Pacific Institute for the Mathematical Sciences

PIMS MONTHLY CONNECTION | **April 2020**

Hello from PIMS

In response to COVID-19, PIMS Central has virtualized its office and looks forward to continuing to support the PIMS network. We are happy to report PIMS researchers are collaborating with partners to inform policies surrounding COVID-19 and other infectious diseases.

We are pleased to share that the Collaborative Research Groups for 2020 have been announced. Read on to find out more about the recipients. Additionally, the 2019 Annual Report is now available on the PIMS website.

We will continue to engage with our members and support them where possible.

Sincerely,
The PIMS Team

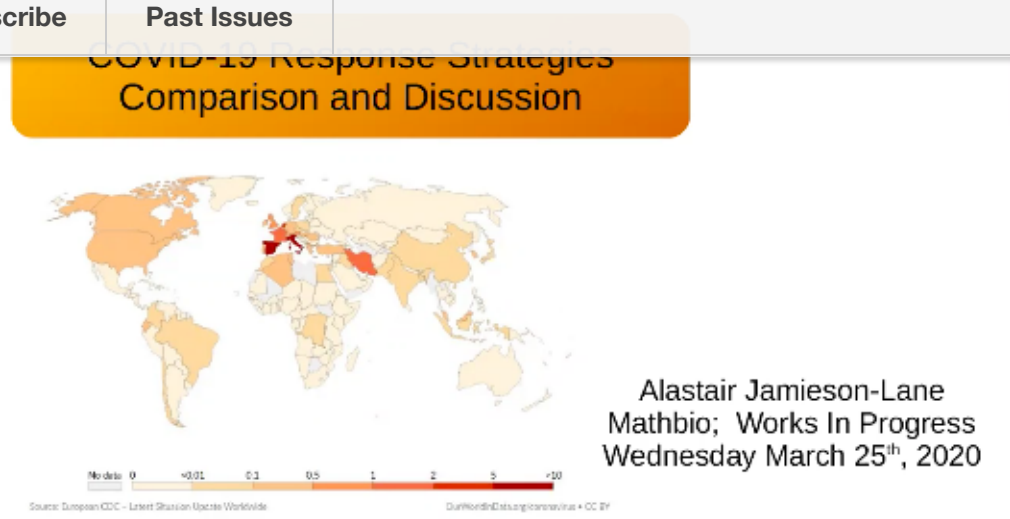
TAKING MATHEMATICS ONLINE

With platforms like Zoom and BlueJeans, hosting virtual events has never been easier. As PIMS prepares for the virtualization of upcoming events, we have created a list of tips to help make your next online session a tech success!

Tips for Hosting a Successful Virtual Event

1. Test the technology before. Make sure all the required software is downloaded, updated, and ready to roll.
2. Encourage the use of video. Where possible, participants and all attendees should be visible via video. This supports effective two way communication amongst online attendees.
3. Assign a moderator to call on participants, and ensure the session flows well and on schedule.
4. Record your next session to share online after the event.
5. Read this article for more tips and to learn how online engagement fosters diversity.

Be sure to send upcoming online PIMS seminar details to our program manager to be featured on the PIMS website. In the meantime, check out the media below to see how mathematics is moving online.



In Progress COVID-19 modelling

A variety of strategies and approaches have been proposed, and implemented by governments, for COVID mitigation. In this presentation, I introduce some of these, briefly discuss some of the resulting difficulties - in particular in the context of the northern Netherlands, where I have been working most recently. We then take a preliminary look at the possibility of `targeted quarantine' . Many questions, both mathematical, clinical, logistical and ethical remain to be answered, and as such, this presentation will be closer to a discussion session than the usual Mathbio Works in progress seminars. All feedback appreciated and welcome

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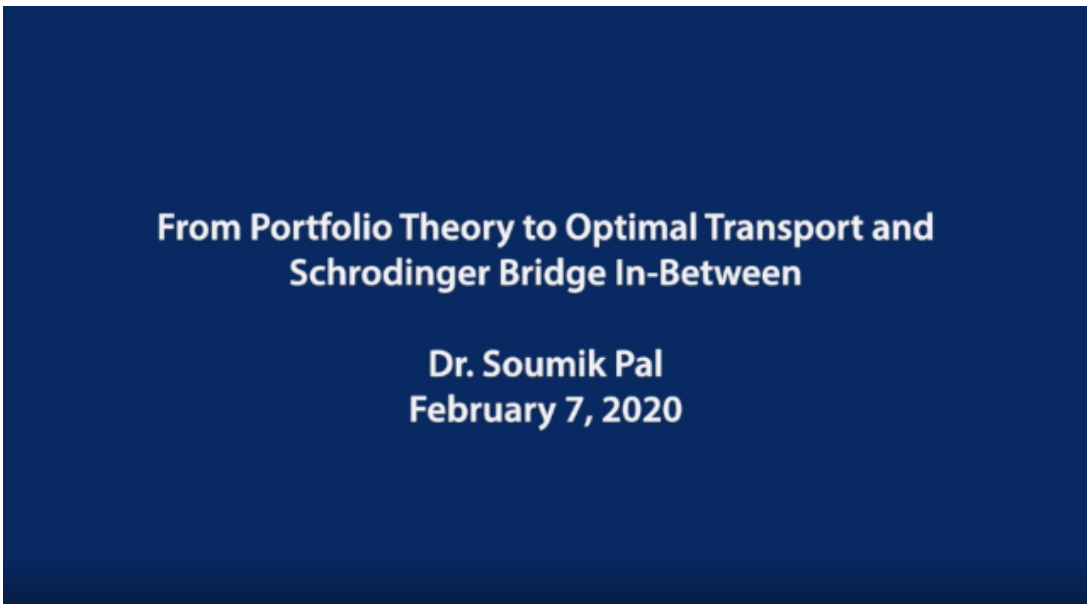

