Pacific Institute *for the* Mathematical Sciences

PIMS MONTHLY CONNECTION | **October 2022**

UNIVERSITY OF CALGARY

Hello from PIMS

Fall is already here! As the academic year continues, we hope you will take some time to go through the list of PIMS events happening in person and online. The PIMS Connection is one way through which we continue to share updates and information about activities taking place across the PIMS network.

Last summer, Prof. Sean Greaves (University of Alberta) hosted a successful **Regional Math Summer Camp.** Take a look at the photo highlights below to see how much fun his students had! This semester, at UBC, Dr. Melania Alvarez will host the popular **Math Circles** program**.** This is an enrichment workshop for elementary students from grades 4 - 7. A reminder that the **Callysto Call for Proposals** for K-12 projects closes on October 14, 2022.

Weinan E. (Peking University) is the next speaker in our **PIMS Network-Wide Colloquium Series.** Please join us for his lecture on "*AI for science and its implication for mathematics*" on October 20.

In just over two months, we will be hosting the **PRIMA 2022 Congress in Vancouver, BC.** Registration prices increase on October 16; we encourage you to get your tickets before then. Additionally, take advantage of the special accommodation booking group rates offered by the Sheraton Wall Centre before **November 11, 2022**. International participants should note that Canada has eased most border restrictions for all travellers entering by land, air, or sea.

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

Upcoming Deadlines:

- **September 30** - Applications for First Year Interest Groups Close.
- **October 1**- PIMS Call for Proposals Close
- **October 14** - Callysto Proposals Close
- **October 15** - Regular registration closes for PRIMA 2022
- **October 15** - Student and Mentor application for VXML closes
- **October 31**: Application deadline for the Spring School on Non-archimedean Geometry and Eigenvarieties

Sincerely,
The PIMS Team

NEWS & ANNOUNCEMENTS

IMBM | istanbul matematiksel bilimler merkezi / istanbul center for mathematical sciences   Pacific Institute *for the* Mathematical Sciences

PIMS and Istanbul Center for Mathematical Sciences (IMBM) Launch Research Collaboration
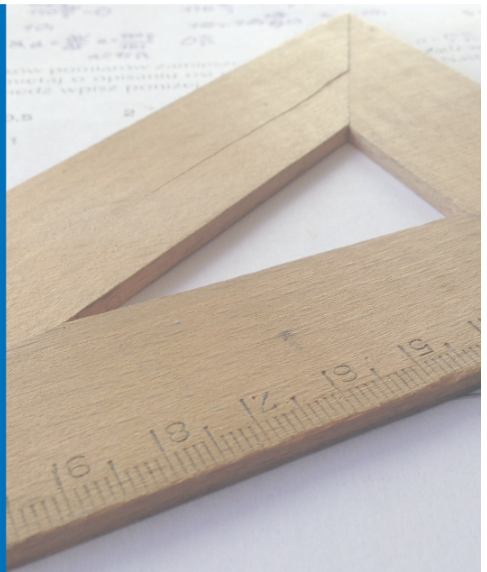
The Istanbul Center for Mathematical Sciences (IMBM), one of Turkey's premier institutes in the sciences, and PIMS, have embarked on a research partnership aimed at increasing the number of opportunities between mathematical scientists in Turkey and Canada. The five-year agreement allows both institutes to promote the exchange of researchers (Ph.D. students, postdoctoral fellows, as well as faculty members) and to actively host research personnel from each institute. Members from PIMS institutions are encouraged to connect with the Directorate should they have a research/exchange proposal.

Read the Announcement

Pacific Institute *for the* Mathematical Sciences

PIMS First Year Interest Groups

The PIMS **First Year Interest Groups (FYIG) Program** aims to bring together early career researchers to study active research topics in the mathematical sciences.

Graduate scholars interested in applying can do so by **September 30, 2022**.

PIMS First Year Interest Groups

The PIMS First Year Interest Groups (FYIG) Program aims to bring together early career researchers to study active research topics in the mathematical sciences. Each First Year Interest Group will be led by a PIMS PDF, and center on an accessible subject for beginning graduate students.

The PDF will lead a small reading group (up to 4 students) of early year (1st and 2nd year MSc or PhD) graduate students, on books/papers that inspired them, and, of course, are accessible to early graduate students. The groups will meet virtually for an hour once every two weeks through the end of the 2022-23 academic year.

If you are a graduate scholar and are interested in participating, please fill out the application by **September 30th, 2022**. Please see the link below for details of the interest groups for this year. We will announce FYIG groups by October 5th, 2022.

See FYIG Details

PIMS is accepting proposals for events in 2023 and beyond...

Submission Deadline is **OCTOBER 1, 2022**

Deadline Approaching: Proposals for Activities in 2023.

