS invited address](#) will be given by Henri Darmon (McGill University) at JMM 2024. Professor Darmon's talk will be on "Fourier coefficients of modular forms".

[Read the Announcement](#)

Photo Highlights: PIMS Action on Climate Thematic Summer (PIMS-ACTS).

Several events took place in the summer of 2023 which PIMS designated as the [PIMS Action on Climate Thematic Summer](#) (PIMS-ACTS). This green-themed strategic initiative was helmed by PIMS, with support from government institutions, organizations, and individual stakeholders. These series of events were organized with the aim of stimulating practical solutions from the mathematical sciences for the climate challenges we face.

PIMS Summer School on Forecasting and Mathematical Modeling for Renewable Energy

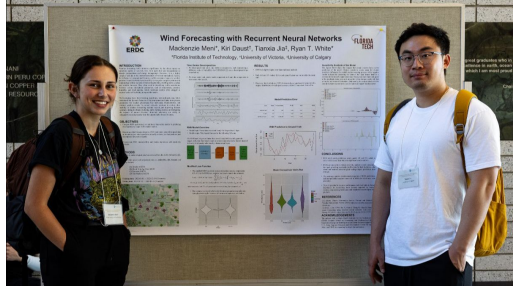
took place at the University of Calgary from May 29th to June 9th and was organized by the [PIMS Collaborative Research Group on Forecasting and Mathematical Modelling for Renewable Energy](#). Mini-courses included Spatio-temporal processes and forecasting, Atmosphere and fluid dynamics, and Optimization for renewables. These were designed and delivered by a team of instructors to graduate students and postdoctoral scholars.

The **Workshop on Forecasting and Mathematical Modeling for Renewable Energy** (pictures 1 -3) brought together practitioners from mathematics, statistics, computer science, engineering, atmospheric sciences, and economics. The workshop showcased a wide spectrum of quantitative research problems related to the design and operation of wind and solar power systems and their integration into the power grid and electricity markets. The event was hosted at the University of British Columbia from July 26- 29th.

Over 100 participants attended the **FACTs Panel on Climate Change** on July 27. The public panel (pictures 4 - 6) was a high-profile event that is part of a series of French-Ameri-Can Climate Talks (FACTs) on climate change. It featured engaging discussions from a diverse group of eminent Canadian and French scientists and activists with expertise in climate science,

Panelists included: **René Aïd**: Professor (Economics) Université Paris-Dauphine, former Deputy-Director of EDF Research Energy Finance; **Gael Giraud**: Founder, Director, and Professor, Georgetown University Environmental Justice Program, former chief economist of the French Development agency and CNRS research director; **Seth Klein**: Public policy researcher, author, and Team Lead with the Climate Emergency Unit; **Judith Sayers**: President of the Nuu-chah-nulth Tribal Council, lawyer, renewable energy leader, chancellor of Vancouver Island University and **Andrew Weaver**, Professor (Climate science) University of Victoria, IPCC lead author, former BC MLA and leader of BC Green Party. The session was moderated by **Laura Lynch**, CBC journalist, and host of the radio show "What on Earth".

Proceedings from the workshop and the panel are now available on [Mathtube](#).



Participants at the PIMS Workshop on Forecasting and Mathematical Modeling for Renewable Energy.



Panelists at the FACTs Panel on Climate Change. Left to right: René Aïd, Gael Giraud, Laura Lynch, Seth Klein and Andrew Weaver. On Conference call: Judith Sayers

