

# Sessions at the Joint Mathematics Meetings (JMM 2022)

January 5–8, 2022 • Seattle, Washington

SIAM Coordinating Committee for the Joint Mathematics Meetings

**Lorena Bociu**  
North Carolina State University

**Ricardo Cortez**  
Tulane University

**Maria Emelianenko (Chair)**  
George Mason University

## SIAM Invited Address

### Analysis and Applications of Nonlocal Models

**Qiang Du**, Columbia University

Thursday, January 6, 2022, 11:10 a.m.–12:00 p.m.

Ballroom 6BC, Washington State Convention Center

#### ABSTRACT

Nonlocality has become increasingly noticeable in nature. The modeling and simulation of its presence and impact motivate new development of mathematical theory. In this lecture, we focus on nonlocal models with a finite horizon of interactions, and illustrate their roles in the understanding of various phenomena involving anomalies, singularities and other effects due to nonlocal interactions. We also present some recent analytical studies concerning nonlocal operators and nonlocal function spaces. The theoretical advances are making nonlocal modeling and simulations more reliable, effective and robust for applications ranging from classical mechanics to traffic flows of autonomous and connected vehicles.



**Qiang Du** is the Fu Foundation Professor of Applied Mathematics of Columbia University where he is also a faculty of Data Science Institute and co-chairs the Center of Computing Systems for Data-driven Science. He received his B.S. from the University of Science and Technology of China (USTC) and Ph.D from Carnegie Mellon University. A Fellow of SIAM and AMS, he now serves as the EIC of SIAM Journal of Applied Mathematics (SIAP) and the founding co-EIC of Communications of the American Mathematical Society (CAMS). Some of the recognitions for his work include Frame Faculty Teaching Award (1992), Feng Kang Prize in Scientific Computing (2005), SIAM Outstanding Paper Prize (2016), USACM T.J.R. Hughes Medal (2021). He was also an invited speaker of International Congress of Mathematicians (ICM 2018).

## Special Events

### SIAM Panel on a BIG World View Business-Industry-Government Careers for Mathematicians

Organizer: **Sharon Arroyo**, *The Boeing Company*

Wednesday, January 5, 2022, 8:00 a.m.–9:30 a.m.

Curious about careers outside of academia? Come get an insider's view about BIG, exciting, impactful careers. This discussion will feature panelists who will share their experiences and insights working as applied mathematicians in a variety of BIG careers.

### SIAM Reception on Industrial Math Modeling

Thursday, January 6, 2022, 7:00 p.m.–9:00 p.m.

A big part of SIAM's mission is to build community around the application of mathematical modeling, analysis, and computation to real-world problems. Join us in celebrating the many ways that mathematical modeling has improved our lives, and learn more about SIAM's collaborative efforts to build a workforce dedicated to mathematical modeling in industry, including programs such as the MathWorks Math Modeling (M3) Challenge, Preparation for Industrial Careers in Mathematical Sciences (PIC Math, in collaboration with MAA), Graduate Student Mathematical Modeling Camp (GSMMC), Mathematical Problems in Industry (MPI) Workshop, Math Modeling Hub (in collaboration with COMAP and NCTM), and BIG Math Network.

**SIAM Minisymposia and Joint Session details on reverse.**

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## SIAM Minisymposia

All SIAM minisymposia are located in Room 608,  
Washington State Convention Center.

SIAM Minisymposium on

### SIAM ED Session on Lessons Learned: The Future of Online and Hybrid Modalities in Education and the Workplace

Organizer: Alvaro Ortiz, *Georgia Gwinnett College*

Wednesday, January 5, 2022, 8:00 a.m.–10:55 a.m.

SIAM Minisymposium on

### Sensitivity Analysis and Uncertainty Quantification for Scientific and Biological Models

Organizer: Ralph Smith, *North Carolina State University*

Wednesday, January 5, 2022, 1:00 p.m.–6:00 p.m.

SIAM Minisymposium on

### Advances in Mathematical Biology

Organizers: Shilpa Khatri, *University of California Merced*

Roummel Marcia, *University of California Merced*

Erica Rutter, *University of California Merced*

Thursday, January 6, 2022, 8:00 a.m.–11:00 a.m.

SIAM Minisymposium on

### Quantum Algorithms

Organizer: Lin Lin, *University of California, Berkeley*

Thursday, January 6, 2022, 1:00 p.m.–5:00 p.m.

SIAM Minisymposium on

### Graduate Research in Industry and in National Laboratory Internships

Organizers: Nicole Buczkowski, *University of Nebraska-Lincoln*

Hayley Olson, *University of Nebraska-Lincoln*

Friday, January 7, 2022, 8:00 a.m.–12:00 p.m.

SIAM Minisymposium on

### Mathematics of Complex Systems

Organizers: Heather Zinn Brooks, *Harvey Mudd College*

Alexander P. Hoover, *University of Akron*

Mason A. Porter, *University of California Los Angeles*

Alice Schwarze, *University of Washington*

Alexandria Volkening, *Northwestern University*

Friday, January 7, 2022, 1:00 p.m.–6:00 p.m.

SIAM Minisymposium on

### Advancing Racial Equity in Applied Mathematics

Organizers: Ron Buckmire, *Occidental College*

P. Seshaiyer, *George Mason University*

Saturday, January 8, 2022, 8:00 a.m.–12:00 p.m.

SIAM Minisymposium on

### Nonlocal and Fractional Problems in Analysis and PDEs

Organizer: Petronela Radu, *University of Nebraska-Lincoln*

Saturday, January 8, 2022, 1:00 p.m.–6:00 p.m.

## Joint Sessions

AMS-MAA-SIAM Special Session on

### Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, I

Organizer: Darren A. Narayan, *Rochester Institute of Technology*

Friday January 7, 2022, 8:00 a.m.–11:50 a.m.

Room 201, Washington State Convention Center



MAA-SIAM-AMS

### Hrabowski-Gates-Tapia-McBay Lecture

Speaker: Dave Kung, *Charles A. Dana Center, The University of Texas at Austin*

Friday January 7, 2022, 9:00 a.m.–9:50 a.m.

Ballroom 6BC, Washington State Convention Center

AMS-MAA-SIAM Special Session on

### Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, II

Organizer: Darren A. Narayan, *Rochester Institute of Technology*

Friday January 7, 2022, 1:00 p.m.–5:50 p.m.

Room 201, Washington State Convention Center

AMS-MAA-SIAM Special Session on

### Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, III

Organizer: Darren A. Narayan, *Rochester Institute of Technology*

Saturday January 8, 2022, 8:00 a.m.–11:50 a.m.

Room 201, Washington State Convention Center

AMS-MAA-SIAM Special Session on

### Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, IV

Organizer: Darren A. Narayan, *Rochester Institute of Technology*

Saturday January 8, 2022, 1:00 p.m.–5:50 p.m.

Room 201, Washington State Convention Center



### JPBM Communications Award Lecture

Speaker: Talithia Williams, *Harvey Mudd College*

Saturday January 8, 2022, 1:30 p.m.–2:30 p.m.

Ballroom 6BC, Washington State Convention Center



MAA-SIAM-AMS

### Gerald and Judith Porter Public Lecture

Speaker: Lauren K. Williams, *Harvard University*

Saturday, January 8, 2022, 3:00 p.m.–4:00 p.m.

Ballroom 6BC, Washington State Convention Center

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Applied Mathematics

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The program for these meetings will occur in Pacific Standard Time (PST).