John B. Hynes Veteran’s Memorial Convention Center, Boston Marriott Hotel, and Boston Sheraton Hotel, Boston, MA

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Please note: The times listed herein were current as of press time. For the most up to date JMM 2023 scheduling information, please see [https://www.jointmathematicsmeetings.org/meetings/national/jmm2023/2270_timetable.html]
Welcome to JMM 2023! Reimagined by 15 (and counting!) partners and now happening in person, this largest annual mathematics gathering in the world offers you a broad range of presentations, panels, exhibits, and minicourses on research, pedagogy, inclusion, career opportunities, and more.

The reimagined Joint Mathematics Meetings feature new organizations, disciplines, participants, and programming. Expect to learn, network, and build relationships through sessions, posters, professional development, social gatherings, and other opportunities.

Scientific exploration and discovery remain at the heart of JMM 2023. Leaf through the robust offerings on the following pages to find how JMM partners (listed below) have poured their collective energy into this gathering. Prepare to come together to connect and collaborate. At JMM 2023, we will learn from each other. We will see old friends, and we will make new ones. Stay tuned for JMM updates via social media and jointmathematicsmeetings.org. We can't wait to see you January 4–7 in Boston.

Best regards,
Boris Hasselblatt, Secretary of the AMS

As of press time, these are the 15 organizations that have joined forces to organize the JMM:

- American Institute of Mathematics
- American Mathematical Society
- American Statistical Association
- Association for Symbolic Logic
- Association for Women in Mathematics
- Consortium for Mathematics and its Applications
- International Linear Algebra Society
- Julia Robinson Mathematics Festival
- Mathematical Sciences Research Institute
- National Association of Mathematicians
- Pi Mu Epsilon
- Pro Mathematica Arte
- Society for Industrial and Applied Mathematics
- Association for LGBTQ+ Mathematicians (Spectra)
- Transforming Post-Secondary Education in Mathematics

Boston, MA

John B. Hynes Veteran’s Memorial Convention Center, Boston Marriott Hotel, and Boston Sheraton Hotel

January 4–7, 2023
Wednesday – Saturday

Meeting #1183

This meeting includes the annual meetings of the AMS, Association for Women in Mathematics (AWM), and National Association of Mathematicians (NAM), winter meeting of Association for Symbolic Logic (ASL), and sessions/events by them and Society for Industrial and Applied Mathematics (SIAM), American Statistical Association (ASA), Consortium for Mathematics and its Applications (COMAP), International Linear Algebra Society (ILAS), Julia Robinson Mathematics Festival (JRMF), The Simons Laufer Mathematical Sciences Institute (SLMath), formerly Mathematical Sciences Research Institute (MSRI), Spectra, Transforming Post-Secondary Education in Mathematics (TPSE), American Institute of Mathematics (AIM), and Pro Mathematica Arte (PME).

The scientific information listed below may be dated. For the latest information, see https://www.jointmathematicsmeetings.org/meetings/national/jmm2023/2270_program.html.
Joint Invited Addresses

Laura DeMarco, Harvard University, Title to be announced. (AWM-AMS Noether Lecture)

Philip Maini, University of Oxford, Are we there yet? Modelling collective cell motion in biology and medicine. (AAAS-AMS Invited Address)

Omayra Ortega, Sonoma State University, Title to be announced. (MAA-SIAM-AMS Hrabowski-Gates-Tapia-McBay Lecture)

Bernd Sturmfels, University of California at Berkeley, Title to be announced. (MAA-AMS-SIAM Gerald and Judith Porter Public Lecture)

Talithia Williams, Harvey Mudd College, Title to be announced. (JPBM Communications Award Lecture)

AMS Invited Addresses

Rodrigo Bañuelos, Purdue University, Title to be announced.

Richard Baraniuk, Rice University, Title to be announced. (AMS Josiah Willard Gibbs Lecture)

Eugenia Cheng, School of the Art Institute of Chicago, Associativity, Commutativity and Units: a Higher-dimensional ballet. (AMS Erdős Memorial Lecture)

Camillo De Lellis, Institute for Advanced Study, Flows of nonsmooth vector fields. (AMS Colloquium Lectures: Lecture I)

Camillo De Lellis, Institute for Advanced Study, Flows of nonsmooth vector fields. (AMS Colloquium Lectures: Lecture II)

Camillo De Lellis, Institute for Advanced Study, Flows of nonsmooth vector fields. (AMS Colloquium Lectures: Lecture III)

Wilfrid Gangbo, UCLA, Recent progress on master equations in Mean Field Games.

Ling Long, Louisiana State University, Baton Rouge, LA, Associativity, A Stroll in the Garden of Hypergeometric Functions. (AMS Maryam Mirzakhani Lecture)

Chris Rasmussen, Center for Research in Math and Science Education, Title to be announced. (AMS Lecture on Education)

Nikhil Srivastava, University of California, Berkeley, Title to be announced. (AMS von Neumann Lecture)

Rekha Thomas, University of Washington, Ideals and Varieties of the Pinhole Camera.

Invited Addresses of Other JMM Partners


Peter Cholak, University of Notre Dame, Ramsey like Theorems on the Rationals. (ASL)

Edray Herber Goins, Pomona College, Distance Makes the Math Grow Deeper: Rational Distance Sets, Nate Dean, and Me. (PME J. Sutherland Frame Lecture)

Franziska Jahnke, University of Münster, Model theory of perfectoid fields. (ASL)

Stephen Kudla, University of Toronto, Title to be announced. (AIM Alexanderson Award Lecture)

Sandra Müller, Technical University of Vienna, Universally Baire sets, determinacy and inner models. (ASL)

Rob Santos, Director, US Census Bureau, Title to be announced. (ASA Committee of Presidents of Statistical Societies Lecture)

Lynn Scow, California State San Bernardino, Semi-retractions and the Ramsey Property. (ASL)

Mariel Vazquez, University of California, Davis, Topology and Evolution of DNA and RNA. (SIAM)

Erik Walsberg, University of California Irvine, Model theory of large fields. (ASL)

Apoorva Khare, Indian Institute of Science, Analysis applications of Schur polynomials. (ILAS)

NAM Claytor-Woodard Address, speaker and title to be announced

NAM Cox-Talbot Address, speaker and title to be announced.

Spectra Lavender Lecture, speaker and title to be announced.

TPSE Invited Lecture, speaker and title to be announced.

Invited Addresses of Other Organizations

Estrella Johnson, Virginia Tech, Title to be announced. (Project NExT Lecture on Teaching and Learning)

Russell Marcus, Hamilton College, Title to be announced. (SIGMAA on the Philosophy of Mathematics Guest Speaker)

SIGMAA on Environmental Mathematics Guest Speaker, speaker and title to be announced.

Association for Christians in the Mathematical Sciences Guest Lecture, speaker and title to be announced.

Joint Prize Session

Join the JMM 2023 Partners in celebrating the achievements of a selection of their prize and award winners at 4:25 pm on Wednesday. All participants are invited and encouraged to attend.
Special Sessions of the JMM

If you are volunteering to speak in a Special Session, you should submit your abstract as early as possible via the abstract submission form found at jointmathematicsmeetings.org/meetings/abstracts/abstract.pl?type=jmm.

American Institute for Mathematics Special Sessions

Automorphic Forms and Special Cycles, Jan Bruinier, Technical University of Darmstadt, Stephen Kudla, University of Toronto, and Tonghai Yang, University of Wisconsin, Madison. (In association with the AIM Alexanderson Award lecture)

Little School Dynamics: Cool Dynamics Research by Researchers at PUIs, Kimberly Ayers, Cal State San Marcos, Ami Radunskaya, Pomona College, Han Li, Wesleyan University, David McClendon, Ferris State University, and Andrew Parrish, Eastern Illinois University.

AIM-ASA Special Session on Researchers from the Latinx Mathematician Network, Jesus De Loera, University of California, Davis. (This session is co-sponsored by AIM and ASA)

AMS Special Sessions


Advances in Markov models: Gambler’s Ruin, Duality and Queueing Applications I, Alan Krnik and Randall James Swift, California State Polytechnic University.

Advances in Modeling Mosquito-borne Disease Dynamics and Control Methods, Zhuolin Qu, University of Texas at San Antonio, and Michael Robert, Virginia Tech.

Advances in Nonlinear Boundary Value Problems I, Nsoki Mavinga, Swarthmore College, Maya Chhetri, UNC Greensboro, and R Pardo, Complutense University of Madrid.

Advances in Operator Algebras I, Sarah Browne, University of Kansas, Priyanga Ganesan, Texas A&M University, and David Jekel, University of California, San Diego.

Advances in Partial Differential Equations, Numerical Analysis, and their Applications, Andrew Miller, Bridgewater State University, and Joshua L. Flynn, University of Connecticut.

Advances in Qualitative Theory and Applications to Life Sciences of Differential, Difference, and Dynamic equations, Elvan Akın, Missouri University S&T, and Naveen K. Vaidya, San Diego State University.

Analysis and Differential Equations at Undergraduate Institutions, Ryan Alvarado, Amherst College, and Lyudmila Korobenko, Reed College.

Applications of Riemann Surfaces, Mark Syd Bennett and Bernard Deconinck, University of Washington, Charles Wang, Harvard University, and Türkü Çelik, Bogazici University.

Applications of Tensors in Computer Science, Harm Derksen, Northeastern University, Neriman Tokcan, Broad Institute, and Benjamin Lovitz, University of Waterloo.

Applied Category Theory (a Mathematics Research Communities session), Pablo S. Ocal, University of California, Los Angeles, Layla Sorkatti, Southern Illinois University, Charlotte Aten, University of Rochester, and Abigail Hickok, University of California, Los Angeles.

Applied Enumerative Geometry, Frank Sottile, Texas A&M University, and Taylor Brysiewicz, Western University.

Applied Topology: Theory and Implementation, Nikolas Schonsheck, Chad Giusti, Melinda Kleczynski, and Jerome Roehm, University of Delaware.

Arithmetic Geometry Informed by Computation, Jennifer Balakrishnan, Boston University, and Bjorn Poonen and Andrew V. Sutherland, Massachusetts Institute of Technology.