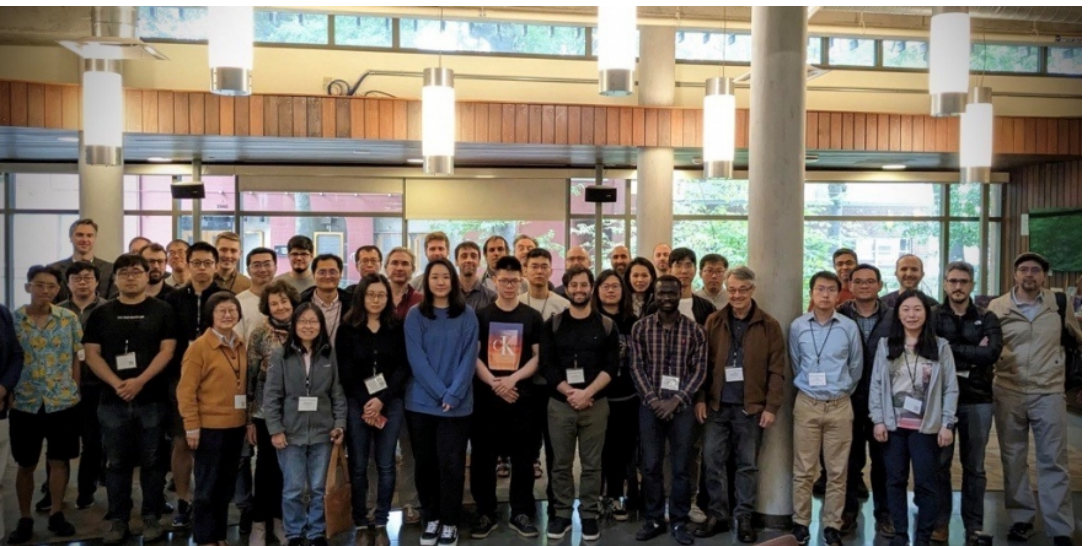


New Site Director at Simon Fraser University.

PIMS is pleased to welcome Professor Razvan C. Fetecau as the new Site Director representing Simon Fraser University. Professor Fetecau will begin his three-year term on September 1, 2023. A professor within the Department of Mathematics at SFU, Prof. Fetecau's primary research is in the general area of nonlinear differential equations with particular interests in mathematical models for self-collective and swarming behavior. More about his academic background and his work with PIMS can be found on our website.



[Read the Full Announcement](#)



UW Hosts 2023 Econometrics and Optimal Transport Workshop.

Written by Madison Girard.

The Department of Economics was proud to host the [Econometrics and Optimal Transport Workshop](#) from June 12-14, 2023. Optimal transport (OT) is the problem of transporting one distribution/shape of mass to another as efficiently as possible, relative to a given cost function. Thanks to its solid mathematical theory and recent breakthroughs in the development of efficient computational algorithms, OT-based methodologies for a wide range of problems in diverse disciplines, including economics, have been developed and successfully applied in real world applications.

This event was a huge success and was made possible through the support of the [Kantorovich Initiative](#). Named after Nobel Prize-winning economist and mathematician [Leonid Vitaliyevich Kantorovich](#), The Kantorovich Initiative (KI) is a Research Network of the [Pacific Institute for the Mathematical Sciences](#) (PIMS), a consortium of mathematical sciences departments across Western North America. KI is a unique interdisciplinary network of academic thought leaders “dedicated towards research and dissemination of modern mathematics of optimal transport towards a wide audience of researchers, students, industry, policy makers, and the general public.” KI is also supported by the [National Science Foundation](#). The [Center for Statistics and the Social Sciences](#) at UW is among other sponsors of the Workshop.

[Read the Full News Article](#)

OPPORTUNITIES ACROSS THE PIMS NETWORK

PIMS Board of Directors: Open call for the B.C. Mathematical Sciences Representative.

The PIMS Board, which meets bi-annually, is currently searching for a representative in the mathematical sciences for the British Columbia region. The selected representative must be a faculty member in the mathematical sciences from any of the PIMS member universities in British Columbia (SFU, UBC, or UVictoria).

Mathematical sciences representatives hold voting positions on the PIMS Board, and therefore, oversee all aspects of PIMS governance. Specifically, the Board is responsible for establishing policies, defining strategic directions, monitoring operations, and implementing mechanisms for fiscal and human resources accountability. The term for this position is three years and will commence on November 1, 2023. Applicants can nominate themselves or can be nominated by faculty in their department by submitting their CV to the PIMS Director.

[Submit your Nomination](#)



Open Call: Managing Editor for *Pi in the Sky*!

The PIMS *Pi in the Sky* magazine primarily targets high school students and teachers and aims to provide a cultural context and landscape for the subject of mathematics. Its scope naturally extends to junior high school students and undergraduates. Moreover, the magazine's articles offer alternative perspectives on curriculum topics. Currently, PIMS is in search of a Managing Editor for this annual publication.

