POM SIGMAA

Philosophy of Mathematics Special Interest Group of the MAA

Officers

Chair (through 1/19, after which he becomes Past Chair for one year)
Carl Behrens, Alexandria, VA,
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Chair-Elect (through 1/19, after which she becomes Chair for two years)
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(through 1/20)
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Secretary-Treasurer
(through 1/22)
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Public Information Officer (through 1/21)
Kevin Iga, Pepperdine University,
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No elections are scheduled for 2019.

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Charter Revision

Bonnie Gold, chair-elect, POMSIGMAA

In April, POMSIGMAA members approved the proposed charter changes that have been available on our website (with approximately 13% of our membership voting: 43 voted in favor with one abstention). The proposed revised charter then went, in turn, to the Committee on SIGMAAs, the Council on Members and Communities, and finally the MAA's Board of Directors for approval. It has been approved, though the Board of Directors asked that we change the wording of Article V, section 2, which says "General membership meetings of this SIGMAA shall take place at winter meetings of the MAA; if attendance at summer meetings warrants it, membership meetings may also take place at these." The issue (though they voted on this before it was public knowledge, and so phrased it more subtly) is that there will no longer *be* a "winter meeting of the MAA" after 2021 (see elsewhere in this issue). So we're still discussing how to revise this. Once that issue is resolved, our new charter will be in effect.

MAA leaving the JMM in 2022

How this will affect POMSIGMAA?
Bonnie Gold, chair-elect, POMSIGMAA

In September, many of us who have been involved in the MAA for many years were astonished and shocked to learn that the MAA has decided to pull out of the winter Joint Mathematics Meetings (JMM). Recently the POMSIGMAA officers decided that, because so few POMSIGMAA members have been coming to MathFest (and our guest lecturer talks there have been poorly attended), that we would only have invited talks at JMM. More of our members seem to attend JMM (perhaps partly because the employment activities happen there, and because those still active in research need to go there and can only afford one national meeting a year), and we get a better audience – many of whom are perhaps not MAA members – at both our contributed paper sessions and guest lectures.

It's not clear whether or not we will be able to have POMSIGMAA sessions at the winter meetings after 2021. So we need to talk about how to maintain activities for those interested in the philosophy of mathematics in the future. The officers of POMSIGMAA would certainly appreciate suggestions from members of how to handle the new meeting structure.

A Philosophy of Math guide to the Joint Math Meetings Baltimore, MD, January 16-19, 2019

POM SIGMAA will again be at the **Joint Math Meetings** in **Baltimore**, January 16-19, 2019. As is our tradition, we have an invited speaker after our business meeting, and a contributed paper session.

Invited Speaker: Michele Friend, George Washington University The Rigour of Proof

Thur. Jan. 17, 6:15 p.m., Room 304, Baltimore Convention Center

Abstract: What is a rigorous proof? When is a proof sufficiently rigorous? What is the importance of rigour in a mathematical proof?

To answer the first question, we begin with a comparison between a formal proof and a rigorous proof. A rigorous proof need not be formal, but it needs to be possible, in principle, to make it formal. We might even have an informal proof to this effect, or suspect we could give one if called upon to do so.

To answer the second, we start with the very obvious looking distinction between sufficiently rigorous for acceptance by other mathematicians, sufficiently rigorous to establish a result and sufficiently rigorous to elicit further questions. Of course the latter does not come only from the rigour of the proof, but also its originality and importance. Nevertheless, rigour does play a role because it ensures a degree of transparency.

The importance of rigour in a proof has several answers. A realist about the ontology of mathematics might well accept a non-rigorous proof since it establishes a truth guaranteed by the ontology of mathematics, in this case rigour is of psychological or epistemological importance at best. It can be used to assuage doubt, or it can help a mathematician to know the truth of the conclusion by another means than by simply intuitively grasping the truth or it can help with understanding why the conclusion is true.

Some constructivist philosophers would assert that the term `rigorous proof' is redundant, since for them, a proof lacking in rigour is not a proof, it is at best a purported proof.

There is a less categorical stance than either of the above that we can take. We take a more nuanced view when we consider mathematical practice, purpose, meaning and theoretical context.

We will have our **reception** at 5:30 pm, then a **business meeting** at 6:00 pm, followed by the **guest lecture** at 6:15 pm.