Automorphic Forms and Representation Theory, Solomon Friedberg, Boston College, and Spencer Leslie, Duke University.

Coding Theory for Modern Applications, Allison Beemer, University of Wisconsin-Eau Claire, Hiram H. Lopez, Cleveland State University, and Rafael D’Oliveira, Clemson University.

Complex and Arithmetic Dynamical Systems, Laura G. DeMarco and Niki Myrto Mavraki, Harvard University, and Max Weinreich, Brown University. (AMS-AWM)

Complexity and Topology in Computational Algebraic Geometry, Ali Mohammad Nezhad and Saugata Basu, Purdue University.

Complex Systems in the Life Sciences, Xiang-Sheng Wang, University of Louisiana at Lafayette, Zhisheng Shuai, University of Central Florida, and Gail S. Wolkowicz, McMaster University.
Current Directions in the Philosophy of Mathematics, Bonnie Gold, Monmouth University, and Kevin Iga, Pepperdine University.

Current Progress in Computational Biomedicine, Nektarios Valous, National Center for Tumor Diseases Heidelberg, German Cancer Research Center, Heidelberg, Anna Konstorum, Department of Pathology, Yale School of Medicine, Heiko Enderling, Department of Integrated Mathematical Oncology, H. Lee Moffitt Cancer Center & Research Institute, Tampa, FL, and Dirk Jäger, National Center for Tumor Diseases, German Cancer Research Center, Heidelberg, Germany.

Data Science at the Crossroads of Analysis, Geometry, and Topology (a Mathematics Research Communities session), Hitesh Gakhar, University of Oklahoma, Harlin Lee, University of California, Los Angeles, and Josue Tonelli-Cueto, Inria Paris & IMJ-PRG.

Definability, Computability, and Model Theory: A Special Session dedicated to Gerald E. Sacks, Nathanael Leedom Ackerman, Harvard University, Ted Slaman, University of California, Berkeley, and Cameron Freer, Massachusetts Institute of Technology.

Discrete and Hybrid Dynamical Systems: Time Scales and Fractional Approaches, Billy Jackson, University of Wisconsin Madison.

Distance Problems in Continuous, Discrete and Finite Field Settings, Abdul Basit, Iowa State University, Eyvindur Ari Palsson, Virginia Tech University, and Steven Joel Miller, Williams College.

Dynamics, Geometry & Group Actions, Kathryn Lindsey, Boston College, and Boris Hasselblatt, Tufts University.

Dynamics of PDEs on Heterogeneous Domains: Theory & Applications, Denis Daniel Patterson, Princeton University, Ryan Goh, Boston University, and Jonathan Touboul, Brandeis University.

Ecological and Evolutionary Dynamics in Life and Social Sciences, Sabrina H. Streipert, McMaster University, and Yun Kang and Lucero Rodriguez Rodriguez, Arizona State University.

Excursions in Arithmetic Geometry, Tony Shaska, Research Institute of Science and Technology.


Geometric PDEs, Theodora Bourni, University of Tennessee, Knoxville, and Brett Kotschwar, Arizona State University.

Geometry and Dynamics in Moduli Spaces of Abelian Differentials, Charles C. Johnson, Western Carolina University, Martin Schmoll, Clemson University, and Chris Judge, Indiana University.

Homotopy theory: Connections and Applications, Elden Elmanto, Harvard University, and Daniel C. Isaksen, Wayne State University.

If You Build It They Will Come: Presentations by Scholars in the National Alliance for Doctoral Studies in the Mathematical Sciences, Rolando de Santiago, Purdue University, and David Goldberg, Math Alliance/Purdue University.

Integral Equations and Applications, Irina Mitrea, Temple University, and Shari Moskow, Drexel University.


Langlands Program, Shanna Dobson, University of California, Riverside.

Lessons Learned from Successful Departmental Efforts to Transform Precalculus and Calculus, Chris Rasmussen, Center for Research in Math and Science Education.

Math Circle Activities as a Gateway into Mathematics, Lauren L Rose, Bard College, Brandy S. Wiegers, Central Washington University, Gabriella A. Pinter, and Nick Rauh, Julia Robinson Math Festivals.


Mathematical Methods in Machine Learning and Optimization, Carlos M. Ortiz-Marrero, Pacific Northwest National Laboratory, and Ryan W. Murray, North Carolina State University.


Mathematics and Fiber Arts, sarah-marie belcastro, MathILy and Smith College, and Carolyn Yackel, Mercer University.

Mathematics and the Arts, Karl Kattchee, University of Wisconsin-La Crosse, Doug Norton, Villanova University, and Anil Venkatesh, Adelphi University.

Mathematics Standards, Equity, Policy, and Politics, Yvonne Lai, University of Nebraska-Lincoln, Tyler Kloefkorn, American Mathematical Society, Dave Kung, Charles A. Dana Center, The University of Texas at Austin, and Blain Patterson, Virginia Military Institute.

Modeling Collective Behavior in Biology, Alexandria Volkening, Purdue University, and Philip Maini, University of Oxford.
Models and Methods for Sparse (Hyper) Network Science (a Mathematics Research Communities session), Sarah Tymochko, Michigan State University, Jessalyn Bolkema, California State University, Dominguez Hills, Himanshu Gupta, University of Delaware, Fangfei Lan, University of Utah, and Nicholas W. Landry, University of Colorado Boulder.

Modular Forms, Hypergeometric Functions, Character Sums and Galois Representations, Ling Long, Louisiana State University, Wen-Ching Winnie Li, Pennsylvania State University, William Chen, Institute for Advanced Study, and Holly Swisher, Oregon State University.

New Developments in Differential Geometry and Topology, Megan M. Kerr, Wellesley College, and Catherine Searle, Wichita State University.


Nonlocal Frameworks in Analysis and Mathematical Modeling, Nicole Buczkowski, and Petronela Radu and Anh Vo, University of Nebraska-Lincoln.

Number Theory at Non-PhD Granting Institutions, Steven Joel Miller, Williams College, Naomi Tanabe, Bowdoin College, Harris Daniels, Amherst College, Enrique Treviño, Lake Forest College, and Alia Hamieh, University of Northern British Columbia.

Orthogonal Polynomials and their Applications, Ahmad Barhoumi, University of Michigan, Roozbeh Charkhloog, Colorado State University, and Andrei Martinez-Finkelshtein, Baylor University.

Partial Differential Equations and Complex Variables, Hyun-Kyoung Kwon, University at Albany, SUNY, Bingyuan Liu, The University of Texas Rio Grande Valley, and Qi Han, Texas A&M University-San Antonio.

Perspectives on Eigenvalue Computation, Nikhil Srivastava, University of California, Berkeley, Peter Buergisser, Technische Universität Berlin Institut Für Mathematik, and James Demmel, University of California, Berkeley.

Polymath Jr: Mentoring and Learning, Steven Joel Miller, Williams College, Johanna Franklin, Hofstra University, Adam Sheffer, Baruch College, CUNY, and Yunus E. Zeytuncu, University of Michigan - Dearborn.

Polynomial systems, homotopy continuation, and applications, Timothy Duff, University of Washington, and Margaret Regan, Duke University.

Promoting Equity Through Active Learning in Undergraduate Mathematics: Precalculus, Jose Maria Menendez, Pima Community College, Ksenija Simic-Muller, Pacific Lutheran University, and Anthony Fernandes, University of North Carolina - Charlotte.

Quadratic Forms, Modular Forms, and Applications, Fang-Ting Tu, Louisiana State University, Gene S. Kopp, Purdue University, and Jingbo Liu, Texas A&M University-San Antonio.

Quaternions, Johannes Hamilton and Chris McCarthy, Borough of Manhattan Community College, CUNY, and Terrence Richard Blackman, Medgar Evers Community College, CUNY.

Recent Advances in Arithmetic Dynamics, Joseph H. Silverman, Brown University, Jacqueline Anderson, Bridgewater State University, and John R. Doyle, Oklahoma State University.

Recent Advances in Nonlinear Partial Differential Equations and the Applications, Qi Han, Texas A&M University-San Antonio, and Jing Tian, Towson University.

Recent Development in Partial Differential Equations related to Geometric and Harmonic Analysis, Meijun Zhu, University of Oklahoma, and Xiaodong Wang, Michigan State University.

Recent Developments in Geometric Measure Theory, Camillo De Lellis, Institute For Advanced Study, Princeton, Antonio De Rosa, University of Maryland, and Luca Spolaor, University of California, San Diego.

Recent developments in Numerical Methods for PDEs, Leo G. Rebholz, Clemson University, and Michael Neilan, University of Pittsburgh.

Recent Trends in Discrete-Time Ecological and Epidemiological Models, Mustafa R. Kulenovic, University of Rhode Island, and Abdul-Aziz Yakubu, Howard University.

Research Community in Algebraic Combinatorics, Rosa C. Orellana and Nadia Lafrenière, Dartmouth College.

Research from the Graduate Research Workshop in Combinatorics (GRWC), Steve Butler, Iowa State University, Xavier Perez-Gimenez, University of Nebraska-Lincoln, and Puck Rombach, University of Vermont.

Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, Darren A. Narayan, Rochester Institute of Technology, Khang Tran, California State University, Fresno, Mark Daniel Ward, Purdue University, John C. Wierman, Johns Hopkins University, and Christopher O’Neil, San Diego State University.

Resolutions of singularities and cohomology in geometry and representation theory, Iva Halacheva, Northeastern University, Roman Bezrukavnikov, Massachusetts Institute of Technology, Peter Crooks, Utah State University, and Valerio Toledano Laredo, Northeastern University.
Rethinking Number Theory, **Allechar Serrano Lopez**, Harvard University, **Lea Beneish**, University of California, Berkeley, and **Soumya Sankar**, Ohio State University.

Riemannian Manifolds with Lower Scalar Curvature Bounds, **Brian Allen**, Lehman College, CUNY, and **Demetre Kazaras**, Duke University.

Scholarship on Teaching and Learning Introductory Statistics, **Jennifer McNally**, **Laura Callis**, and **Steven LeMay**, Curry College.