The Magazine Editor is responsible for overseeing the entire editorial production process, and will collaborate closely with the communications team at the PIMS Central office. Their duties include managing online submission solicitations and working in conjunction with the Editorial Board to review and make decisions on submitted content. On occasion, the Managing Editor may collaborate with authors to enhance submissions, or delegate collaborative work to an Editorial Board member. Additionally, the Managing Editor may play a role selecting cover imagery and may delegate the "Problem Section" to another Editorial Board member.

If you are interested in this opportunity, please send in your resume along with a brief email to the PIMS Director: director@pims.math.ca.



Call for Applications: 2024 CNRS Postes Rouges

DEADLINE | October 6, 2023

Limited research positions offered are for 3 months to non-French academics or French citizens at PIMS member universities, and visits must begin in 2024. For more details please visit:

<https://www.pims.math.ca/scientific/pims-cnrs-irl>



CNRS Postes Rouges: Applications Now Open.

The Institut de Mathématiques du CNRS (INSMI) will be offering a limited number of research positions in France, for the 2024 calendar year. These positions are available to foreign visitors from the “IRLs”, “LIAs” or “IRNs”, and provide funding support by reimbursing up to €9,000 in research expenses (travel, accommodation, and meals). This research reimbursement will be fully managed by the French laboratory hosting the visiting researcher.

The positions are for three months (shorter visits cannot be funded under this scheme) and are available to non-French academics (assistant, associate, or full professors) at any PIMS member university (French citizens with full-time positions at PIMS institutions are also eligible to apply). The support can be applied for as a part of a longer research visit if explained in the application. Applicants are required to conduct their visits during the 2024 calendar year. A clear connection with the scientific activity of the IRL/LIA/IRN should appear in the file.

Applicants should send the file to the PIMS Director by **October 6, 2023**. Complete proposals will go to the CNRS Postes Rouges for review and appointment.

[See Application Details](#)

CALL FOR PROPOSALS NOW OPEN!



Pacific Institute *for the*
Mathematical Sciences

PIMS is accepting proposals for events in 2024 and beyond...

Submission Deadline is October 1, 2023

PIMS Call for Funding Proposals.

PIMS is currently accepting proposals for events in 2024 and beyond. Any member of the PIMS university community may apply for financial support for a mathematical sciences program that connects members of the PIMS community. Proposals are evaluated annually by the PIMS Scientific Review Panel, and results are announced in November of this year. The deadline for submission is **October 1, 2023**.

- **Conferences, Workshops and Summer Schools**
- **Focus Periods**
- **Distinguished Visitors**
- **Collaborative Research Groups**
- **PIMS Research Networks**

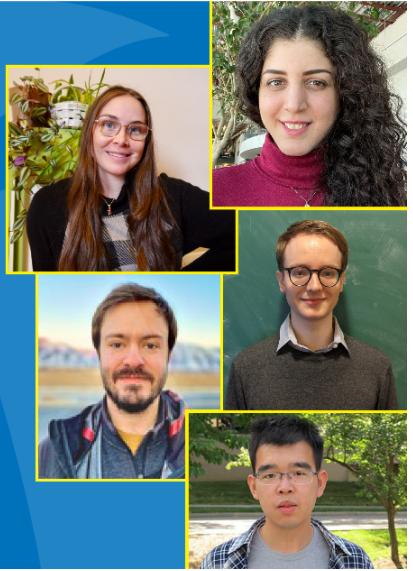
Prior recipients of PIMS awards are required to have submitted their final reports before applying for funding.



2024–2025 PIMS Postdoctoral Competition: Call for Nominations

PIMS invites nominations of outstanding young researchers in the mathematical sciences for postdoctoral fellowships beginning in the academic year 2024-2025.

Applications open until Dec 1, 2023



PIMS Postdoctoral Nominations are Now Open.

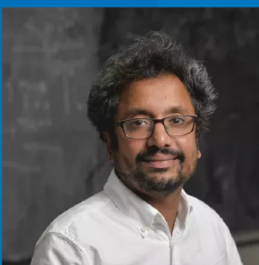
PIMS invites nominations of outstanding young researchers in the mathematical sciences for postdoctoral fellowships beginning in the academic year 2024-2025. Candidates must be nominated by a scientist or department affiliated with PIMS. These fellowships are intended to supplement the support provided 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.

