BRITISH SOCIETY FOR THE HISTORY OF MATHEMATICS

Research in Progress

Saturday 7 March 2026 in the Shulman Auditorium, The Queen's College, Oxford

Programme

10:30	Arrival	
10:50	BSHM	Welcome
11:00	RUI YUAN SPHERE/Université Paris Cité	*From Philology to Mathematics: What are the Relationships between the Marks and Annotations borne by the Earliest Extant Manuscript of the Chinese Mathematical Treatise Sea Mirror of the Circle Measurements and the late 18th century editions of the work?*
11:30	EMMA BAXTER University of Oxford	*Anxiety and Crisis in Late Imperial Russian and Early Soviet Mathematics 1900–35*
12:00	PETRA STANKOVIĆ University of Oxford	*Between Science and Politics: The 1970 Nice International Congress of Mathematicians (ICM)*
12:30	ELINOR FLAVELL The Open University	*A Whistle-Stop Tour of the First 159 Days of my PhD*
12:45	STEPHEN DORMAN The Open University	Undergraduate Essay Prizewinner: *The Statistician's Stomach*
13:00	Lunch (provided)	
14:00	MEGAN BRIERS MPIWG/TU Berlin	*Gender, Observers' Bodies and Nineteenth-Century Measurements of the Distance to the Sun*
14:30	THOMAS GLASMAN University of Oxford	*Private Correspondence and Public Writing on the Paradoxes of Set Theory*
15:00	TIES VAN GEMERT Tilburg University	*Gerrit Mannoury (1867–1956) on the Politics of Mathematical Logic*
15:30	SHAIVI DARSI Queen Mary University of London	Undergraduate Essay Prize Runner Up: *From Dice to Derivatives: How 17th-Century Gambling Shaped Modern Financial Mathematics*
15:45	Refreshment break	
16:15	TINNE HOFF KJELDSEN University of Copenhagen	John Fauvel Lecture: *A Problem-Oriented Multiple Perspective Approach to History of Mathematics Illustrated by Examples from 20th Century: how can it fill "lacunas"?*
17:15	Close of meeting	

Version of 25 February 2026

Abstracts

Emma Baxter (University of Oxford)

Anxiety and Crisis in Late Imperial Russian and Early Soviet Mathematics 1900–35

David Hilbert's *Grundlagen der Geometrie* (1899) was first fully translated into the Russian language by the mathematician A. V. Vasil'ev, who prefaces the book with the remark that '19th century mathematicians were forced, first and foremost, to critically reexamine the entire body of mathematical knowledge left by their predecessors'. Vasil'ev's diagnosis is not unique, with many contemporaneous mathematicians and modern-day historians agreeing that during the late nineteenth and early twentieth centuries, the field of mathematics experienced fundamental shifts. The foundational issues which concerned mathematicians led to what Jeremy Gray labels as an 'anxiety' peaking from 1900–14, which he situates in relation to the 'modernist transformation' of mathematics (Gray 2004 & 2008).

This paper broadens the discussion of early twentieth century mathematical transformations to the Russophone context through the framework of crisis and anxiety. To do so, this paper examines the translation, dissemination, and reception of seminal texts such as Hilbert's *Grundlagen der Geometrie* (1899), discussing the import of European mathematical ideas to Russophone mathematical communities. This paper also surveys a wider range of sources (mathematical journals, periodicals, and textbooks), evaluating the extent to which Russophone mathematical communities were experiencing this anxiety and crisis. Throughout, this paper relates changes in mathematical practice to the unique social and cultural ruptures that war, revolution, rapid industrialisation, and sweeping institutional changes brought to the mathematical communities of late Imperial Russia and the early Soviet Union.

Megan Briers (MPIWG/TU Berlin)

Gender, Observers' Bodies and Nineteenth-Century Measurements of the Distance to the Sun

Measuring the solar parallax was seen as the "noblest problem" of nineteenth century astronomy, a more precise value for this angle would increase the accuracy of the measured distance between the Sun and Earth. What was required for this pursuit of precision? In 1874, British astronomers placed their faith largely in regimented training and photography to try and capture measurable records of Venus' transit across the Sun.