PIMS is currently accepting proposals for events in 2023 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 being accepted. Activities should occur after April 1, 2023. **Proposals will be accepted until 11:59pm (PST)**, **October 1, 2022**.

See Funding Details

PIMS Virtual Experimental Mathematics Lab (VXML)

Applications Open!

Get involved! **Undergraduate students** and **Graduate Student Mentors** at PIMS member or affiliate universities are now invited to apply for the **VXML program**. Please complete by **October 15, 2022**.

PIMS Virtual Experimental Mathematics Lab.

The PIMS Virtual Experimental Mathematics Lab (VXML) is a new initiative which brings together world-leading faculty members, postdocs, graduate students and undergraduate students to work on exciting research problems in mathematics. Project teams from throughout the PIMS network work together to tackle challenging research problems through experimental, computational and visual mathematics, showcasing mathematics as a creative discipline.

Research problems are proposed by a faculty member or postdoc at a PIMS member (or affiliate member) university, and a project team consisting of the mentor, a graduate student and 2-4 undergraduate students are formed to work on the problem (we encourage teams that integrate members from multiple PIMS sites). Teams commit 6-8 hours per week to work on the project and to meet to discuss their discoveries. Students will use a mixture of computational tools such as CoCalc (Sage Math Cloud), to work and collaborate.

The deadline for undergraduate applications and graduate student mentors is October 15, 2022.

See Application Details

DEADLINE | October 31, 2022

Spring School on Non-archimedean geometry and eigenvarities

Up to 12 spots (with partial funding) are open to early career researchers from PIMS member universities. We encourage applicants to apply before the deadline.

https://www.pims.math.ca/scientific-event/230306-ssnage

Applications for the 2023 PIMS-UHeidelberg Spring School are open.

This spring school is hosted at the University of Heidelberg and will give participants an introduction to both p-adic automorphic forms and eigenvarieties as well as the necessary background in p-adic analytic geometry. The courses will be complemented by research talks that will focus on recent developments. The first week of the spring school will focus on p-adic analytic geometry, the analogue of complex analytic geometry over p-adic base fields. We will study classical rigid analytic spaces from the point of view of adic spaces and introduce perfectoid spaces. The second week will focus on p-adic automorphic forms and eigenvarieties. We will introduce and compare several approaches to p-adic automorphic forms.

Up to 12 spots (with partial funding) are open for early career researchers (MSc, Ph.D., and Postdocs) from PIMS member universities. **Please apply before the deadline on October 31.**

See Application Details

Research Exchange Program.

PIMS is pleased to announce our participation in the Research Exchange Program, a program of the Research University Alliance which helps facilitate research visits and networking opportunities for graduate students and postdocs from underrepresented backgrounds. This partnership will facilitate the visits of up to 5 PIMS scholars/year, with **a particular focus on PIMS scholars (graduate students or postdocs) from Indigenous backgrounds, to member institutions of the RUA**, via the Research Exchange Program.

Visit our website for program details and more information on how to apply.

See Program Details

FEATURE EVENTS

PIMS Network-Wide Colloquium Series | 1:30pm Pacific

Pacific Institute for the Mathematical Sciences

The Network Wide Colloquium Series features online talks by distinguished speakers that are broadcast to the whole PIMS network and run during the academic term.

October 20

Weinan E
Peking

AI for Science; and the Implication for Mathematics

For more information and session details, visit
https://www.pims.math.ca/scientific/network-colloquium

www.pims.math.ca   @pimsmath   facebook.com/pimsmath   www.mathtube.org

PIMS Network-wide Colloquium Series

Weinan E, Peking University

October 20, 2022, 4:00pm Pacific. Online

AI for Science; and the Implication for Mathematics

Modern machine learning has had remarkable success in all kinds of AI applications and is also poised to change fundamentally the way we do research in traditional areas of science and engineering. In this talk, I will give an overview of some of the recent progress made in this exciting new direction and the theoretical and practical issues that I consider most important.

See Colloquium Details

PIMS Network Wide Courses: Enrollment Open

Registration for Winter 2023 network-wide graduate courses is still open. Students at Canadian PIMS member universities can register for these courses and receive graduate credit via the Western Deans Agreement.

- Gaussian and Empirical Process Theory for High Dimensional Statistics- *Alexander Giessing (University of Washington), Jiahua Chen (University of British Columbia)*
- Nanoscale Modelling and Simulations- *Alireza Nojeh (University of British Columbia)*
- Lie Groups: Structure and Representation Theory- *Lior Silberman (University of British Columbia)*
- Analytic Number Theory II- *Greg Martin (University of British Columbia)*
- Methods for Multivariate Data- *Kevin J. Keen (University of Northern British Columbia)*
- Stochastic Differential Equations- *Yaozhong Hu (University of Alberta)*
- Geometry and Mechanics- *Rouslan Krechetnikov (University of Alberta)*
- Algebraic Topology- *Martin Frankland (University of Regina)*
- The Mathematics of Evolution- *Ailene MacPherson (Simon Fraser University)*
- Classifying Spaces of Algebraic Groups - *Nikita Karpenko (University of Alberta)*

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

See Course Details

EDUCATION HIGHLIGHTS

Callysto Call for Proposals Open.