Statistics and Data Science Curriculum in a Mathematics Department, **Qing Wang** and **Anny-Claude Joseph**, Wellesley College.


Stochastic Analysis and Applications, **Parisa Fatheddin**, Ohio State University, Marion, and **Michael A. Salins**, Boston University.

Sum-product Theory in Finite Fields and Matrices over Finite Fields, **Alex Iosevich**, University of Rochester.

Tensor Representation, Completion, Modeling and Analytics of Complex Data, **Ivo D. Dinov**, University of Michigan.

The combinatorics and geometry of Jordan type and Lefschetz properties, **A Iarrobino**, Northeastern University, and **Leila Khatami**, Union College.

The EDGE (Enhancing Diversity in Graduate Education) Program: Pure and Applied Talks by Women Math Warriors, **Laurel Ohm**, Princeton University, **Shanise Walker**, University of Wisconsin Eau Claire, and **Ziva Myer**, Byrn Mawr College.

The History of Mathematics, **Jemma Lorenat**, Pitzer College, **Adrian Rice**, Randolph-Macon College, **Deborah Kent**, University of St. Andrews, and **Daniel E. Otero**, Xavier University.

The Math and Art of Mathemalchemy, **Carolyn Yackel**, Mercer University, and **Edmund Harriss**, University of Arkansas.

The Mathematics of RNA and DNA, **Chris McCarthy** and **Johannes Hamilton**, Borough of Manhattan Community College, CUNY.

The Scholarship of Teaching and Learning: Past, Present, and Future, **Jacqueline M. Dewar**, Loyola Marymount University, **Thomas F. Banchoff**, Brown University, **Curtis Bennett** and **Brian Katz**, California State University, Long Beach, **Lew Ludwig**, Denison University, and **Larissa Schroeder**, University of Nebraska Omaha.

The Teaching and Learning of Undergraduate Ordinary Differential Equations: An interdisciplinary approach, **Viktoria Savaturova**, Central Connecticut State University, **Itai Seggev**, Wolfram Research, **Iordanka Panayotova**, Christopher Newport University, and **Beverly H. West**, Cornell University.


Topology, Structure and Symmetry in Graph Theory, **Mark N Ellingham**, Vanderbilt University, and **Lowell Abrams**, George Washington University.

Trees in Many Contexts (a Mathematics Research Communities session), **Ann W. Clifton**, Louisiana Tech University, **Fadekemi Janet Osaye**, Alabama State University, **Lora Bailey**, Grand Valley State University, **Alex Wiedemann**, Randolph-Macon College, and **Reem Mahmoud**, Virginia Commonwealth University.

Undergraduate Research Activities in Mathematical and Computational Biology, **Timothy D. Comar**, Benedictine University, **Hannah Callender Highlander**, University of Portland, and **Anne E. Yust**, University of Pittsburgh.

Understanding COVID-19: Three Years of Mathematical Models to Address the Global Pandemic, **Lauren M. Childs**, Virginia Tech, **Hwayeon Ryu**, Elon University, and **Kamila Larripa**, Humboldt State University.

Variational Methods, Optimal Control and Hamilton-Jacobi equations, **Wilfrid Gangbo**, UCLA, **Andrzej Swiech**, Georgia Tech, **Alpar Meszaros**, University of Durham, and **Chenchen Mou**, City University of Hong Kong.

Women in Automorphic Forms, **Mathilde Gerbelli-Gauthier**, Institute for Advanced Study, and **Maria Fox**, University of Oregon.

**American Statistical Association Special Sessions**

AIM-ASA Special Session Researchers from the Latinx Mathematician Network, **Jesus De Loera**, University of California, Davis. (This session is co-sponsored by AIM and ASA)
Association for Symbolic Logic Special Sessions


Tame Geometry and Applications to Analysis, Alexi Block Gorman, The Fields Institute, Elliot Kaplan, McMaster University, and Daniel Miller, Emporia State University.

Association for Women in Mathematics Special Sessions

Women, Art, and Mathematics: Mathematics in the Literary Arts and Pedagogy in Creative Settings, Shanna Dobson, California State University Los Angeles, Elizabeth Donovan, Murray State University, and Stephanie Lewkiewicz, Temple University.

Women in Graph Theory, Karen Collins, Wesleyan University, Sandra Kingan, Brooklyn College and the Graduate Center, Brigitte Servatius, Worcester Polytechnic Institute, and Ann Trenk, Wellesley College.

Celebrating the Mathematical Contributions of the AWM, Donatella Danielli, Arizona State University, Kathryn Leonard, Occidental College, Michelle Manes, University of Hawaii at Manoa, and Ami Radunskaya, Pomona College.

Recent Developments in the Analysis of Local and Nonlocal PDEs, Donatella Danielli, Arizona State University, and Alaa Haj Ali, Arizona State University.

Consortium for Mathematics and its Applications Special Sessions

COMAP Special Session on COMAP’s Modeling Contests: Engaging Students and Faculty in Mathematical Modeling, Amanda Beecher, Ramapo College of New Jersey, Kayla Blyman, Saint Martin’s University, and Steve Horton, US Military Academy Emeritus.

International Linear Algebra Society Special Sessions

Innovative and Effective Ways to Teach Linear Algebra, Sepideh Stewart, University of Oklahoma, Gil Strang, Massachusetts Institute of Technology, David Strong, Pepperdine University, and Megan Wawro, Virginia Tech.

ILAS-AIM Special Session on The Inverse Eigenvalue Problem for a Graph and Zero Forcing, Mary Flagg, University of St Thomas, and Bryan Curtis, Iowa State University.

Matrices and Operators, Mohsen Aliabadi, Iowa State University, Pan-Shun Lau, University of Nevada, Reno, and Tin-Yan Tam, University of Nevada, Reno.

Matrix Analysis and Applications, Edward Poon, Embry-Riddle Aeronautical University, and Hugo Woerdeman, Drexel University.

National Association of Mathematicians

Quantitative Justice, Omayra Ortega, NAM, Ron Buckmire, SIAM, and Carrie Diaz Eaton, Bates College. (NAM-SIAM Minisymposia/Special Session)

The Simons Laufer Mathematical Sciences Institute (SLMath), formerly MSRI Special Sessions

The MSRI/SLMath African Diaspora Joint Mathematics Working Groups (ADJOINT), Edray Goins, Pomona College, and Anisah Nu’Man, Spellman College.

The MSRI/SLMath Undergraduate Program (MSRI-UP), Federico Ardila, San Francisco State University.

Summer Research in Mathematics (SRiM): Applied and Computational Mathematics, Jingwei Hu, University of Washington, Yifei Lou, University of Texas at Dallas, and Yunan Yang, Cornell University.

Summer Research in Mathematics (SRiM): Unknotting Operations, Hannah Turner, Georgia Institute of Technology, and Samantha Allen, University of Georgia, Athens.

Summer Research in Mathematics (SRiM): Geometric and Topological Combinatorics, Margaret Bayer, University of Kansas, Marija Milutinovic, University of Belgrade, and Julianne Vega, Kennesaw State University.

Summer Research in Mathematics (SRiM): Dynamics and Operator Algebras, Sarah Browne, University of Kansas, Elizabeth Gillaspy, University of Montana, Sarah Reznikoff, Kansas State University, and Lauren Ruth, Mercy College.

Summer Research in Mathematics (SRiM): Mathematical Modeling and Analysis in Eye Research, Atanaska Dobreva and Erika Camacho, Arizona State University.

Summer Research in Mathematics (SRiM): Analytic Number Theory, Sneha Chaubey, Indian Institute of Information Technology, Ayla Gafni, University of Mississippi, and Amita Malik, Max Planck Institute.

Summer Research in Mathematics (SRiM): Cluster Algebras and Related Topics, Esther Banaian, University of Minnesota, Sunita Chepuri, University of Michigan, and Elizabeth Kelley, University of Illinois at Urbana-Champaign.
**Summer Research in Mathematics (SRiM): Differential and Metric Geometry.** Lee Kennard, Syracuse University, and Catherine Searle, Wichita State University.

**Pro Mathematica Arte Special Sessions**

*Budapest Semesters in Mathematics Special Session on Mathematical Research in Budapest for Students and Faculty,* Kristina Garrett, St. Olaf College.

**Society for Industrial and Applied Mathematics Minisymposia**

*Combinatorial Optimization,* Annie Raymond, University of Massachusetts.  
*Numerical Linear Algebra,* Jim Nagy, Emory University.  
*Quantitative Justice,* Omayra Ortega, NAM, Ron Buckmire, SIAM, and Carrie Diaz Eaton, Bates College. (NAM-SIAM Minisymposia/Special Session)  
*Fractional Dynamics,* Łukasz Płociniczak, Wrocław University of Science and Technology.  
*Imaging and Inverse problems,* Andrea Arnold, Worcester Polytechnic Institute.  
*Applications of the Maslov Index,* Christopher Jones and Emmanuel Fleurantin, University of North Carolina.  
*Quantum Algorithms,* Dong An, University of Maryland, and Di Fang, University of California, Berkeley.  
*SIAM ED session on Education as Research and Research as Education,* Ben Galluzzo and Katie Kavanagh, Clarkson University.

**Association for LGBTQ+ Mathematicians (Spectra) Special Sessions**

*AMS-Spectra Special Session on Research by LGBTQ+ Mathematicians,* Juliette Bruce, UC Berkeley, Christopher Goff, University of the Pacific, and Rebecca R.G., George Mason University.

**AMS Sessions for Contributed Papers**

There will be sessions of ten-minute contributed talks. Although an individual may present only one contributed paper at a meeting, any combination of joint authorship may be accepted, provided no individual speaks more than once on the contributed paper program. Contributed papers will be grouped together by related subject classifications into sessions.

**Submission of Abstracts for JMM Sessions**

Authors must submit abstracts of talks through the JMM abstract submission site.\(^1\) Simply follow the step-by-step instructions through to completion, until you receive a confirmation of your successful submission. Detailed instructions are also posted on this page on the JMM 2023 website.\(^2\) No submission is complete until you receive this confirmation. The deadline for all submissions is September 13, 2022. Late papers cannot be accommodated. Please email meet@ams.org if you have questions.

