institute for pure & applied mathematics

Mathematics of Cancer: Open Mathematical Problems

February 23-27, 2026

Scientific Overview

The continuous interaction between scientific inquiry and mathematical development has historically driven the growth of mathematics as a discipline. Fields such as quantum mechanics, economics, and computer science have consistently presented challenges that have pushed the boundaries of mathematical knowledge. We propose to organize a workshop which aims to facilitate this type of interaction between the field of cancer modeling and mathematics. We believe that now is a perfect time for this, because mathematical oncology, as a field, has reached a certain degree of maturity and accumulated a larger number of unsolved, fascinating problems. There has also been a significant explosion in the quantity, quality, and types of available data. A conversation between computational scientists studying cancer and mathematicians will serve two highly desirable goals: (1) using novel mathematical tools to solve the scientific problems, and (2) the science of cancer giving rise to new mathematics.

This workshop will include a poster session; a request for posters will be sent to registered participants in advance of the workshop.

Additional information about this workshop including links to register and to apply for funding, can be found on the webpage listed below. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission, and we welcome their applications.

Organizers

Carina Curto (Brown University)
Trachette Jackson (University of Michigan)
Natalia Komarova (UC San Diego)
Smita Krishaswamy (Yale University)
Shmuel Weinberger (University of Chicago)

Speakers

Tibor Antal (University of Edinburgh)
Luis Aparicio (Columbia University)
Tuca Auffinger (Northwestern University)
Andrea Bild (City Of Hope)
Andrew Blumberg (Columbia University)
Renee Brady-Nicholls (Moffitt Cancer Center & Research Institute)
Lorin Crawford (Microsoft Research New England)
Charles Epstein (Flatiron Institute)
Jasmine Foo (University of Minnesota, Twin Cities)
Ingmar Glauche (Technische Universität Dresden)
Heather Harrington (Max Planck Institute for Molecular Cell Biology and Genetics)
Reinhard Laubenbacher (University of Florida)
Konstantin Mischaikow (Rutgers University New Brunswick/Piscataway)
Paul Newton (University of Southern California (USC))
Michael Perlmutter (Boise State University)
Ben Raphael (Princeton University)
Bastian Rieck (University of Fribourg)
Samantha Riesenfeld (University of Chicago)
Eduardo Sontag (Northeastern University)
Arne Traulsen (MPI for Evolutionary Biology)
Ruth Williams (University of California, San Diego)
Dominik Wodarz (University of California, San Diego)
Hongkai Zhao (Duke University)

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For more information, visit the program webpage:
www.ipam.ucla.edu/MOC26