Pacific Institute *for the* Mathematical Sciences

PIMS MONTHLY CONNECTION | **AUGUST 2023**

UBC THE UNIVERSITY OF BRITISH COLUMBIA

Hello from PIMS

Welcome to the August edition of the PIMS Newsletter!

This past July PIMS hosted the **Workshop on Forecasting and Mathematical Modeling for Renewable Energy**. The workshop brought together high-level practitioners from mathematics, statistics, computer science, engineering, atmospheric sciences, and economics to showcase a wide spectrum of quantitative research problems to support the design and operation of wind and solar power systems and their integration to the power grid and electricity markets. Speaker slides are available to the general public through the link above. We look forward to hosting more climate-related sessions throughout the PIMS network.

Mark your calendars! **PIMS Day** 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 **Call for Proposals** is open. PIMS provides significant sponsorship for events in active areas of mathematical science research and we encourage members of the PIMS network to submit proposals. This year's deadline for applications will be **October 1st, 2023.** If you are also interested in funding collaborative research with mathematical scientists in France, submit your application for the **PIMS-Europe Fellowship** before October 1, 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.

There is still time to register for our Fall **Network Wide Courses**. We encourage students to check the details of the courses they are interested in and contact the course instructors as soon as possible.

Important dates:
September 22: 2023 PIMS Day at 11:00 Pacific
October 1: Deadline for applications for PIMS funding
October 1: Deadline for applications for the PIMS Europe Fellowship

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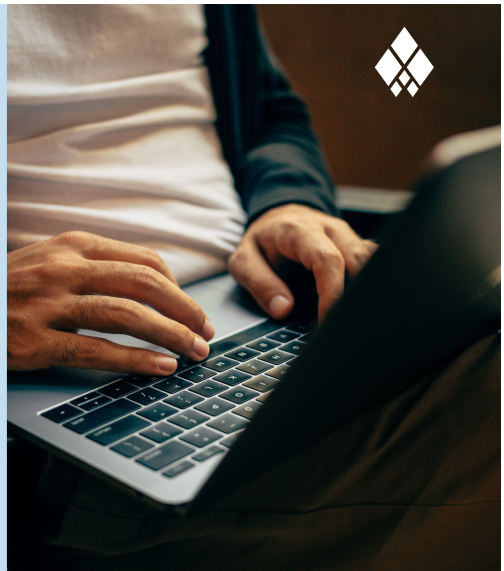
Sincerely,
The PIMS Team

2023 M2PI Virtual Gala

July 31, 2023: Online

2:00 PM Pacific Time/ 3:00 PM Mountain Time

Over the last 3 weeks students at the M2PI (Math to Power Industry) Workshop have been working hard to solve Industry submitted challenges. Join us on July 31, 2023, to see how this year's teams are making an impact in research and solving real-world problems.

Register Here

PIMS Call for funding applications now open!

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. Funding 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.

See Funding Details

2023 PIMS Day is Coming this September!

September 22, 2023: Online

11:00 AM Pacific Time

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 from our Directors and partners about the institute's research collaborations: our Collaborative Research Groups (CRGs) and PIMS Research Networks (PRNs), a review of current and future PIMS scientific and educational funding opportunities, and a chance to ask questions about PIMS programs and activities. We will also get to hear first-hand accounts from several of the 2022 postdoctoral fellow cohort about their outstanding research in the mathematical sciences. As well, feel free to pop in and just say hello!

Register Here

We are accepting applications for PIMS-Europe Fellowships (CNRS IRL #3069). The goal of this program is to develop and support research collaborations between mathematical scientists at PIMS member universities and researchers across France. These fellowships will champion a mutual exchange of knowledge and talent while encouraging cross-ocean research on the frontline of the mathematical sciences. Fellowship awardees will receive CAD $5,000 to facilitate long-term visits to France. The application deadline is **October 1, 2023**.

See Fellowship Details

PIMS Network-wide Graduate Courses
Registration is Open!

SEE BELOW FOR CURRENT COURSES OFFERED

PIMS is now accepting student registrations for **graduate level courses** in the mathematical sciences to take place in the **Fall term of 2023**. This program is intended to benefit students by **offering a deeper variety of courses**. Courses are available online and provide access to experts from throughout the PIMS network.

PIMS Network Wide Courses: Enrolment Open.

Registration for Fall 2023 network-wide graduate courses is still open. Students at Canadian PIMS member universities can register for these courses and receive graduate credit through the Western Deans Agreement. Graduate students in your department(s) who may be interested in one or more of the courses offered below are welcome to apply.