**Programs of JMM Partners**

*Please see complete descriptions of these sessions on the JMM website.*

**American Mathematical Society**

**AMS Poster Session**

AMS-PME Student Poster Session, organized by Chad Awtrey, Samford University, Paul Fishback, Grand Valley State University, and Frank Patane, Samford University; Friday, 10:30 am–12:00 pm and 3:30–5:00 pm. These sessions feature research done by undergraduate students. First-year graduate students are eligible to present if their research was completed while they were still undergraduates. Research by high school students can be accepted if the research was conducted under the supervision of a faculty member at a post-secondary institution.

Appropriate content for a poster includes, but is not limited to, a new result, a new proof of a known result, a new mathematical model, an innovative solution to a Putnam problem, or a method of solution to an applied problem. Purely expository material is not appropriate for this session.

\(^1\)https://meetings.ams.org/math/jmm2023/cfp.cgi

\(^2\)https://www.jointmathematicsmeetings.org/meetings/national/jmm2023/2270_abs-submit
Participants should submit an abstract through the JMM abstract submission portal by September 13. Questions regarding this session should be directed to Chad Awtrey, cawtrey@samford.edu, Paul Fishback, fishbcp@mail.gvsu.edu, or Frank Patane, fpatane@samford.edu.

AMS Panels

Please see complete descriptions of these sessions on the JMM website.

AMS Panel on Double Anonymous Peer Review, organized by David Futer, Temple University, and Judy Walker, University of Nebraska–Lincoln; Wednesday, 9:30–10:30 am. Panelists to include Henry Cohn, Microsoft Research, and additional panelists to be announced.

AMS Committee on Equity, Diversity, and Inclusion Panel: Making Changes on Improving Equity, Diversity, and Inclusion (EDI), organized by Dennis Davenport, Howard University, Sarah Greenwald, Appalachian State University, and Ami Radunskaya, Pomona College; Wednesday, 10:30 am–12:00 pm. Panelists are Rachel Levy, North Carolina State University, Herbert Medina, University of Portland, and Donald Outing, Lehigh University.

AMS Advocacy for Mathematics and Science Policy, organized and moderated by Karen Saxe, American Mathematical Society; Thursday, 9:30–11:00 am.

AMS Committee on Education Panel Discussion, organized by Karen Saxe, American Mathematical Society; Thursday, 1:00–2:30 pm. The moderator and panelists are to be announced. This panel is sponsored by the AMS Committee on Education.

AMS Committee on the Profession Panel Discussion: Supporting Faculty in Mentoring Students for Careers Beyond Academia, organized by Christian Borgs, University of California Berkeley, Jim L. Brown, Occidental College, Ellen Eischen, University of Oregon, Pamela E. Harris, University of Wisconsin Milwaukee, and Mary Lynn Reed, Rochester Institute of Technology; Friday, 1:00–2:30 pm. The moderator for this panel is Mary Lynn Reed, Rochester Institute of Technology. Panelists are Lee DeVeille, University of Illinois, Tegan Emerson, Pacific Northwest National Laboratory, Ryan Garibaldi, Center for Communications Research, La Jolla, Talitha Washington, Clark Atlanta University & Atlanta University Center, and Suzanne Weekes, SIAM. This panel is sponsored by the AMS Committee on the Profession.

AMS Panel: Keys to Journal Publishing with the AMS, organized by Lauren Foster and Nicola Poser, American Mathematical Society; Friday, 1:00–2:00 pm.

AMS Committee on Science Policy Panel Discussion, organized by Duane Cooper, Morehouse College, Deborah Frank Lockhart, NSF, and Allen J Stewart, AMS Congressional Fellow 2021–22; Friday, 2:30–4:00 pm. This panel is sponsored by the Committee on Science Policy.

AMS DC-Based Policy & Communications Opportunities, organized by Karen Saxe, American Mathematical Society, and Duncan Wright; Friday, 4:30–6:30 pm.

AMS Committee on Meetings and Conferences Panel: Future of AMS Meetings, organized by Shanna Dobson, University of California, Riverside, David Morrison, University of California Santa Barbara, Emma Previato, Boston University, and Suzanne S. Sindi, University of California, Merced; Saturday, 9:30–11:00 am. Panelists are Shanna Dobson, University of California, Riverside, Abba Gumel, Arizona State University, Samuel Hansen, University of Michigan, Sara Rezvi, University of Illinois, Chicago, and Monica Van Dieren, Robert Morris University. Moderator for this panel is Suzanne S. Sindi, University of California, Merced. This panel is sponsored by the AMS Committee on Meetings and Conferences.

AMS Workshops

Please see complete descriptions of these sessions on the JMM website.

2023 AMS Department Chairs Workshop: This annual one-day workshop for department chairs, leaders, and prospective leaders will be held on Tuesday, January 3, 2023, 9:00 am–2:00 pm, the day before the JMM begins.

The workshop will provide an opportunity to share experiences about issues and trends that have an impact on math department chairs, math departments, and colleges and universities. Topics could include resources, handling stress (students, staff, and faculty), curriculum, and instructional delivery. The organizers expect the workshop to help build a community of leaders who can continue to exchange ideas and offer support and advice.

Registration for this workshop will include lunch and will also provide reserved seating for the JMM opening reception on January 4 at 6:15 pm. More details about registration and associated fees will be available on the workshop webpage. Please send questions to Kim Kuda (kak@ams.org) in the AMS Programs Department.

AMS Workshop: Teaching and Managing Large Undergraduate Mathematics Courses in a Changing World, organized by P. Gavin LaRose, University of Michigan, and Bryan Mosher, University of Minnesota–Twin Cities; Part I, Wednesday, 4:00–6:00 pm, and Part II, Friday, 4:00–6:00 pm.

3https://www.ams.org/profession/leaders/workshops/chairsworkshop
Other AMS Events

Please see complete descriptions of these sessions on the JMM website.

Council, Tuesday, 1:30 pm.

Business Meeting, Saturday, 11:45 am.

MAA-SIAM-AMS Hrabowski-Gates-Tapia-McBay Session, organized jointly by the Mathematical Association of America, Society for Industrial and Applied Mathematics, and the American Mathematical Society; Friday, 9:00–10:30 am. This year the session will consist of a lecture from 9:00–9:50 am given by Omaya Ortega, Sonoma State University, title to be announced, and a short panel discussion, title to be announced, from 9:50–10:30 am. Panelists to be announced.

Career Fair, Thursday, 8:30–10:30 am. This is an opportunity for mathematically trained job seekers at various phases of education and experience—graduate students, undergraduates, postdoctoral, and others—to interact in person with employers in business, industry, and government (BIG). This event is your chance to network and learn what it takes to do a BIG job. If your company is interested in participating, for US$150, a table will be provided for your posters and printed materials, and you are welcome to speak to interested students personally. Complimentary coffee will be served, sponsored by the AMS.

Grad School Fair, Friday, 8:30–10:30 am. Here is the opportunity for undergrads to meet representatives from mathematical sciences graduate programs from universities all over the country. January is a great time for juniors to learn more, and college seniors may still be able to refine their search. This is your chance for one-stop shopping in the graduate school market. At JMM 2020, over 300 students met with representatives from more than 70 graduate programs. If your school has a graduate program and you are interested in participating, for US$150, a table will be provided for your posters and printed materials, and you are welcome to personally speak to interested students. Complimentary coffee will be served, sponsored by the AMS. Information is available here.4

Current Events Bulletin, organized by David Eisenbud, Mathematical Sciences Research Institute; Friday, 2:00–6:00 pm.

AMS Short Course on Polynomial systems, homotopy continuation and applications

Monday–Tuesday, January 2–3, 2023

This two-day short course, organized by Timothy Duff, University of Washington, and Margaret H. Regan, Duke University, will offer six introductory lectures on the theory of polynomial systems, homotopy continuation, and their applications. The speakers represent a broad and diverse cross-section of researchers working on basic methods and applications of homotopy continuation. They include Silviana Amethyst, University of Wisconsin, Eau Claire, Jonathan Hauenstein, University of Notre Dame, Anton Leykin, Georgia Institute of Technology, Julia Lindberg, University of Wisconsin-Madison, Mark Plecnik, University of Notre Dame, and Jose Israel Rodriguez, University of Wisconsin-Madison.

There are separate registration fees to participate in this course. Please see the complete short course announcement in this issue, or go to https://www.ams.org/short-course.

AMS Travel Grants

PUI Faculty Travel Grants. The AMS is excited to offer a new opportunity for faculty at primarily undergraduate institutions (PUI) to receive funding of up to $2,100 to support participation in JMM. Grant funds can be used to offset expenses for travel, registration, lodging, and meals. One advantage of this funding is that it can be used to support participation in the Short Course or the Chairs Workshop. Additional information can be found here.5

Graduate Student Travel Grants. The AMS, with funding from a private gift, will be accepting applications for partial travel support for graduate students attending the Joint Mathematics Meetings in Boston, MA, January 4–7, 2023. The awards, not to exceed US$1,300, will ideally be matched by travel funds from the student’s institution, but this is not a strict requirement.

Applications will be accepted ONLY from doctoral students in mathematics who are in their last year of study; i.e., applicants must not have received their doctoral degrees before the travel takes place but must expect to receive them within twelve months of the JMM. No student shall receive a grant more than once. Exception for JMM 2023—those who received grant support for the virtual JMM in 2022 are eligible to apply for the JMM 2023 grant. Information can be found here.6

Undergraduate Student Travel Grants. With support from the National Science Foundation, the AMS is offering travel support to a limited number of undergraduate students who are presenting in the following JMM sessions: Pi Mu Epsilon Undergraduate Poster Session, AMS-SIAM Special Session on Research in Mathematics by Undergraduates, and

4http://www.ams.org/programs/students/gradfair
5https://www.ams.org/programs/travel-grants/puifac-tg
6http://www.ams.org/programs/travel-grants/grad-students/emp-student-JMM
Students in Post-baccalaureate Programs, and Other Special or Contributed Sessions at the Joint Mathematics Meetings in Boston, MA, January 4–7, 2023.