Award decisions are made by the PIMS PDF Review Panel, and are based on the scientific qualifications of the candidate, demonstrated scientific leadership, the fit between the research interests of the candidate and those of the sponsor, and adequacy of matching funds. We strongly encourage people from historically underrepresented groups to apply for these positions. **Nominations close on December 1, 2023.**

[See Nomination Details](#)

FEATURE EVENTS

PIMS Network-Wide Colloquium Series | 1.30pm Pacific | Online



September 21
RAVI VAKIL
Stanford University

Understanding arithmetic and geometry through cutting and pasting

www.pims.math.ca

[@pimsmath](https://twitter.com/pimsmath)

facebook.com/pimsmath

www.math.tube.org

PIMS Network Wide Colloquium: Ravi Vakil.

September 21, 2023: Online

1:30 PM Pacific Time

Understanding arithmetic and geometry through cutting and pasting.

Euler's famous formula tells us that (with appropriate caveats), a map on the sphere with f countries (faces), e borders (edges), and v border-ends (vertices) will satisfy $v-e+f=2$. And more generally, for a map on a surface with g holes, $v-e+f=2-2g$. Thus we can figure out the genus of a surface by cutting it into pieces (faces, edges, vertices), and just counting the pieces appropriately. This is an example of the topological maxim "think globally, act locally". A starting point for modern algebraic geometry can be understood as the realization that when geometric objects are actually algebraic, then cutting and pasting tells you far more than it does

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is "usual" geometry. I will describe some easy-to-understand statements (with hard-to-understand proofs), as well as easy-to-understand conjectures (some with very clever

counterexamples, by M. Larsen, V. Lunts, L. Borisov, and others). I may also discuss some joint work with Melanie Matchett Wood.

[Register Here](#)

Pacific Institute *for the* Mathematical Sciences

Friday, Sept 22, 2023 **VIRTUAL**

Pop in for PIMS Day!

Join our drop in session and learn more about PIMS—from our Collaborative Research Groups and Networks, to postdoctoral research showcases and funding opportunities.

Or just come say hi!
Please register to receive the Zoom link.

Director
Dr. Özgür Yılmaz

Co-Director, International
Dr. Jayadev Athreya

Co-Director, Industry
Dr. Kristine Bauer

2023 PIMS Day and Directorate Open-house is Coming this September!

September 22, 2023: Online

11:00 AM - 1:10 PM Pacific Time - Meet the CRGs and PDFs at PIMS

PIMS is pleased to invite our extended network to our first annual PIMS Day on **September 22**.

This inaugural PIMS Day, we invite all members of the PIMS network to hear about [Collaborative Research Groups](#) (CRGs), [PIMS Research Networks](#) (PRNs), hear first-hand accounts from several of our postdoctoral scholars, and learn about their outstanding research in the mathematical sciences.

1:15 PM - 2:30 PM Pacific Time - Directorate Open-house

In this second part of the program, we invite you to meet with our PIMS Directors and review current and future PIMS scientific and educational funding opportunities. Feel free to extend this invite to your colleagues, many of whom will be interested in knowing about the ways in which PIMS supports mathematical sciences researchers and their work across western Canada.

[Register Here](#)

View our calendars for more meetings and events

[Scientific Events](#)

EDUCATION HIGHLIGHTS

2023 Math Attack Summer Camp for Girls & Girls Excel in Math Summer Camp.

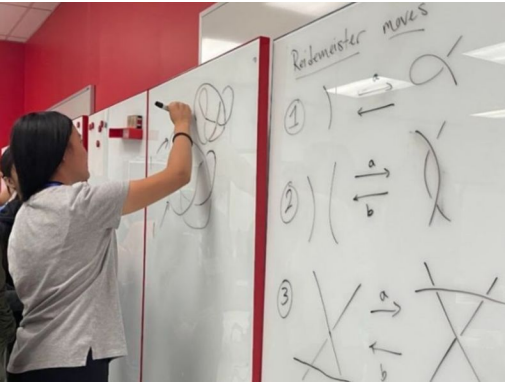
The **Math Attack Summer Camp for Girls** was an 8-day overnight camp that was held at the University of Calgary and the Banff International Research Station (BIRS). The camp brought 21 grades 6 - 10 students who identify as girls together to engage in fun mathematical activities and build connections. Throughout the week, students engaged in mathematical sessions that explored topics such as graph theory, topology, data science, statistics, and actuarial science.