- Computer Algebra
- Formalization of Mathematics
- Linear Algebra and Matrix Analysis
- Moments of L-functions
- Optimal Transport + Gradient Flows
- Spectral Methods for PDEs
- Statistical Machine Learning for Data Science

See the PIMS Network Wide Graduate Courses website for more information and registration details. In some cases, students must enrol **6 weeks in advance of the next term**, so register early.

See Courses Details

Dr. Edward Doolittle is the 2023 Recipient of the Adrien Pouliot Award.

The Canadian Mathematical Society (CMS) is pleased to announce that Dr. Edward Doolittle is the recipient of the 2023 Adrien Pouliot Award in recognition of his outstanding contributions to mathematics education. He will be presented with his award at the 2023 CMS Winter Meeting.

Dr. Doolittle is an internationally recognized leader in Indigenous mathematics and related concepts like Indigenizing mathematics, traditional mathematics, and ethnomathematics. He currently serves as a member of the Board of Equity, Diversity, and Inclusion for the Banff International Research Station and as a founding member of the Canadian Mathematical

Society's Committee on Reconciliation in Mathematics. Dr. Doolittle is also a member of the Indigenous Engagement Committee at PIMS where he continues to champion and positively contribute to the mathematical sciences and education in Canada.

Read the Full Media Release

FEATURE EVENTS

6th International Conference on Applied Category Theory 2023.

July 31 - August 4, 2023

University of Maryland at College Park, Maryland, US

The annual Applied Category Theory (ACT) conference brings together researchers, programmers, scientists and industry members who seek to apply the foundational field of Category Theory to domains outside of mathematics such as engineering, computer science, genetics, linguistics, quantum mechanics, and so on.

The 6th International ACT Conference will take place at the University of Maryland in College Park, Maryland, United States from 31 July to 4 August, preceded by the Adjoint School 2023. This conference follows previous events at Strathclyde (2022), Cambridge (2021), MIT (2020), Oxford (2019) and Leiden (2018). Registration for the conference is now **closed**.

See Conference Details

Kantorovich Initiative Guest Lecture: Robert McCann.

August 1, 2023: Hybrid Format

3:00 PM Pacific

A Nonsmooth Approach to Einstein's Theory of Gravity.

While Einstein's theory of gravity is formulated in a smooth setting, the celebrated singularity theorems of Hawking and Penrose describe many physical situations in which this smoothness must eventually break down. In positive-definite signature, there is a highly successful theory of metric and metric-measure geometry which includes Riemannian manifolds as a special case, but permits the extraction of nonsmooth limits under curvature and dimension bounds analogous to the energy conditions in relativity: here sectional curvature is reformulated through triangle comparison, while Ricci curvature is reformulated using entropic convexity along geodesics of probability measures. This lecture explores recent progress in the development of an analogous theory in Lorentzian signature, whose ultimate goal is to provide a nonsmooth theory of gravity. We highlight how the null energy condition of Penrose admits a nonsmooth formulation as a variable lower bound on timelike Ricci curvature.

Conference in Statistics and Data Science with Applications in Biology, Genetics, Public Health, and Finance.

August 23 - 24, 2023: Thompson Rivers University

This conference aims to share the most recent developments in statistics and data science with applications in biology, genetics, public health, and finance. Invited speakers consist of highly established, mid-range, and early-career researchers from academia in Canada. Students are encouraged to attend the talks by the invited speakers and participate in the poster session from 5:15 pm - 8:15 pm on August 23, 2023. **Registration for the conference is still ongoing**.

See Conference Details

View our calendars for more meetings and events

Scientific Events

EDUCATION HIGHLIGHTS

PROUDLY PRESENT

Mathemalchemy

APRIL 1 - OCTOBER 31 2023

BEATY MUSEUM, UBC VANCOUVER CAMPUS

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.
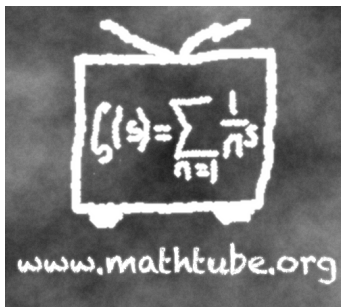
Photo Credit: Kevin Allen

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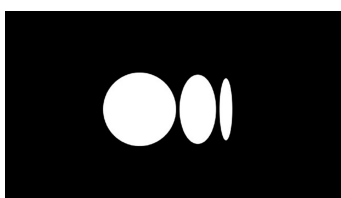
This exhibit was made possible through the support of the Beaty Museum and the UBC Faculty of Sciences.

MEDIA

Missed a Lecture? Go to Mathtube.Org

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 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

Donate to PIMS

Follow PIMS and be a part of our community