The British transit expeditions were quasi-military exercises with the majority of observers navy/army officers. Training for the expeditions lasted months, with rigorous drills undertaken to discipline the bodies of observers. Despite largely not undertaking this training, women also actively participated in the expeditions: as observers, camp managers, correspondents and authors. This paper will analyse how gender, precision and authority were negotiated in the case of the 1874 Transit of Venus.

Siblings Emily and Francis Newton belatedly joined an expedition to Cairo; Emily was the only women whose observations were used to calculate the parallax. With no primary sources from the Newtons, this paper will explore the gendered identities constructed by others for both siblings. Through testimonies that both reaffirmed and undermined assumed feminine characteristics, Emily's observations were deemed more precise than her nervous brother's. Analysing the valuation of both siblings' observations reveals tensions over the ideal relationship between skills, knowledge and the ability to observe with precision, as well as gendered assumptions over the physical embodiment of these.

Shaivi Darsi (Queen Mary University of London)

From Dice to Derivatives: How 17th-Century Gambling Shaped Modern Financial Mathematics

How did questions about dice games in 17th-century Europe lay the foundation for modern finance? The origins of probability theory trace back to efforts by Pascal and Fermat to solve puzzles of fairness in interrupted games. These early insights in expected value, combinatorics, and the quantification of chance shaped ideas that would eventually transform how societies confront risk.

What began as reasoning about chance evolved into a framework that influences decisions across global markets today. This transformation was not merely mathematical; it redefined uncertainty as something measurable and controllable. Yet even now, behind every sophisticated model lies the same enduring mystery: can risk ever truly be mastered? What started as a game has become a global infrastructure, reminding us that the systems we use to navigate uncertainty ultimately stem from fundamental human concerns: fairness, predictability, and the desire to make sense of chance.

Stephen Dorman (The Open University)

The Statistician's Stomach

This essay examines the work of Mollie Orshansky (1915–2006) as a pivotal case study in the ethical application of social statistics. Developing the first official U.S. poverty thresholds in the 1960s, Orshansky moved the "mathematics of poverty" away from abstract theories of social hierarchy toward a model grounded in the material reality of household consumption. Her approach provided a potent counterpoint to the eugenicist perspectives of Francis Galton and Karl Pearson, who had previously used statistical methods to pathologize the vulnerable as biologically "unfit".

Drawing on her own lived experience of poverty and expertise in home economics, Orshansky anchored her metrics in the tangible cost of a nutritionally adequate diet. Her "mathematics of care" utilized a granular matrix of 124 distinct thresholds, acknowledging that human need is diverse rather than uniform. Finally, the essay explores the contemporary relevance of this grounded methodology in the age of Big Data. It argues that Orshansky's insistence on transparent, publicly intelligible benchmarks offers a necessary safeguard against modern "black-box" welfare algorithms that risk reinstating the technical and ethical distance she sought to close.

Elinor Flavell (The Open University)

A Whistle-Stop Tour of the First 159 Days of my PhD

This talk will be a quick introduction to me, my work, and how it is going so far. I am interested in looking at the mathematical education available to British women in the eighteenth and nineteenth centuries. What role did class play in the mathematical education available to women? How did the purpose of a mathematical education change over this time period? Looking at primary sources such as textbooks and archives from girls' schools formed in the nineteenth century, I hope to build up a picture of what was available to women. This talk will be a good check-in to see how far I have gotten in the first 159 days.

Thomas Glasman (University of Oxford)

Private Correspondence and Public Writing on the Paradoxes of Set Theory

Since the 1970s and 1980s a range of historical literature has downplayed the role of set-theoretic paradox. Gregory Moore (1978), Akihiro Kanamori (2007), Penelope Maddy (1988) and Moore & Garciadiego (1981) argue—from the fact that Georg Cantor, David Hilbert and Ernst Zermelo knew of their existence several years before their publication by Russell in 1903—that set theorists were not concerned about its paradoxes, but axiomatised set theory for what they regard as 'pragmatic', non-foundational, reasons, with Russell emphasising paradox on account of his philosophical background.