As part of the PIMS-UVIC Distinguished Lecture Series, Dr. Pal (UW) engages with the audience as he explores theory and practical applications of transport problems and probability theories use.

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

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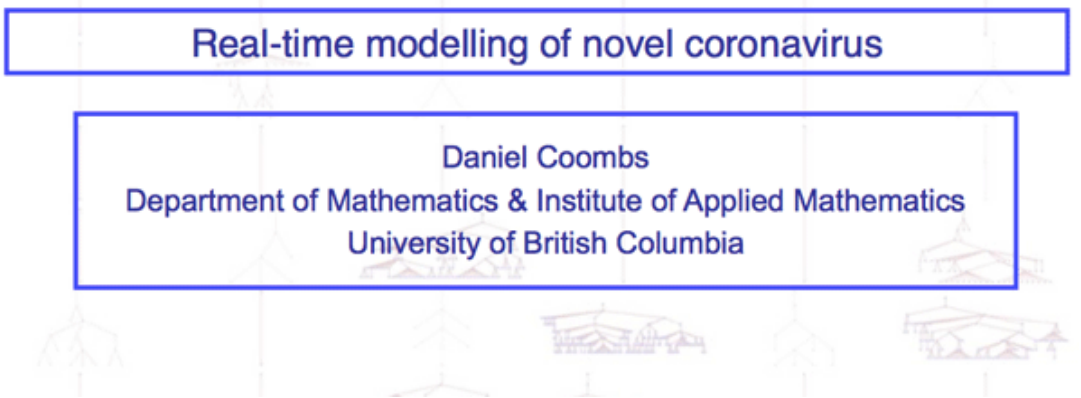
Click below for all events | April 2020

Scientific

Educational

Industrial

NEWS & ANNOUNCEMENTS



COVID-19 Collaborations

The federal government has announced a significant funding commitment to help partners and research teams spanning across universities to help combat COVID-19. This collaborative team includes the Fields Institute, AARMS, CRM, PIMS, PHAC, VIDO-Intervac, and NRC. The focus will be on the acceleration of manufacturing for a COVID-19 vaccine, as well as other infectious diseases. Researchers will also assess transmission risk, predict outbreak trajectories, and evaluate the effectiveness of COVID-19 interventions. Read more.

In British Columbia, Caroline Colijn (SFU) and Dan Coombs (UBC) are leading a 40+ person COVID-19 working group. Collaborating through Slack, Zoom, Github and JupyterHub, they are using mathematical modelling to analyze the various regional approaches, and the impact these interventions have on the infection dynamic.

Thomas Hillen has started a COVID-19 Physiology Research Group focused on what the virus does inside the body, how it interacts with immune response, and why older people die more often. The goal is to come up with a good mathematical model for this process. The next meeting is April 2 at 3PM MST. To join, please contact Thomas.

2020 Collaborative Research Groups Announced

The Pacific Institute for the Mathematical Sciences (PIMS) is pleased to award two 2020 Collaborative Research Group Awards to Novel Techniques in Low Dimension: Floer Homology, representation theory and algebraic topology and quanTA: Centre for Quantum Topology and Its Applications.

Through a series of intensive workshops and a graduate summer school bootcamp, Novel Techniques in Low Dimension will provide key background information in Floer Homology, representation theory and algebraic topology for early career researchers.

quanTA is a new research centre in the Canadian Prairies at the University of Saskatchewan. Building upon the momentum of the Stewart Blusson Quantum Materials Institute at UBC and the formation of Quantum Alberta, quanTA's focus is in the mathematical side of topology. Through PIMS support, quanTA has recruited two post doctorate fellows. They are looking forward to training the next generation of scientists! Read more.

PIMS COMMUNITY RECENT PUBLICATIONS

1. D. Benson, S. B. Iyengar, H. Krause, J. Pevtsova (2019). Detecting nilpotence and projectivity over finite unipotent supergroup schemes. arXiv preprint arXiv:1901.08273.

2. Bryan, J., Leutheusser, S., Reichstein, Z., & Van Raamsdonk, M. (2019). Locally maximally entangled states of multipart quantum systems. Quantum, 3, 115.

3. Dang, N. B., Ghioca, D., Hu, F., Lesieutre, J., & Satriano, M. (2019). Higher arithmetic degrees of dominant rational self-maps. arXiv preprint arXiv:1906.11188.

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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