If you teach Grades 5-12 students in Canada, Callysto wants to help fund your classroom activities related to **computational thinking, data literacy, and coding**. Callysto is a free, online program that helps Grades 5-12 students and teachers in Canada learn and apply in-demand

data science skills — including data literacy, analysis, visualization, coding, and computational thinking — across any subject matter. This is Callysto's fifth Call for Proposals — the theme for this Call for Proposals is **Developing Responsible Digital Citizens**. Read about our past recipients for proposal ideas and inspiration.

Applications will be accepted as part of a rolling intake until 4:00 pm Mountain Time on October 14, 2022.

See Application Details

Math Circles Workshops for Elementary School Students 2022.

September - November 2022. University of British Columbia

Students in grades 4 to 7 are invited to challenge and develop their thinking and creativity skills at the Math Circle Workshops. This is an enrichment program for students organized by Pacific Institute for the Mathematical Sciences and the UBC Math Department.

The goal of these workshops is to convey to students the importance of mathematics in the real world as well as how much fun mathematics can be. We want to get the students excited about mathematics and to give them a setting that encourages them to become passionate about this subject. The Math Circles Workshops will run from **September 26, 2022 through April 2023**. Read more about the workshops here.
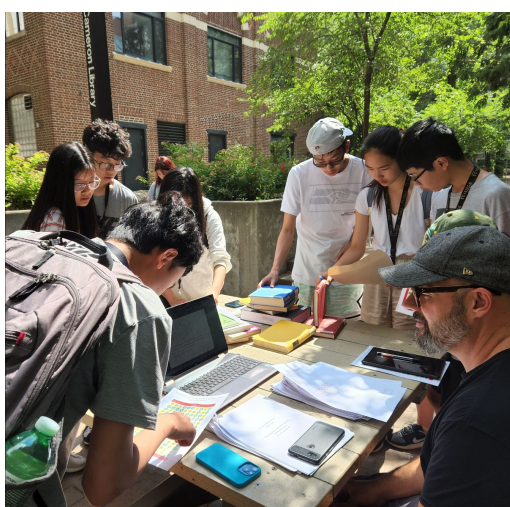
PHOTO HIGHLIGHTS: CMS-PIMS Regional Math Camp.

The 2022 CMS Regional Math Camp (Alberta) took placed at the University of Alberta between July 31 and August 7. The summer camp brought together mathematically inclined school students in Alberta with the goal of providing opportunities for networking and training in mathematics and mathematical problem solving.

With the organizational support of Sean Graves, *University of Alberta*, around 30 co-ed students in grades 7 to 10 participated at this year's activities which were designed to foster individual and collaborative problem solving. The format gave all participants time to think, interact, discuss common interests, and promote collaboration.

View our Scientific calendars for more meetings and events

Scientific Events

PRIMA Notices

Pacific Rim Mathematical Association

Congress 2022

PRIMA

December 4–9, 2022
Vancouver, BC

DISCOUNTED RATES ARE AVAILABLE UNTIL JULY 31

Pacific Rim Mathematical Association (PRIMA) Congress 2022.

Dec 4–9, 2022: In-Person, Vancouver, BC

Prices Increase on October 16, 2022!

The 2022 Pacific Rim Mathematical Association Congress will take place in Vancouver, Canada, between **December 4-9, 2022**. The fourth meeting will be hosted by the Pacific Institute for the Mathematical Sciences (PIMS). Register now before the price increase on October 16.
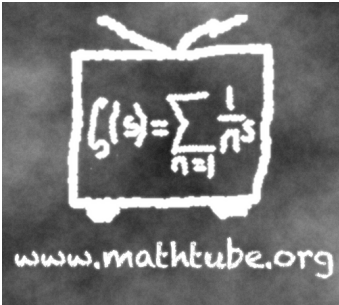
- **Regular Registration**: Aug 1 - Oct 15
- **Late Registration**: Oct 16 - Dec 9

Conference Accommodations: The Sheraton Wall Center (the PRIMA conference venue) is offering a special group rate of $179 (CAD) per night for stays between **December 1st and 15th, 2022.** This offer is available until **November 11**. Book your group rate room for PRIMA2022.

Visit the PRIMA Congress 2022 website to read more about the program, how to register for tickets, and featured plenary and public speakers.

Get your tickets!

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 a Network Wide Colloquium or a PIMS Emerging Research Seminar, visit www.mathtube.org to see these and other archives.

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

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 Səl̓ílwətaʔ/Selilwitulh (Tsleil-Waututh) Nations.
www.native-land.ca