This paper agues that this account is complicated by private correspondence between Cantor and Hilbert in the years leading up to the publication of paradox. With Cantor and Hilbert expressing private fears about the 'evil' of paradox and Hilbert beginning to push for a consistency programme, without mentioning paradox in public, well before 1903, it notes that a discrepancy exists between public and private treatment of set-theoretic paradox.

Noting that Russell's 1903 publication was the first open publication that specified paradox as a problem for set theory, with previous discussion taking place in private correspondence between sympathetic mathematicians, this paper hopes to explain why Hilbert made 'no special fuss' pre-, but developed a 'fervour' for solving it post-publication. Comparing private versus public remarks on the paradoxes of set theory—before and after the paradoxes were published—it asks whether the act, rather than the content, of Russell's publication lies behind the shift in how paradox was treated.

Ties van Gemert (Tilburg University)

Gerrit Mannoury (1867–1956) on the Politics of Mathematical Logic

Mostly forgotten today, Gerrit Mannoury (1867–1956) was a widely recognized mathematician and philosopher in his time. His book *Methodologisches und Philosophisches zur Elementar-Mathematik* (1909) was reviewed and discussed by philosophers from Bertrand Russell and Moritz Schlick to Otto Neurath and Rudolf Carnap. As professor of mathematics at the University of Amsterdam and figurehead of the Dutch Significs Movement, his philosophical and pedagogical views inspired more than one generation — including the mathematician L. E. J. Brouwer and the logician Evert Willem Beth. Meanwhile, Mannoury was also one of founding members of the Dutch Social-Democratic Labour Party (SDAP) and his political activity included coming to the defense of the Scottsboro Boys in 1931. My objective in this presentation will be to give substance to Mannoury's statement in his *Mathematics, Philosophy and Socialism* that 'my convictions concerning the essence of mathematics, philosophy and socialism [. . .] form one whole'.

In his lecture *On the Significance of Mathematical Logic for Philosophy* (1903), Mannoury introduced the views of Gottlob Frege and the mathematical logic of Giuseppe Peano to the Dutch public, arguing for its use in philosophy, insisting that these formal methods could be used to resolve pseudo-problems, and thereby rid us of metaphysics. As an instrument for language reform and a means of clarification, Mannoury considered the new logic to be of revolutionary potential. Throughout the next two decades, he would work to synthesize this understanding of symbolic logic with his Marxist politics. In his eyes, the use of this new language could reform not only logic, mathematics, science and philosophy: it could also be an effective means to lay bare deep disagreements and thereby intensify political conflicts in a way that cannot but result in the advent of a 'new era' — an implicit reference to his utopian vision of a communist future.

The structure of my talk will be as follows. First, I will give a reading of his *On the Significance of Mathematical Logic for Philosophy* (1903). After that, I will detail how Mannoury applies these ideas to Marxist politics in his *On the Social Significance of the Mathematical Form of Thought* (1916). I will conclude by showing how Mannoury's views can be of use in reflecting on the historicity of political conceptions of mathematical logic.

Tinne Hoff Kjeldsen (University of Copenhagen)

A Problem-Oriented Multiple Perspective Approach to History of Mathematics Illustrated by Examples from 20th Century: how can it fill "lacunas"?

In this talk, I will introduce what I have called a problem-oriented multiple perspective approach to history of mathematics and use three examples from history of 20th century pure and applied mathematics as concrete illustrations. The third example is related to the development of mathematical biology, which was the "lacuna", I chose for the opening workshop of a 4-month program put together by Adrian Rice, Christopher Hollings, June Barrow-Green and Troy Kaighin Astarte in *Modern History of Mathematics* at the Isaac Newton Institute for Mathematical Sciences in Cambridge, UK in the spring of 2024. The people who were invited to speak at the opening workshop were asked to address the question: "What do you consider to be the most significant open question, or lacuna, in your area of the history of mathematics?" I will finish this talk, by revisiting this challenge and discussing how such an approach can fill "lacunas" in the history of mathematics.