The award amounts are anticipated to be up to $1,080 to defray travel, housing, and subsistence. Applications are especially encouraged from students from groups that have been underrepresented in the mathematical sciences and from those with a need for travel support. Additional information can be found here.7

Please also see the section on Child Care Grants.

**American Association for the Advancement of Science**

The AAAS-AMS Invited Address will be given by Philip Maini, University of Oxford, *Are we there yet? Modelling collective cell motion in biology and medicine*; Friday, 11:10 am.

**American Institute for Mathematics**

Please see complete descriptions of these sessions on the JMM website.

AIM has a number of AIM Special Sessions. A full list of these sessions can be found in the AIM Special Sessions section above, including a joint AIM-ASA Special Session and a jointly sponsored ILAS-AIM Special Session.

AIM will host a reception; please see the listing in the Social Events section of the announcement.

**American Statistical Association**

The ASA Committee of Presidents of Statistical Societies (COPSS) Lecture will be given by Rob Santos, Director, US Census Bureau, *Title to be announced*.

ASA will host a reception Thursday; please see the listing in the Social Events section of the announcement.

**Association for Symbolic Logic**

Please see complete descriptions of these sessions on the JMM website.

Association for Symbolic Logic Tutorial: Hilbert’s Tenth Problem: Between logic and number theory, Parts I & II, organized by Solomon Reed, ASL; Wednesday, 9:00–10:00 am and 1:00–2:00 pm. The speaker for these tutorial sessions is Sylvy Anscombe, Université Paris Cité and Sorbonne Université.

The ASL Invited Address program will take place on Friday and Saturday. The program will include invited addresses by Jeremy Avigad, Carnegie Mellon University, *The promise of formal mathematics*; Peter Cholak, University of Notre Dame, *Ramsey like theorems on the rationals*; Franziska Jahnke, University of Münster, *Model theory of perfectoids fields*; Sandra Müller, Technical University of Vienna, *Universally Baire sets, determinacy and inner models*; Lynn Scow, California State San Bernadino, *Semi-retractions and the Ramsey Property*; and Erik Walsberg, Vassar College, *Model theory of large fields*.

ASL will also host an ASL Contributed Paper Session on Friday afternoon and two ASL Special Sessions on Thursday; more information on these sessions can be found in the Association for Symbolic Logic Special Sessions section above.

**Association for Women in Mathematics**

Please see complete descriptions of these sessions on the JMM website.

AWM Panel: Non-Traditional Academic Careers in Math, organized by sarah-marie belcastro, MathILy, and Alice Mark, Vanderbilt University; Wednesday, 2:15–3:40 pm. Panel moderator is Alice Mark, Vanderbilt University, and panelists are to be announced.

Business Meeting, Wednesday, 3:45–4:15 pm. Chair, Kathryn Leonard, AWM President.

The AWM-AMS Noether Lecture will be delivered on Thursday at 10:05 am by Laura DeMarco, Harvard University, *Title to be announced*.

AWM Workshop Poster Presentations and Reception, Friday, 4:00–5:30 pm. AWM will conduct its workshop poster presentations by women graduate students. This session is open to all JMM attendees. AWM seeks volunteers to serve as mentors for workshop participants. If you are interested, please contact the AWM office at awm@awm-math.org.

Association for Women in Mathematics Reception and Award Presentation, Friday, 5:00–6:30 pm. Please see the listing in the Social Events section of the announcement.

AWM Workshop: Women in Commutative Algebra (WiCA), organized by Claudia Miller, Syracuse University, and Janet Striuli, Fairfield University; Saturday, 8:00 am–12:00 pm and 1:00–5:00 pm. A Poster Session for graduate students and recent PhDs will be held in conjunction with the workshop on Friday. Updated information about the workshop is available at www.awm-math.org.

7https://www.ams.org/programs/travel-grants/undergrad-tg
AWM also has a number of AWM Special Sessions. A full list of these sessions can be found in the AWM Special Sessions section above.

**Consortium for Mathematics and its Applications**

*Please see complete descriptions of these sessions on the JMM website.*

**COMAP Workshop:** COMAP’s Certificate in Modeling (CiM) Program for Educators, Modules 1 and 2, organized by **Kayla Blyman**, Saint Martin’s University, **Michelle Isenhour**, Consortium for Mathematics and Its Applications, and **Daniel Teague**, North Carolina School of Science and Mathematics; Wednesday, 8:00 am–12:00 pm and 1:00–5:00 pm. Panelists are **Kayla Blyman**, Saint Martin’s University, **Victor Piercey**, Ferris State University, **Daniel Teague**, North Carolina School of Science and Mathematics, and **Thomas Wakefield**, Youngstown State University.

**COMAP Contributed Paper Session:** Integrating Modeling into Established Courses, organized by **Amanda Beecher**, Ramapo College of New Jersey, and **Kayla Blyman**, Saint Martin’s University; Saturday, 8:00 am–12:00 pm and 1:00–6:00 pm.

COMAP also has a COMAP Special Session. More information on this session can be found in the Consortium for Mathematics and its Applications Special Sessions section above.

**International Linear Algebra Society**

The ILAS Invited Address will be given on Wednesday at 9:00 am.

ILAS also has a number of ILAS Special Sessions. A full list of these sessions can be found in the ILAS Special Sessions section above.

**Julia Robinson Mathematics Festival**

*Please see complete descriptions of these sessions on the JMM website.*

**JRMF Workshop:** Learn about Math Festivals with JRMF, organized by **Daniel Kline**, Julia Robinson Mathematics Festival; Friday, 2:00–3:30 pm.

**Julia Robinson Math Festival,** organized by **Daniel Kline**, Julia Robinson Mathematics Festival; Saturday, 9:00 am–12:00 pm.

The Julia Robinson Mathematics Festival will also provide engaging activities during the JMM Grand Opening Reception on Wednesday evening.

**The Simons Laufer Mathematical Sciences Institute (SLMath), formerly MSRI**

MSRI/SLMath has a number of MSRI/SLMath Special Sessions. A full list of these sessions can be found in The Simons Laufer Mathematical Sciences Institute (SLMath), formerly MSRI Special Sessions section above.

MSRI/SLMath will also host a reception on Friday; please see the listing in the Social Events section of the announcement.

**National Association of Mathematicians**

*Please see complete descriptions of these sessions on the JMM website.*

The Haynes-Granville-Browne Session of Presentations by Recent Doctoral Recipients in the Mathematical Sciences, organized by NAM Vice President, **Rhonda Fitzgerald**, Norfolk State University; Friday, 1:00–5:00 pm.

The Cox-Talbot Address, speaker TBD, organized by NAM Vice President, **Rhonda Fitzgerald**, Norfolk State University, and NAM President, **Omayra Ortega**, Sonoma State University; Friday, 7:45–8:45 pm, after the banquet. See details about the banquet on Friday in the Social Events section.

The NAM Business Meeting will take place on Saturday, 11:15 am–12:15 pm.

**NAM Claytor-Woodard Lecture,** speaker TBD, organized by NAM Vice President, **Rhonda Fitzgerald**, Norfolk State University, and NAM President, **Omayra Ortega**, Sonoma State University; Thursday, 2:40–3:40 pm.

NAM also has a joint NAM-SIAM Special Session on the program; a listing of this session can be found in the NAM Special Sessions section above.

**Pi Mu Epsilon**

*Please see complete descriptions of these sessions on the JMM website.*

**Pi Mu Epsilon Contributed Sessions on Research by Undergraduates,** organized by **Jennifer Beineke**, Western New England University, **Darci Kracht**, Kent State University, and **Thomas Wakefield**, Youngstown State University; Thursday.

**PME J. Sutherland Frame Lecture,** organized by **Paul Fishback**, Grand Valley State University; Wednesday, 5:00 pm.

**Edray Herber Goin**, Pomona College, will provide this lecture, *Distance Makes the Math Grow Deeper: Rational Distance Sets, Nate Dean, and Me.*
AMS-PME Student Poster Session, organized by Chad Awtrey, Samford University, Paul Fishback, Grand Valley State University, and Frank Patane, Samford University; Friday, 10:30 am–12:00 pm and 3:30–5:00 pm. These sessions feature research done by undergraduate students. First-year graduate students are eligible to present if their research was completed while they were still undergraduates. Research by high school students can be accepted if the research was conducted under the supervision of a faculty member at a post-secondary institution.

Appropriate content for a poster includes, but is not limited to, a new result, a new proof of a known result, a new mathematical model, an innovative solution to a Putnam problem, or a method of solution to an applied problem. Purely expository material is not appropriate for this session.

Participants should submit an abstract through the JMM abstract submission portal by September 13. Questions regarding this session should be directed to Chad Awtrey, cawtrey@samford.edu, Paul Fishback, fishbacp@mail.gvsu.edu, or Frank Patane, fpatane@samford.edu.

PME Panel: What Every Student Should Know about the JMM, organized by Jennifer Beineke, Western New England University, Stephanie Edwards, Hope College, and Tom Wakefield, Youngstown State University; Wednesday, 1:00–2:30 pm, and Thursday, 10:30 am–12:00 pm. This panel is sponsored by Pi Mu Epsilon.

Pro Mathematica Arte
Please see complete descriptions of these sessions on the JMM website.

The PMA program includes a Budapest Semesters in Math Special Session. Information on this session can be found in the Pro Mathematica Arte Special Sessions section above.

PMA will also host a reception for BSM Alumni. Please see the listing in the Social Events section of the announcement.

Society for Industrial and Applied Mathematics
Please see complete descriptions of these sessions on the JMM website.

SIAM Minisymposia for JMM 2023 will take place Wednesday–Saturday. There are 8 Minisymposia. A full list of these sessions can be found in the Society for Industrial and Applied Mathematics Minisymposia section above. There is also a Joint NAM-SIAM Session included in this listing.

See also the session cosponsored by SIAM in the American Mathematical Society Special Sessions listing, AMS-SIAM Special Session on Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, organized by Darren A. Narayan, Rochester Institute of Technology.

