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# PIMS Connection

### MONTHLY NEWSLETTER | April 2018



# Hello From PIMS!

March was a busy month that included the launch of the <u>Project Callysto website</u>, the PIMS annual general board meeting at UWashington, Distinguished Lectures at <u>UBC</u> and <u>UManitoba</u>, <u>Computer</u> <u>Science</u> and <u>Statistical Seminars at SFU</u>, <u>Math Camp 2018</u> and the <u>Canadian Math Kangaroo Contest</u> at URegina. April kicks off with <u>PIMS-ULethbridge Distinguished Visitor</u>, <u>Jean-Marc Deshouillers's</u> fourlecture series: An Introduction to Automatic Sequences. Also, UBC hosts <u>Frances Kirwan for a</u> <u>Distinguished Colloquium</u> on April 6.

**ELMACON is turning 20!** Our annual mathematics contest for elementary students takes place on April 28th and we're looking for volunteers (details <u>here</u>).

See all that we have in store below.

Sincerely, The PIMS Team

# FEATURE EVENTS



PIMS | UBC Mathematics Distinguished Colloquium: Frances Kirwan April 6 at UBC Subscribe

sification problems in geometry. The study of the moduli

goes back to Riemann himself in the nineteenth century.



PIMS Lunchbox Lecture: Artem Korobenko April 5 at Odd Fellows Building, Calgary Computational Fluid-Structure Interaction Framework: From Theory to Applications



PIMS | ULethbridge Distinguished Visitor: Jean-Marc Deshouillers April 4-11 at ULethbridge Four-lecture introductory series on Automatic Sequences

# ALL PIMS EVENTS | April 2018



## **NEWS & ANNOUNCEMENTS**





## PIMS is Calling All Volunteers for the 20th Annual ELMACON

**ELMACON** is looking for volunteers for our 20th anniversary competition taking place on **Saturday, April 28, 2018**.



## **Callysto Website Launches**

How do we thread the fundamentals of **computational thinking** and a **digital toolkit** throughout our **K-12 education system**? We are answering this question with **Callysto**: <u>callysto.ca</u>



## Ben Williams Wins 2018 PIMS | UBC Mathematics Faculty Award

As the recipient of this award, Dr. Williams will receive **\$1000** and will be **invited to give a lecture in the fall of 2018**.

## **MEDIA**

### Multi-group Cholera Model

The population is divided into *n* groups, each group partitioned into  $S_i$ ,  $I_i$ ,  $R_i$ , and  $W_i$  is the pathogen concentration from shedding by individuals in  $I_i$ . The model includes direct and indirect transmission both within and between groups

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$$\begin{aligned} \mathcal{G}_{i} &= \mathcal{H}_{i} - \sum_{j=1}^{n} \mathcal{G}_{ij} \phi_{i}(\mathcal{G}_{i}) \phi_{j}(\eta_{j}) - \sum_{j=1}^{n} \mathcal{H}_{ij} \phi_{i}(\mathcal{G}_{i}) \phi_{j}(\mathcal{H}_{j}) - \mathcal{G}_{i} \mathcal{G}_{i} \\ \mathcal{I}_{i}^{\prime} &= \sum_{j=1}^{n} \mathcal{G}_{ij} \phi_{i}(\mathcal{S}_{i}) \phi_{j}(\eta_{j}) + \sum_{j=1}^{n} \mathcal{H}_{ij} \phi_{i}(\mathcal{S}_{i}) \psi_{j}(\mathcal{H}_{j}) - \mu_{i} I_{i} \\ \mathcal{H}_{i}^{\prime} &= h_{i}(I_{i}) - \delta_{i} \mathcal{H}_{i} \quad i = 1, \dots, n \\ \text{with } \mathcal{H}_{i} > 0, \ d_{i} > 0, \ \mu_{i} = d_{i} + \gamma_{i} + \alpha_{i} > 0 \text{ and } \delta_{i} > 0 \\ \text{Nonnegative } \phi_{i}, \phi_{i}, \psi_{i} \text{ and } h_{i} \text{ are differentiable, solutions} \\ \text{with nonnegative initial conditions exist and are unique} \\ \text{Additional reasonable assumptions on } \phi_{i}, \phi_{i}, \psi_{i}, h_{i} \text{ include} \\ \text{mass action incidence and linear shedding} \end{aligned}$$

Dr. Pauline van den Driessche | Models for the Spread of Cholera

Thu, Jan 18, 2018 - PIMS, University of Manitoba PIMS-UManitoba Distinguished Lecture

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

- 1. Bauch J., "Lattices over polynomial rings and applications to function fields," Mathematics of Computation, submitted 2017.
- 2. Xu B., "L-packets of quasisplit GSp(2n) and GO(2n)," Mathematische Annalen, 2017 (online).
- Tanabe N., Hamieh A., "<u>Determining Hilbert modular forms by central values of</u> <u>Rankin-Selberg convolutions: The weight aspect</u>" The Ramanujan Journal, published 2017
- 4. Dale Rolfsen, "<u>Ordered groups as a tensor category</u>" to appear, Pacific Journal of Mathematics, 2018

## **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.

## **FOLLOW US!**



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