JMM Contributed Paper Session on Phil. of Math: *Theme: Mathematical notation*

Thursday, January 17, 2019, Room 302, Baltimore Convention Center
Organizers: Bonnie Gold and Jeff Buechner

3:10 p.m. 1145-L5-1642   Donald Palmer, "Boundary Conditions: Numeric Representation and the Boundary of Pure and Applied Mathematics"

3:40 p.m. 1145-L5-1961   Jeffrey Buechner, "What makes a notation for the natural numbers a good notation?"

Friday, January 18, 2019, Room 302, Baltimore Convention Center

8:00 a.m.   1145-L5-228   Thomas Morley, "Feynmann's Funny Pictures"

8:30 a.m.   1145-L5-1466   Daniel Sloughter, "What is a Measure?"

9:00 a.m.   1145-L5-1790   James Henderson, "Multiplicity of Logical Symbols: Why Is That a thing?"

9:30 a.m.   1145-L5-1687   Kevin Iga, "What does mathematical terminology say about linguistic determinism?"

10:00 a.m. 1145-L5-740   Sergei Koshkin, "Mathematical Induction and the Secret of Platonism"

10:30 a.m. 1145-L5-1343   Ilhan Izmirli, "Wittgentstein and Social Constructivism"

Calendar

Jan. 16-19, 2019: Joint Math Meetings 2019, Baltimore, MD

May 17-18, 2019: uAnalytiCon 2019: Identity, Individual Concepts and Semantic Conformity, Ural Federal University in Ekaterinburg, Russia.

June 2-4, 2019: 2019 CSHPM/SCHPM Annual Meeting, University of British Columbia.

June 15-21, 2019: NUMTA2019 Philosophy of Mathematics Stream: Applicability, Practice, Numerical Computations, at TH Le Castella Village, Crotone, Italy

August 5-10, 2019: Association for the Philosophy of Mathematical Practice (APMP) *contributed symposium* at the 16th Congress of Logic, Methodology and Philosophy of Science and Technology, "Bridging across academic cultures", Prague, Czech Republic

Sep. 14-15, 2019: AMS Fall 2019 Central Sectional Meeting with a special session on *Recent Work in the Philosophy of Mathematics,* University of Wisconsin-Madison. Deadline for abstracts: July 16, 2019.

CSHPM meeting

The 2019 Annual Meeting of the **Canadian Society for the History and Philosophy of Mathematics** will be held in conjunction with the Learneds (CFHSS) at University of British Columbia on June 2-4, 2019. The special session for the meeting will be the History of Mathematical Astronomy. The Kenneth O. May Lecture will be given by Alexander Jones on "Sexagesimal Mathematics in Babylonian and Greek Mathematics and Astronomy."

Midwest AMS Sectional meeting w/ Philosophy of Mathematics session

The AMS Fall 2019 Central Sectional Meeting will include a special session on *Recent Work in the Philosophy of Mathematics*. The meeting will be on the 14th and 15th of September at UW-Madison (Saturday and Sunday) and the session is being organized by Tom Drucker (UW-Whitewater) and Dan Sloughter (Furman University), both former Chairs of POMSIGMAA. If you might be interested in speaking, please get in touch with one of the organizers.   There has been a good deal of interest from possible speakers, but we are hoping to find room for those interested in taking part.   More details will be presented as they are available.

Proposed Contributed Paper Session for JMM 2020

 Role of explanation in mathematical proofs, to be organized by Jeff Buechner and Bonnie Gold

Mathematical proofs are a form of argument. We can say of arguments in general—and mathematical proofs specifically—that, when sound, they show us that the claim made is true. But often some arguments—and this includes some mathematical proofs—do more. They also explain to us why it is true. The explanatory role of mathematical proofs is important to mathematicians. (Joseph Auslander "Our second role of proof is explanation. This is what concerns most mathematicians." Proof and Other Dilemmas, p. 66, Gold and Simons, eds. Auslander is a mathematician.) Proposed talks might discuss (but are not limited to) the following topics. What is it to explain why a mathematical theorem is true? Which mathematical proofs explain why the theorem proved is true? Some doubt that proofs by mathematical induction can. Is mathematical explanation different from, say, scientific explanation (which does not involve the use of mathematics)? Is it different from historical explanation? Or is there a unified sense of 'explanation' which is common to its use in all subjects, including mathematics? Are there instances of mathematical theorems which have multiple proofs, some of which are elegant and simple, but not explanatory, while the others are neither elegant nor simple, but explanatory? If so, does being explanatory count as a good reason to prefer one kind of proof over the other? If a mathematician finds a shorter proof of some theorem, will the shorter proof be more explanatory than the longer proof? All paper proposals which discuss the role of explanation in mathematical proofs will be considered.