Petra Stanković (University of Oxford)

Between Science and Politics: The 1970 Nice International Congress of Mathematicians (ICM)

When Komaravolu Chandrasekharan (1920–2017), professor at ETH Zürich and member of the IMU Executive Committee, wrote to Deane Montgomery (1909–1992), American mathematician and vice-president of the IMU, in March 1967, he stressed: "I do hope, however, that you will come for the IMU meeting at Oxford on June 12–13 [as] a few delicate questions concerning the organisation of the 1970 Congress will have to be settled". Chandrasekharan's assessment of the situation as "delicate" could be used to describe the majority of questions that the IMU had to tackle in connection to organising the Congress in Nice, especially when Soviet participants were concerned.

Securing the in-person attendance of Soviet mathematicians at the ICMs proved to be one of the most challenging tasks for the IMU in this period. This was especially apparent when the Fields Medal was awarded for the first time to a Soviet mathematician, Sergei Petrovich Novikov (1938–2024), for his work on the topological invariance of rational Pontryagin classes, yet he was unable to attend the ceremony and receive the prize in person.

In this paper, we examine how Soviet participation at the 1970 Nice ICM was produced and regulated, and which obstacles were experienced throughout this process. We move beyond attributing lower than expected Soviet participation, Novikov's absence, and exclusion of individual mathematicians, to a single political, racial, or ideological cause. We consider how geopolitical conflicts, political ideologies, government policies, institutional reconstructions, and personal standings in both local and wider mathematical communities, affected Soviet participation at the Congress as determined by their involvement with the IMU.

Rui Yuan (SPHERE/Université Paris Cité)

From Philology to Mathematics: What are the Relationships between the Marks and Annotations borne by the Earliest Extant Manuscript of the Chinese Mathematical Treatise Sea Mirror of the Circle Measurements and the late 18th century editions of the work?

Sea Mirror of the Circle Measurements (*Ce yuan hai jing*, 1248, hereafter *Sea Mirror*) is the earliest known text to record the "procedure of the celestial source" (*tian yuan shu*). This procedure amounts to computing with polynomials to establish algebraic equations, the root of which is an unknown sought. The procedure is today considered an important breakthrough in the history of mathematics in ancient China. However, its meaning was lost in China after the 13th century and was recovered only in the 18th century. In 1798, Li Rui (1769–1817) published his collated edition of the *Sea Mirror*. This work was influential, becoming a standard text for later researchers to deal with *Sea Mirror*. Li Rui's editorial work chiefly relied on a 14th-century manuscript, which is the earliest extant manuscript of the *Sea Mirror* known to us. In this manuscript, there are some seals, marks and annotations added by hands other than that of the original scribe. These paratextual elements raise several questions: Who made them? What kinds of marks and annotations can we find, and what were their functions? What is the relationship between Li Rui's editorial work and these features of the manuscript? My presentation will examine how the changes indicated by these marks and annotations can be correlated with Li Rui's collation, not only at the philological level, but also at the mathematical level.

Posters

Pablo Gómez Samper (Bergische Universität Wuppertal)

Paolo Bonasoni's Algebra Geometrica *(ca. 1580s, Ms. 314 Biblioteca Universitaria di Bologna)*

María de Lourdes Ortega Méndez (Johannes Gutenberg-University Mainz)

Abstraction and Material Aids in the History of Mathematics: Mechanical Harmonic Analyzers (1890–1925)

Lukas Schievelbusch (Bergische Universität Wuppertal)

The Expansion and Differentiation of the Mathematical Community in the Cold War US (1945–1991), measured by earned PhDs