The SIAM Invited Address will be delivered by Mariel Vazquez, University of California, Davis, Topology and Evolution of DNA and RNA; Thursday, 11:10 am.

SIAM Panel on a BIG world view: Business-Industry-Government Careers for Mathematicians, organized by Nessy Tania, Pfizer; Thursday, 8:00–9:30 am. Panelists to be announced.

MAA-SIAM-AMS Hrabowski-Gates-Tapia-McBay Session, organized jointly by the Mathematical Association of America, Society for Industrial and Applied Mathematics, and the American Mathematical Society; Friday, 9:00–10:30 am. This year the session will consist of a lecture from 9:00–9:50 am given by Omaya Ortega, Sonoma State University, title to be announced, and a short panel discussion, title to be announced, from 9:50–10:30 am. Panelists to be announced.

MAA-AMS-SIAM Gerald and Judith Porter Public Lecture will be given by Bernd Sturmfels, University of California, Title to be announced; Saturday, 3:00 pm.

SIAM also has a joint NAM-SIAM Special Session on the program; a listing of this session can be found in the SIAM Special Sessions section above.

SIAM will also host a reception; please see the listing in the Social Events section of the announcement.

Association for LGBTQ+ Mathematicians (Spectra)
Please see complete descriptions of these sessions on the JMM website.

Spectra Lavender Lecture, organized by Juliette Bruce, University of California, Berkeley, and Chris Goff, Pacific University, speaker TBD; Thursday, 11:00 am. The Spectra Lavender Lecture honors LGBTQ+ mathematicians who have made significant contributions to the mathematical sciences, mathematical education, or the mathematical community at large.

Spectra Business Meeting, organized by Juliette Bruce, University of California, Berkeley; Friday, 3:00–4:00 pm. Spectra will also host a reception; please see the listing in the Social Events section of the announcement.

Spectra also has a Spectra Special Session on the program; a listing of this session can be found in the Spectra Special Sessions section above.
Transforming Post-Secondary Education in Mathematics

Please see complete descriptions of these sessions on the JMM website.

TPSE Invited Address, organized by Scott Wolpert, University of Maryland and TPSE Math; day and time to be announced.

JMM Sessions and Events

Professional Enhancement Programs (PEP)

Professional Enhancement Programs (PEP) are open only to persons who register for the Joint Meetings and pay the Joint Meetings registration fee in addition to the appropriate Professional Enhancement Program (PEP) fee. The AMS reserves the right to cancel any PEP that is undersubscribed. Participants should read the descriptions of each PEP thoroughly as some require participants to bring their own laptops and special software; laptops will not be provided in any PEP. The enrollment in each PEP is limited to 50; the cost is US$125 per program for the member rate (AIM, AMS, AWM, ASA, NAM, or SIAM) and US$200 for the nonmember rate.

Please see complete descriptions of these JMM Professional Enhancement Programs (PEP) on the JMM website.

Professional Enhancement Program (PEP) #1: Breaking the Cycle of Mechanisms of Inequality in Mathematics Teaching and Learning, presented by Nicole M. Joseph, Vanderbilt University, and William Yslas Velez, University of Arizona; Part A, Wednesday, 1:00–3:00 pm, and Part B, Thursday, 1:00–3:00 pm.

Professional Enhancement Program (PEP) #2: Developing Mathematics Programs for Workforce Preparation in Data Science and Other Applications, presented by Rick Cleary, Babson College, and Chris Malone, Winona State University; Part A, Wednesday, 1:00–3:00 pm, and Part B, Friday, 1:00–3:00 pm.

Professional Enhancement Program (PEP) #3: Evidence-based Practices for More Effective Mentoring Relationships, presented by Pamela E. Harris, Williams College, and Abbe Herzig, TPSE-Math; Part A, Wednesday, 1:00–3:00 pm, and Part B, Friday, 1:00–3:00 pm. Co-sponsored by the American Mathematical Society, The Center for Minorities in the Mathematical Sciences, and Lathisms.

Professional Enhancement Program (PEP) #4: Inclusive Active Learning in Undergraduate Mathematics, presented by Nancy Kress, University of Colorado at Boulder, Rebecca Machen, University of Colorado at Boulder, Wendy Smith, University of Nebraska-Lincoln, and Matt Voigt, Clemson University; Part A, Thursday, 9:00–11:00 am, and Part B, Saturday, 9:00–11:00 am.

Professional Enhancement Program (PEP) #5: Recruiting and Mentoring Majors in the Mathematical Sciences, presented by Jason Aubrey and William Y. Velez, University of Arizona; Part A, Friday, 9:00–11:00 am, and Part B, Saturday, 9:00–11:00 am.


Professional Enhancement Program (PEP) #7: Creating accessible and interactive documents with PreTeXt, presented by Oscar Levin, University of Northern Colorado, and Steven Clontz, University of South Alabama; Part A, Thursday, 9:00–11:00 am, and Part B, Saturday, 9:00–11:00 am. This PEP is sponsored by AIM.

Professional Enhancement Program (PEP) #8: How to Run Successful Math Circles for Students and Teachers, presented by Brianna Donaldson, American Institute of Mathematics, Spencer Bowen, American Institute of Mathematics, Gabriella Pinter, University of Wisconsin, Milwaukee, and Lauren Rose, Bard College; Part A, Thursday, 1:00–3:00 pm, and Part B, Saturday, 1:00–3:00 pm. This PEP is sponsored by AIM.

Professional Enhancement Program (PEP) #9: Introductory Python Jupyter Notebooks for College Math Teachers, presented by Paul Isihara, Wheaton College (IL); Part A, Wednesday, 9:00–11:00 am, and Part B, Friday, 9:00–11:00 am.

Professional Enhancement Program (PEP) #10: Visualizing Projective Geometry Through Photographs and Perspective Drawings, presented by Annalisa Crannell, Franklin and Marshall College, and Fumiko Futamura, Southwestern University; Part A, Thursday, 1:00–3:00 pm, and Part B, Saturday, 1:00–3:00 pm.

Professional Enhancement Program (PEP) #11: Getting Started in the Scholarship of Teaching and Learning, presented by Jacqueline Dewar, Loyola Marymount University; Part A, Thursday, 1:00–3:00 pm, and Part B, Friday, 1:00–3:00 pm.
JMM Sessions

Talithia Williams, Harvey Mudd College, recipient of the 2022 JPBM Communications Award, will deliver the 2022 JPBM Communications Award Lecture.

Estimathon!, organized by Andrew Niedermaier, Jane Street Capital; Thursday, 3:30–4:30 pm.

Uniform Convergence: A One Woman Play, performed by Corrine Yap, Rutgers University; Thursday, 6:00–7:00 pm.

MEET and SHARE: A mathematicians’ storytelling event, organized by Padi Fuster Aguiliera, University of Colorado at Boulder, and Selvi Kara, University of Utah; Thursday, 8:00–10:00 pm. This event is sponsored by the Center for Minorities in Mathematical Sciences.

Mathematically Bent Theater, featuring Colin Adams and the Mobiusbandaid Players; Friday, 6:00–7:00 pm.

JMM Panels

Please see complete descriptions of these sessions on the JMM website.

JMM Panel: Mentoring Undergraduate Research in Data-Driven Research Projects, organized by Vinodh Chellamuthu, Utah Tech University, and Allison Henrich, Seattle University; Wednesday, 8:30–10:00 am. Panelists are Michael Dorff, Brigham Young University, Diana Thomas, United States Military Academy, Mark Ward, Purdue University, and Suzanne Weekes, SIAM. This panel is sponsored by the SIGMAA on Business, Industry, and Government.

JMM Panel: Redefining Math Conferences, organized by Robyn Brooks, Boston College, and Padi Fuster Aguiliera, University of Colorado at Boulder; Wednesday, 8:30–10:00 am. This panel is sponsored by the Math for All Conference.

JMM Panel: A DEI Perspective on Undergraduate Research, organized by Vinodh Chellamuthu, Utah Tech University, and Allison Henrich, Seattle University; Wednesday, 10:30 am–12:00 pm. Panelists are Rebecca Garcia, Sam Houston State University, Edray Goins, Pomona College, and Pamela Harris, Williams College. This panel is sponsored by the SIGMAA on Undergraduate Research.

JMM Panel: Highlights from Research on Instructors’ Learning about Teaching, Parts I & II, organized by Jack Bookman, Duke University, and Shandy Hauk, San Francisco State University; Thursday, 8:30–10:00 am. Panelists are Mary Beisiegel, Oregon State University, Emily Braley, Johns Hopkins University, Josh Brummer, University of Nebraska-Lincoln, Jennifer Kaplan, Middle Tennessee State University, Sandra Laursen, University of Colorado Boulder, Mary Pilgrim, San Diego State University, Natasha Speer, The University of Maine, and Sean Yee, University of South Carolina.

Joint Committee on Women Panel Discussion, organized by Jennifer Schultens, University of California, Davis; Thursday, 1:00–2:30 pm. Panelists to be announced.

JMM Panel: Women in Math Leadership, organized by Donatella Danielli, Arizona State University; Thursday, 3:00–4:00 pm. Panelists to be announced.

JMM Panel: The Prison Mathematics Project: Justice via the Pursuit of Beauty, organized by Trubee Davison, Christopher Havens, and Ruth Utnage, Prison Mathematics Project; Friday, 11:00 am–12:00 pm. Panelists are Kristaps Balodis, Prison Mathematics Project and University of Calgary, Timothy Pennings, Davenport University, Amit Sahai, UCLA, and Jack Smith, Prison Mathematics Project.

JMM Panel: Hidden Figures Revealed: Reflections from Research on Black Mathematicians, organized by Ranthony Edmonds, The Ohio State University, and David Goldberg, Math Alliance and Purdue University; Saturday, 8:00–9:30 am. Panelists are Ranthony Edmonds, The Ohio State University, and David Goldberg, Math Alliance and Purdue University.

JMM Workshops

Please see complete descriptions of these sessions on the JMM website.

