POM SIGMAA

Philosophy of Mathematics Special Interest Group of the MAA

Officers

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In this issue

From the Chair

Jeff Buechner, chair, POMSIGMAA

It is a pleasure to be the current chair (through January 2023) of POMSIGMAA. I first attended (and contributed a paper to) a POMSIGMAA meeting in January 2007 at the JMM meetings in New Orleans. Since then I've attended (and contributed papers to) many POMSIGMAA MathFest and JMM meetings and have made several friends with common interests in the philosophy of mathematics, including Bonnie Gold, who co-founded POMSIGMAA and continues to play an active and vitally important role in it.

I started out as an applied mathematician working in private industry, and migrated to philosophy, earning a PhD from Rutgers University (in 2003—if you would like a PDF of my dissertation, published by The MIT Press in 2007, please e-mail me). Most POMSIGMAA members started out as mathematicians and acquired the philosophy bug, but remained mathematicians. Working within philosophy, one can see that some of the issues in philosophy of math that intrigue the working mathematician also arise in other areas of philosophy—such as metaphysics, ethics, philosophy of mind, and philosophy of language. Unfortunately, it takes a good deal of immersion in these other fields to see how those issues in the philosophy of math arise there and how to think about them. And the working mathematician does not always have the time or inclination for such immersion. I hope to remedy that problem by posting (starting in the near future) expository pieces on the connection between issues in philosophy of math and other areas of philosophy, with literature citations, so that working mathematicians can get a feel for the issues in those fields and have a guide therein via the literature citations.

The other POMSIGMAA officers are Sally Cockburn, The William R. Kenan, Jr. Professor of Mathematics at Hamilton College, Kevin Iga, Professor of Mathematics at Seaver College, Pepperdine University, and Tom Morley, Professor of Mathematics Emeritus at the Georgia Institute of Technology. All have an interest in foundational/philosophical matters in mathematics. Visit their websites for interesting materials.

Invited Speaker at Mathfest: Elaine Landry

POM SIGMAA will be at the virtual Mathfest, August 4-7. Register at https://www.maa.org/meetings/mathfest.
We have invited Prof. Elaine Landry of UC Davis, and she will speak on "**As-if Mathematics were True**" on
Thursday, August 5, 3:10-4:00 p.m.
Abstract: When we shift our focus from solving philosophical problems to solving mathematical ones, we see that an as-if methodological interpretation of mathematical structuralism can be used to provide an account of both the practice and the applicability of mathematics whilst avoiding the conflation of mathematical and metaphysical considerations. Time for discussion with the audience will be included. This talk should be accessible to mathematicians at all levels with some interest in the philosophy of mathematics.

Joint Mathematics Meeting
January 5-8, 2022, Seattle, WA
Invited Speaker: Nicolas Fillion

POM SIGMAA will be at the next Joint Math Meetings in Seattle, January 5-8. We have invited Nicolas Fillion, from the philosophy department of Simon Fraser University, who will be speaking on "**Trust but verify: What can we know about the reliability of a computer-generated result?**"
Abstract: Since the Second World War, science has become increasingly reliant on the use of computers to perform mathematical work. Today, computers have justifiably become a trusted ally of scientists and mathematicians. At the same time, there is a panoply of cases in which computers generate demonstrably incorrect results; and there is currently no reason to expect that this situation will change. This prompts the careful user to verify computer-generated results, but it is clear that we are often not in a position to review the work of computers as we would traditionally review a putative derivation or calculation. In this sense, computational processes are epistemically opaque.
Since Humphreys introduced the phrase `epistemic opacity' in the philosophical literature in 2004, the concept of opacity has been developed along different lines; furthermore, many incompatible claims have been advanced---be they about what opacity is or about whether we should worry about it---leaving this field of the philosophy of computing in a state of confusion. In this paper, we propose a framework that disentangles three core questions (1. What kinds of epistemic opacity are there in scientific computing? 2. Should we worry about epistemic opacity? 3. Should we seek greater transparency whenever possible?) and systematically survey how their answers inter-relate.