The **Girls Excel in Math Summer Camp** was a 3-day camp that was held at the University of Calgary. 121 grades 5 - 9 students who identify as girls attended the camp. The camp aimed to

encourage girls to pursue their passion for mathematics and make connections with peers who shared similar interests. Students alternated between sessions in a large lecture hall with the entire group led by Dr. Lauren DeDieu, and groupwork sessions in smaller classrooms. During breaks, students engaged in social activities led by their group leader.



2023 UCalgary's Math Attack Summer Camp for Girls (Grades 6 - 10).



2023 UCalgary's Girls Excel in Math Summer Camp (grades 5 - 9).





Welcome to the wonderland of **Mathemalchemy**, where math is transforming. Conceived as a brainchild of Duke University mathematician **Ingrid Daubechies** and fiber artist **Dominique Ehrmann**, the Mathemalchemy project is an exciting collaborative exhibit developed by a core team of driven and enthusiastic 24 artistic mathematicians and mathematical artists. Mathemalchemy is a joint vision project emerging from long and spirited discussions celebrating the fun, beauty and creativity in mathematics.

Photo Credit: Kevin Allen



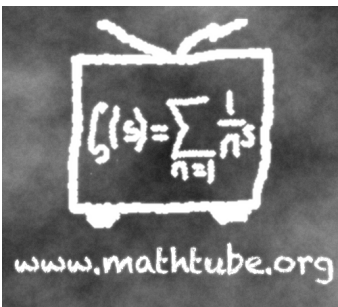
Mathemalchemy Exhibition.

April 1 - October 31, 2023: Beaty Biodiversity Museum at UBC

The [Mathemalchemy](#) exhibition is still open, so if you can, stop by for a visit. The installation is located at the Beaty Biodiversity Museum and will run to October 31, 2023. This installation invites you to let go of preconceptions or classroom experiences about art or math, and to explore with an open mind. Both art and math illuminate and describe our world, and have the power to inspire our imaginations. Feel free to wander, observe, and enjoy.

This exhibit was made possible through the support of the Beaty Museum and the UBC Faculty of Sciences.

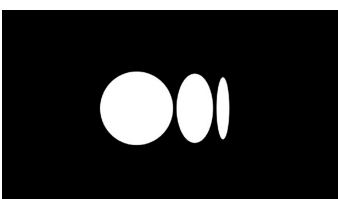
MEDIA



Missed a Lecture? Go to [Mathtube.Org](#)

Proceedings for the [PIMS-ACTS event series](#) that took place this summer are now available for viewing!

Since 1996, PIMS has collected and maintained an archive of videos and lecture notes covering many areas of the mathematical sciences. If you missed any of the PIMS PDF Colloquium Lectures, visit [www.mathtube.org](#) to see these and other archives.



Read our feature stories on [Medium](#).

PIMS is happy to share our stories and short interviews with members of the PIMS Community. We are currently featuring our 2022 PDF Cohort as they speak at the PDF Seminar Series. Do you have an interesting profile from the PIMS Community that we should highlight? [Let us know!](#)

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. Our mandate is to promote research in and applications of the mathematical sciences, to facilitate the training of highly qualified personnel, to create an equitable, diverse and inclusive community, to enrich public awareness of and education in the

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mathematical sciences, and to create mathematical partnerships with similar organizations in other countries in the Pacific Rim. PIMS funds Collaborative Research Groups, Post-Doctoral Fellowships, and individual events on a competitive basis.

We Want to Hear from You

Share your feedback on this month's newsletter and tell us what stories and news you would like to hear more of.

[Feedback](#)

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 xwməθkwəy̓əm (Musqueam), Skwxwú7mesh (Squamish), and Səlilwətaʔ/Selilwitulh (Tsleil-Waututh) Nations.

www.native-land.ca