JMM Workshop on Math for Sustainability: Quantitative and Ethical Reasoning in General Education Mathematics, organized by Russ deForest, Pennsylvania State University; Wednesday, 1:00–3:00 pm. Sponsored by SIGMAA on Environmental Mathematics.

JMM Workshop: Exploring the Teaching of Calculus Using Infinitesimals: Hands-on Practice in Issues Related to Curriculum Design, organized by C Dawson, Union University; Wednesday, 9:30–11:00 am.

JMM Workshop: Mathematicians + Wikipedia – a training edit-a-thon to reduce the “Wikipedia gender gap” in the Mathematical Sciences, organized by Francesca Bernardi, Worcester Polytechnic Institute, and Xavier Ramos Olive, Smith College; Wednesday, 10:30 am–12:00 pm.

JMM Workshop: Equitable and Active Strategies That You Can Try in Your Next Class, organized by Kristin Kurianski and Roberto Soto, California State University Fullerton; Wednesday, 1:00–3:00 pm. Speakers at this workshop are Kristin Kurianski, Amanda Martinez, and Roberto Soto, California State University Fullerton.
JMM Workshop: Inquiry-Oriented Linear Algebra: Exploring (infinite) solution sets, organized by Christine Andrews-Lar-son, Florida State University, Minah Kim, Florida State University, Inyoung Lee, Arizona State University, Jessica Smith, Vanderbilt University, and Michelle Zandieh, Arizona State University; Wednesday, 4:00–5:30 pm.

JMM Workshop: Applied Category Theory as a transformative, and impactful, paradigm for experiencing, sharing, teaching and learning mathematics, organized by Theodore Theodosopoulos, Nueva School; Wednesday, 4:00–6:00 pm.

JMM Workshop: A sense of belonging: Creating an inclusive environment in the mathematical sciences, organized by Darolyn Flaggs and Wendy Sanchez, Kennesaw State University; Thursday, 8:30–10:00 am. Speakers at this workshop are Belinda Edwards, Darolyn Flaggs, Alison Hedrick, Amy Hillen, and Wendy Sanchez, Kennesaw State University.

JMM Workshop on Inquiry-Oriented Linear Algebra: Exploring Determinants, organized by Matthew Mauntel, Florida State University, David Plaxco, Clayton State University, and Megan Wawro, Virginia Tech; Friday, 4:00–5:30 pm.

JMM Workshop: Planning and Hosting a Day Long Mathematics Outreach Event, organized by Denise Reid and Sandra Trowell, Valdosta State University; Saturday, 9:00–11:00 am.

Programs of Other Organizations

This section includes scientific sessions. Several organizations or special groups are having receptions or other social events. Please see the Social Events section of this announcement for those details.

Please see complete descriptions of these sessions on the JMM website.

Association of Christians in the Mathematical Sciences (ACMS) Reception and Lecture, Thursday, 6:00–8:00 pm. The reception will take place between 6:00–7:00 pm, followed by a short program and 20-minute talk. Students are encouraged to attend.

Joint Committee on Women Panel Discussion, organized by Jennifer Schultens, University of California, Davis; Thursday, 1:00–2:30 pm.

National Science Foundation (NSF)

Please see complete descriptions of these sessions on the JMM website.

The NSF will be represented in several sessions and events taking place at the 2023 JMM. Details on these sessions to be announced.

Project NExT

Project NExT Workshop, Wednesday–Saturday, 8:00 am–6:00 pm.

Project NExT Lecture on Teaching, Estrella Johnson, Virginia Tech, Title to be announced; Thursday, 11:10 am–12:00 pm.

Project NExT Reception, organized by Trish Hammer, Virginia Tech University, Brian Katz, Cal State University, Long Beach, David Kung, St Mary’s College of Maryland, and Stephanie Salomone, University of Portland; Friday, 8:00–10:00 pm. All Project NExT Fellows, consultants, and other friends of MAA Project NExT are invited.

Special Interest Groups of the MAA (SIGMAA)

Please see complete descriptions of these sessions on the JMM website.

SIGMAA on Business, Industry, and Government

JMM Panel: Mentoring Undergraduate Research in Data-Driven Research Projects, organized by Vinodh Chellamuthu, Utah Tech University, and Allison Henrich, Seattle University; Wednesday, 8:30 am–10:00 am. Panelists are Michael Dorff, Brigham Young University, Diana Thomas, United States Military Academy, Mark Ward, Purdue University, and Suzanne Weekes, SIAM. This panel is sponsored by the SIGMAA on Business, Industry, and Government.

SIGMAA on Environmental Mathematics (SIGMAA EM)

JMM Workshop on Math for Sustainability: Quantitative and Ethical Reasoning in General Education Mathematics, organized by Russ deForest, Pennsylvania State University; Wednesday, 1:00–3:00 pm. Sponsored by SIGMAA on Environmental Mathematics.

Lightning Talks in Environmental Mathematics, organized by Russ deForest, Pennsylvania State University; Thursday, 6:00–7:00 pm.

SIGMAA on Environmental Mathematics Guest Lecture and Reception, Thursday, 7:00–8:30 pm.

SIGMAA on the Philosophy of Mathematics

SIGMAA on the Philosophy of Mathematics Guest Lecture, organized by Bonnie Gold, Monmouth University, and Jeff Buechner, Rutgers University; Friday, 6:00–7:30 pm. Russell Marcus, Hamilton College, Title to be announced.
SIGMAA on Undergraduate Research

JMM Panel: A DEI Perspective on Undergraduate Research, organized by Vinodh Chellamuthu, Utah Tech University, and Allison Henrich, Seattle University; Wednesday, 10:30 am–12:00 pm. Panelists are Rebecca Garcia, Sam Houston State University, Edray Goins, Pomona College, and Pamela Harris, Williams College. This panel is sponsored by the SIGMAA on Undergraduate Research.

Sessions for Students

Please see complete descriptions of these sessions on the JMM website.

AMS Erdős Lecture for Students, Eugenia Cheng, School of the Art Institute of Chicago, Associativity, Commutativity and Units: a Higher-dimensional ballet; Wednesday, 11:10 am–12:00 pm.

PME Panel: What Every Student Should Know about the JMM, organized by Jennifer Beineke, Western New England University, Stephanie Edwards, Hope College, and Tom Wakefield, Youngstown State University; Wednesday, 1:00–2:30 pm, and Thursday, 10:30 am–12:00 pm. This panel is sponsored by Pi Mu Epsilon.

Pi Mu Epsilon Contributed Sessions on Research by Undergraduates, organized by Jennifer Beineke, Western New England University, Darci Kracht, Kent State University, and Thomas Wakefield, Youngstown State University; Thursday.

Grad School Fair, Friday, 8:30–10:30 am. Sponsored by the AMS.

AMS-PME Student Poster Session, organized by Chad Awtrey, Samford University, Paul Fishback, Grand Valley State University, and Frank Patane, Samford University; Friday, 10:30 am–12:00 pm and 3:30–5:00 pm. These sessions feature research done by undergraduate students. First-year graduate students are eligible to present if their research was completed while they were still undergraduates. Research by high school students can be accepted if the research was conducted under the supervision of a faculty member at a post-secondary institution.

Appropriate content for a poster includes, but is not limited to, a new result, a new proof of a known result, a new mathematical model, an innovative solution to a Putnam problem, or a method of solution to an applied problem. Purely expository material is not appropriate for this session.

Participants should submit an abstract through the JMM abstract submission portal by September 13. Questions regarding this session should be directed to Chad Awtrey, cawtrey@samford.edu, Paul Fishback, fishbcp@mail.gvsu.edu, or Frank Patane, fpatane@samford.edu.

Other Events

Mathematical Art Exhibition, organized by Robert Fathauer, Tessellations Company, and Nathan Selikoff, Digital Awakening Studios, and supported by the Bridges Organization. A popular feature at the Joint Mathematics Meetings, this exhibition provides a break in your day. On display are works in various media by artists who are inspired by mathematics and by mathematicians who use visual art to express their findings. Topology, fractals, polyhedra, and tiling are some of the ideas at play here. Do not miss this unique opportunity for a different perspective on mathematics. The exhibition will be located inside the Joint Mathematics Exhibits and open during the same exhibit hours.

Exhibits

The Joint Mathematics Meetings Exhibits include the country’s leading scientific publishers, professional organizations, companies that offer mathematics-enrichment products and services, computer hardware and software companies, and the Mathematical Art Exhibit. It will be open to all registered participants on Wednesday (starting with the Grand Opening Reception) 6:15–8:30 pm, on Thursday and Friday 9:00 am–5:00 pm, and on Saturday 9:00 am–12:00 pm. See more details on the JMM website.

Welcoming Environment Policy

The AMS strives to ensure that participants in the JMM, including exhibitors, enjoy a welcoming environment. In all its activities, the AMS seeks to foster an atmosphere that encourages the free expression and exchange of ideas. The AMS supports equality of opportunity and treatment for all participants, regardless of gender, gender identity or expression, race, color, national or ethnic origin, religion or religious belief, age, marital status, sexual orientation, disabilities, veteran status, or immigration status.
Harassment is a form of misconduct that undermines the integrity of AMS activities and mission. The AMS will make every effort to maintain an environment that is free of harassment, even though it does not control the behavior of third parties. A commitment to a welcoming environment is expected of all participants of JMM activities, including mathematicians, students, guests, staff, contractors and exhibitors, and participants in scientific sessions and social events. To this end, the AMS will include a statement concerning its expectations towards maintaining a welcoming environment in registration materials for the JMM, and has put in place a mechanism for reporting violations. Violations may be reported confidentially and anonymously to 855-282-5703 or at www.mathsociety.ethicspoint.com. The reporting mechanism ensures the respect of privacy while alerting the AMS to the situation. Assistance may also be sought from any staff or volunteer member wearing a MathSafe badge. Learn more about the MathSafe program. Violations may also be brought to the attention of the AMS Director of Meetings & Conferences at the registration desk during the meeting.

MathSafe

MathSafe is a program by and for the mathematical community to support safe and welcoming meetings. MathSafe volunteers will be available at the JMM to listen to and guide participants who experience harassing behavior. Volunteers will be identifiable by their MathSafe buttons. See more details on the JMM website.

