

2026: A Mathematical Odyssey

an account of the Philadelphia ICM

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Hosted at the Philadelphia Convention Center from July 23 to 30, the 2026 ICM created an opportunity for the international mathematical community to celebrate its achievements and reflect on its future in a volatile global environment, marked by the emergence of potentially transformative as well as disruptive new technologies reminiscent of Stanley Kubrick's classic sci-fi movie. The congress was attended by nearly 3,000 mathematicians from all parts of the world, including several members of the CRM.

For the five Canadian delegates, including CRM Director Franco Saliola, who attended the 20th General Assembly of the International Mathematical Union (IMU) from July 20–21, the excitement started two days early as they made their way to New York's fabled Times Square amidst dense crowds of soccer fans on the day of the FIFA World Cup final, witnessing the final showdown on the big screen of the Marriot Marquis hotel during the IMU opening reception. Delegates voted the next day on the customary assortment of organizational, financial and strategic motions, including amendments to the IMU statutes, the establishment of a new Ladyzhenskaya Medal, and a small increase of the unit contribution for IMU member countries. Specially notable was a resolution recognizing the threat of isolationist and illiberal impulses in times of heightened political tensions and calling upon member organisations to resist the imposition of barriers to international academic exchanges. The Assembly also settled the location of the next Congress, accepting the joint offer of Ireland and the United Kingdom to host the 2030 ICM in Glasgow, with the attendant 21st General Assembly to be held in Dublin.

The thousands of participants who descended upon downtown Philadelphia on the eve of the ICM were quickly immersed in its special atmosphere, greeting colleagues from all over the world at a memorable opening reception in the Reading Terminal Market. Although the customary suspense over the identity of the Fields medalists was compromised by an ostensibly AI-abetted website malfunction and the aura of inevitability that seemed to surround the front runners, it was nonetheless with a good measure of excitement and anticipation that throngs of

attendees, often accompanied by their families, filed into the great auditorium of the Philadelphia Convention Center for the opening ceremonies the next morning.

Several of the Fields Medal winners enjoy close ties with the CRM. Jacob Tsimerman, widely touted as Canada's first official Fields Medalist¹ was a recipient of the 2017 André Aisenstadt Prize, and a regular participant in CRM-sponsored activities. Hong Wang (Courant and IHES), delivered the Nirenberg Lectures at the CRM in 2025. The two were complemented by Yu Deng (Chicago) and John Pardon (Stony Brook).

Jacob Tsimerman was awarded the Fields Medals for "his contribution in the recasting of o-minimality as a fundamental method of arithmetic and complex algebraic geometry, and his role in the proof of many central conjectures including Griffith's conjecture on the algebraicity of images of the period maps, and the André-Oort conjecture for Siegel modular varieties." Jonathan Pila, who pioneered the use of o-minimality in number theory and was a faculty member of the CRM's CICMA Laboratory from 2002 to 2005, delivered the laudatio for Tsimerman's Fields Medal, highlighting the important role played in the eventual resolution of André-Oort by the proof of the Colmez conjecture on average by former CRM-ISM postdoc Fabrizio Andreatta and CICMA member Eyal Goren, in collaboration with Ben Howard and Keerthi Madapusi-Pera from Boston College. At the press conference immediately following the opening ceremony, Tsimerman created a sensation as well as fodder for countless conversations at the congress by announcing his intention to move to OpenAI to devote himself to AI safety research.

Hong Wang, the 3rd woman to be awarded a Fields Medal, received the distinction "for her work in harmonic analysis and geometric measure theory, including applications of multiscale and decoupling techniques to the local smoothing conjecture for the planar wave equation, and major advances in Fourier restriction, Falconer distance sets, Furstenberg sets in the plane, and the Kakeya problem in three dimensions". Touching on different aspects of this impressive series of breakthroughs, she delivered two different addresses at the Congress to jam-packed rooms, in the Analysis Section in addition to her Fields Medal lecture. Her fellow 2025 Nirenberg Lecturer, Joshua Zahl (Nankai University) also spoke in the Analysis Section on their joint work proving the 3-d Kakeya conjecture.

CRM audiences would also have been familiar with many other plenary and sectional speakers through their frequent visits, the awards they have received and the distinguished lectures series they have delivered at the Centre, notably, Jennifer Balakrishnan, Jacob Bernstein (2022 Nirenberg Lecturer), Manjul Bhargava (2006 Aisenstadt Chair), Michael Bialy (2023 Nirenberg Lecturer), Valentin Blomer, Simon Brendle (2024 Aisenstadt Chair), Ingrid Daubechies (Grande Conférence), Jordan Ellenberg, Frédéric Faure, Ailana Fraser, Javier Gomez-Serrano (2024 Aisenstadt Chair), Adam Harper (2026 Aisenstadt Chair, and former CICMA postdoc), Robert Haslhofer (2020 Aisenstadt Prize), Alex Kontorovich, Bryna Kra, Alexander Kupers (2024 Aisenstadt Prize), Ciprian Manolescu (2019 Aisenstadt Chair), Chikako Mese, Emanuel

¹Manjul Bhargava was born in Canada where he spent his early childhood years, but was educated in the US.

Milman, Frédéric Naud, Nilima Nigam (former member, and Distinguished Lecturer in applied mathematics), Felix Otto (SMS 2011), Sarah Peluse, Jeremy Quastel (2018 CRM-Fields-PIMS Prize), Will Sawin, Katya Scheinberg (2025 Aisenstadt Chair), Michael Stoll (SMS 2014), Terence Tao (2006 Aisenstadt Chair), Eva Tardos (2020 Aisenstadt Chair), Tadashi Tokieda (Grande Conférence), Valentino Tosatti (former member), Yuri Tschinkel (2014 CRM-UOttawa Distinguished Lecture), Ravi Vakil (2005 Aisenstadt Prize), Remco Van der Hofstad, Tamar Ziegler, and Enrique Zuazua (Grande Conférence). The wide spectrum of topics covered in these lectures shone a spotlight on the breadth and growing impact of the CRM on the world stage.

In addition to mathematical advances, broader issues for the profession were also the topic of impassioned discussions, as befits a congress convening at such a pivotal moment in the history of mathematics. Artificial Intelligence, which after the remarkable events of the summer has become difficult to dismiss and impossible to ignore, featured prominently in these conversations. Public lectures by Alex Kontorovich, Terence Tao, and Geordie Williamson focused on different aspects of the ongoing AI revolution and its eventual impact on the profession. The CRM has not been a passive bystander in these developments, as attested by the preeminent position that the MILA lab occupies in the CRM’s research ecosystem, its status as an initiator of the technique of Deep Learning, and recent activities like the “Using AI to find examples” workshop of May 2026 and CICMA’s ongoing “AI in Number Theory” seminar.

In summary, the 2026 ICM was an enjoyable and uplifting event, allowing participants to reconnect with old acquaintances, foster new collaborations, and take stock of the profound and exciting as well as unsettling developments currently transforming mathematics. In a time of tremendous promise and existential peril, a broad international gathering of the profession felt more indispensable than ever. It is to be hoped that the 130 year old tradition of the International Congress of Mathematicians will continue to thrive in the coming decades, while the CRM perdures as a microcosm of the international mathematical scene, replicating and propagating its lively intellectual ferment.