Call for Papers: Competing foundations for mathematics: how do we choose?

Also at the Joint Math Meetings, we will have a special session on **Competing foundations for mathematics: How do we choose?** Wednesday, January 5 to Thursday, January 6. The website is not yet accepting abstract submissions, but check back later in the summer. The deadline for abstract submissions is September 21, 2021.
Topic: Does the existence of many possible foundations of mathematics (some of which are mutually incompatible) pose a problem for mathematical realism/platonism? Is set theory or category theory the right foundation? For each, there are different versions. For example, for set theory, there's Zermelo-Fraenkel (with or without the axiom of choice, with or without large cardinals, etc.), Cantor-von Neumann, Quine's NF, and others. And then there's category theory, and topos theory. Each is importantly different from the others. But if realism about mathematics is correct, shouldn't there be just one correct foundational system? If so, which is correct? On the other hand, for physicists, a proliferation of theories does not call into question the reality of the external world. Why can mathematicians make important and meaningful contributions to their fields and yet simultaneously avoid, and indeed, often be ignorant of, mathematical foundations? How would we argue that a particular foundation is the correct choice? Or is realism wrong, and there is no one correct foundation? Should fruitfulness be the deciding mechanism? But can this lead to incorrect mathematics? In short, do specific formulations in mathematical foundations matter? Organizers: Bonnie Gold, Jeff Buechner, Kevin Iga.

Online Workshop on Disagreement in Mathematics

Online workshop on June 19-20, 2021, hosted by Vrije Universiteit Amsterdam on **Disagreement in Mathematics**.
In preparation for a special issue of AXIOMATHES, This workshop explores disagreements in mathematical practices. During the workshop, mathematicians will give first-hand reports on their experiences and philosophers and historians will engage with questions of consensus, disagreement, and ethics in mathematics.

For more information, see the website at: https://disinmath.wordpress.com/

Online APMP meeeting

The Association for the Philosophy of Mathematical Practice (APMP) will hold an online conference June 30-July 3, 2021.
http://www.philmathpractice.org/2021/01/27/call-for-papers/
Keynote speakers:
Laura Crosilla (University of Oslo, Norway)
Andrew Granville (Universite de Montréal, Canada))
Orna Harari (Tel Aviv University, Israel)
Dirk Schlimm (McGill University, Canada)

Online Conference on Mathematical Cultures and Practices

The Online Conference on Mathematical Cultures and Practices, is a satellite meeting of the CSHPM/SCHPM and BSHM meeting (see below). It runs on July 10-12 2021.
Since 2010, there have been several meetings of scholars interested in cultural aspects of mathematical research practice, some explicitly arranged into smaller series of events, others organised as stand-alone events. All of the meetings attracted a community of scholars from mathematics, philosophy, mathematics education, sociology, anthropology, automated reasoning, and history of mathematics. Participants of these gatherings were interested in developing a view of mathematics on the basis of empirical observations of the practices of mathematicians, taking into account the fact that cultures and practices of mathematics vary over time, space, and research community. The events were linked by theme, but also by a large overlap in the organising teams.

Online CSHPM/SCHPM and BSHM joint meeting

The British Society for the History of Mathematics, The Canadian Society for the History and Philosophy of Mathematics/ La Société Canadienne d'Histoire et de Philosophie de Mathématiques, and History of Mathematics SIGMAA of MAA will have an online Joint BSHM-CSHPM/SCHPM Conference "People, Places, Practices" on July 12-14, 2021, coordinated through the University of St. Andrews, Scotland.
People, Places, Practices, will showcase a broad range of approaches to the history of mathematics:
- **People** allows discussion of the cultural roles of mathematical biography, the historiographic and technical challenges of writing mathematical biography, as well as more straightforward biographical approaches
- **Places** provides for the influence of location, geographical, spatial, conceptual or cultural, on mathematics and mathematicians
- **Practices** encompasses the ways in which mathematicians and mathematical practitioners work or have worked, along with the materials, devices, and ideas used