How to Reserve Hotel Rooms

See details about hotels and how to reserve a room on the JMM website.

Importance of Staying in an Official JMM Hotel

The importance of reserving a room at one of the official JMM hotels cannot be stressed enough. The AMS makes every effort to keep participants’ expenses at the meeting as low as possible and a lot of work and effort goes into negotiating the most affordable hotel rates. When a participant registers for the meeting and reserves a room at an official JMM hotel, they are helping to support not only JMM 2023, but future JMMs as well.

Reserving a Room

Participants are encouraged to register for the JMM in order to reserve hotel rooms at the JMM rates. If a participant needs to reserve a hotel room before they are registered for the JMM, they should contact the Mathematics Meetings Services Bureau (MMSB) at mmsb@ams.org or 1-800-321-4267 (ext. 4094 or ext. 4144) for further instructions.

Special rates have been negotiated exclusively for this meeting at the following hotels: Marriott Copley, Sheraton Boston, and Westin Copley Place. See details on these hotels and more details on the JMM website.

Reservations must be made through the MMSB. The hotels will not be able to accept reservations directly until after December 9, 2022. At that time, rooms and rates will be based on availability. Any rooms reserved directly with the hotels after December 9, 2022 will be subject to higher rates.

A link to the JMM 2023 hotel reservation portal will be included in the confirmations of registrations sent by email. If a participant needs the link sent directly to them, they should send a request to mmsb@ams.org. If any participant has difficulty reserving a hotel room, they should send email to mmsb@ams.org for assistance.

Any participant who needs to reserve a hotel room and does not have a credit card to guarantee it should send email to mmsb@ams.org for further instructions. If a check is being used to guarantee a room, the reservation and check must be received by the MMSB no later than November 30, 2022.

Miscellaneous

Please see details about audio-visual equipment; email services; information distribution; local information; the JMM Broadcasting, Photographing, and Videotaping Policy; and telephone messages on the JMM website.

8https://www.jointmathematicsmeetings.org/meetings/national/jmm2022/jmm-mathsafe
Child Care Grants

Please see details about how to apply for child care grants on the JMM website.

Registration Information

Everyone is welcome at the JMM. The American Mathematical Society (AMS) encourages all participants to register for the JMM. The importance of registering for the meeting cannot be overemphasized. Paying a registration fee helps to support a wide range of activities associated with planning, organizing, and executing the meetings.

All participants who wish to attend sessions are expected to register for the JMM and should be prepared to show their badges, if so requested. Badges are required to enter the Exhibits and the Employment Center. The Mathematics Meetings Service Bureau (MMSB) is the official registration and housing bureau for the meeting and will be available to assist you with your registration and housing arrangements.

Cancellation Policy

To cancel a registration for the JMM, PEP, Short Course, or banquet tickets and be eligible to receive 50% of fees paid, please do so by December 30, 2022. No refunds will be issued after this date.

Deadlines

Register by December 20, 2022, midnight EST to be eligible for discounted registration fees. After this date, registration will continue through the end of the meeting but increased fees will apply.

Updates and corrections received too late to be included in the program books will be included in the online program on the JMM website and in the JMM Mobile App.

Register for the Meeting

Registration can only be done online. Paper registration forms are no longer available. To register for the meeting, go to the online registration form on the JMM website and choose “Register.” You will be asked to enter your email address and to sign in with your personal AMS web account. If you do not have an AMS web account, you will need to create one. After you have signed in, proceed with completing the registration form.

Visa, MasterCard, Discover, and American Express are the only methods of payment accepted for online registrations, and charges to credit cards will be made in US funds. Registration acknowledgments will be sent to the email addresses provided. Once you complete your registration and pay for it, you will see a link to the hotel portal, in which you will be able to reserve a hotel room.

Special Registration Codes

To allow for easy tracking of registrations for participants that belong to certain groups and are attending the meeting solely to participate in those groups, a registration code will be sent to them to register. Some (but not all) of these groups are Commercial Exhibitors, Art Exhibitors, Career Fair Exhibitors, Grad School Fair Exhibitors, and Press. Participants who are attending the JMM solely to participate as part of certain designated groups that are essential to the meeting should contact the MMSB at mmsb@ams.org to receive a code. Employers in the Employment Center should contact Programs at emp-info@ams.org to receive a code. Participants in other groups will be notified directly by the MMSB.

See more details about how to register for the meeting at https://www.jointmathematicsmeetings.org/meetings/national/jmm2023/2270_reg.
Joint Mathematics Meetings Registration Fees

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<tr>
<th>Category</th>
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<th>After Dec. 20</th>
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<tr>
<td>Member of AIM, AMS, AWM, ASA, NAM, or SIAM</td>
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<tr>
<td>Multiple Fairs (by late September)</td>
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<td>JMM Only</td>
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<td>Multiple Fairs (by late September)</td>
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<tr>
<td>Student/Unemployed/Emeritus</td>
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Registration Category Definitions

Full-Time Students: Any person who is currently working toward a degree or diploma is eligible for this category. Students are asked to determine whether their status can be described as a graduate (working toward a degree beyond the bachelor’s), an undergraduate (working toward a bachelor’s degree), or high school (working toward a high school diploma) and to mark the registration form accordingly.

Retired: Any person who has been a member of the AMS for twenty years or more and who retired because of age or long-term disability from his or her latest position is eligible for this category.

Emeritus (for Short Course): Any person who has been a member of the AMS for twenty years or more and who retired because of age or long-term disability from his or her latest position is eligible for this category.

Librarian: Any librarian who is not a professional mathematician is eligible for this category.

Unemployed: Any person who is currently unemployed, actively seeking employment, and is not a student is eligible for this category. This category is not intended to include any person who has voluntarily resigned or retired from his or her latest position.

Developing Country Participant: Any person who is employed in a developing country, where salary levels are radically not commensurate with those in the US, is eligible for this category. See the most recent list of developing countries at https://www.isi-web.org/resources/developing-countries.
Non-mathematician Guest: Any family member, friend, or associate, who is not a mathematician, and who is accompanied by a participant in the meeting is eligible for this category. Guests will receive a badge and may attend any session, talk, or other event at the meeting.

Commercial Exhibitor: Any person who is exhibiting in the Joint Mathematics Meetings Exhibits is eligible for this category. This does not include anyone participating in a poster session. Any exhibitor who is a mathematician and is participating in the scientific program and/or wants to attend sessions, talks, etc. is expected to register separately for the meeting.

Art Exhibitor: Any person who is exhibiting in the Mathematical Art Exhibition is eligible for this category. This does not include anyone participating in a poster session. Any exhibitor who is a mathematician and is participating in the scientific program and/or wants to attend sessions, talks, etc. is expected to register separately for the meeting.

Social Events

All events listed are open to all registered participants. It is strongly recommended that for any event requiring a ticket, tickets should be purchased through advance registration. Only a very limited number of tickets, if any, will be available for sale on site. If you must cancel your participation in a ticketed event, you may request a 50% refund by returning your tickets to the Mathematics Meetings Service Bureau (MMSB) by December 30, 2022. After that date, no refunds can be made. Special meals are available at banquets upon advance request, but this must be indicated on the Registration/Housing Form. Please see complete descriptions of these events on the JMM website.

American Institute for Mathematics Math Circles Reception, date and time to be determined. 
American Statistical Association Reception, Thursday, 6:00–7:00 pm.
Art of Problem Solving (AoPS) Reception for Alumni and Friends, Thursday, 6:30–8:00 pm.
Association of Christians in the Mathematical Sciences (ACMS) Reception and Lecture, Thursday, 6:00–8:00 pm. The reception will take place between 6:00 and 7:00 pm, followed by a short program and a lecture.
Association for Women in Mathematics Reception and Awards Presentation, Friday, 5:00–6:30 pm. The AWM Reception is open to all JMM participants and will begin at 5:00 pm, during the Poster presentations.
Budapest Semesters in Mathematics Annual Alumni Reunion, Thursday, 6:00–7:00 pm.
Estimathon!, organized by Andrew Niedermaier, Jane Street Capital; Thursday, 3:30–4:30 pm.
Grand Opening Reception, Wednesday, 6:15–8:30 pm.
ICERM Mixer, Friday, 6:00–7:30 pm.
University of Illinois at Urbana-Champaign, Friday, 5:30–7:30 pm.
Knitting Circle, Thursday, 8:15–9:45 pm. Bring a project (knitting/crochet/tatting/beading/etc.) and chat with other mathematical crafters!
Mathematical Reviews Reception, Friday, 6:00–7:00 pm.
Mathematical Institutes Open House, Thursday, 6:00–8:30 pm.
SLMath / MSRI Reception for Current and Future Donors, Friday, 6:00–7:30 pm.
MEET and SHARE: A Mathematicians’ Storytelling Event, presented by The Coalition for the Amplification of Historically Excluded Mathematicians (The Coalition), day and time to be announced.
National Association of Mathematicians Banquet, Friday, 6:00–9:00 pm. A cash bar reception will be held at 6:00 pm, and dinner will be served at 6:30 pm. The Cox-Talbot Invited Address will be given after the dinner.
NSA WiMS Networking Event, Thursday, 6:00–8:00 pm.
Penn State’s Eberly College of Science and Department of Mathematics Reception, Thursday, 6:00–8:00 pm. Attendance is free, but registration is required by visiting https://engage.tass1.com/event/9938/.
Project NExT Reception, Friday, 8:00–10:00 pm.
Society for Industrial and Applied Mathematics (SIAM) Reception on Industrial Math Modeling, Thursday, 7:00–9:00 pm.
Spectra Reception for LGBT Mathematicians, day and time to be announced.
Texas A&M University Mathematics Department Reception for Alumni, Students, and Faculty, Friday, 6:00–7:30 pm.
Yearly Gather: Collaborative Puzzle Time!, Thursday, 6:30–8:00 pm. Organized by sarah-marie belcastro, MathILy, and Alice Mark, MathILy-Er and Vanderbilt University.

Travel/Transportation

Please see details about travel and transportation options on the JMM website.