



Program at a Glance

This document provides a thumbnail sketch of all scientific and social events so you can easily see which events may overlap and better plan your time. All sessions and events are in the Baltimore Convention Center, Hilton Baltimore, and the Baltimore Marriott Marquis Inner Harbor unless otherwise noted.

Monday, January 14

- 8:15 a.m.–5:30 p.m.** AMS SHORT COURSE ON SUM OF SQUARES: THEORY AND APPLICATIONS, PART I, Holiday Ballroom 1-3, 2nd Floor, Hilton
- 5:00 p.m.–6:00 p.m.** AMS SHORT COURSE RECEPTION, Holiday Ballroom 1-3, 2nd Floor, Hilton

Tuesday, January 15

- 8:00 a.m.–6:30 p.m.** AMS DEPARTMENT CHAIRS WORKSHOP, Grand Ballroom ABC, 1st Floor, Marriott Inner Harbor
- 8:30 a.m.–5:30 p.m.** AMS SHORT COURSE ON SUM OF SQUARES: THEORY AND APPLICATIONS, PART II, Holiday Ballroom 1-3, 2nd Floor, Hilton
- 1:30 p.m.–10:00 p.m.** AMS COUNCIL, Holiday Ballroom 4-6, 2nd Floor, Hilton
- 3:00 p.m.–7:00 p.m.** JOINT MEETINGS REGISTRATION *Advanced registration will remain open until 7:30 pm.*, Pratt Street Lobby, 300 Level, BCC
- 3:00 p.m.–7:30 p.m.** EMAIL CENTER, Pratt Street Lobby, 300 Level, BCC

Wednesday, January 16

- 7:00 a.m.–6:00 p.m.** JOINT MEETINGS REGISTRATION, Pratt Street Lobby, 300 Level, BCC
- 7:00 a.m.–11:00 p.m.** EMAIL CENTER, Pratt Street Lobby, 300 Level, BCC
- 7:00 a.m.–8:45 a.m.** MAA MINORITY CHAIRS MEETING, Peale, 1st Floor, Hilton
- AMS SPECIAL SESSIONS**
- 8:00 a.m.–10:50 a.m.** *Algorithmic Dimensions and Fractal Geometry, I (AMS-ASL)*, Room 343, BCC
- 8:00 a.m.–10:45 a.m.** *How to Guard an Art Gallery and Other Discrete Mathematical Adventures (In Memory of T. S. Michael, 1960 to 2016)*, I, Room 345, BCC
- 8:00 a.m.–10:50 a.m.** *Analysis of Fractional, Stochastic, and Hybrid Dynamic Systems with Applications, I*, Room 328, BCC

- 8:00 a.m.–10:45 a.m. *New Directions in the Theory of Complex Multiplication, I, Room 321, BCC*
- 8:00 a.m.–10:50 a.m. *Nonlinear Evolution Equations and Their Applications, I, Room 331, BCC*
- 8:00 a.m.–10:50 a.m. *Quaternions, I, Room 319, BCC*
- 8:00 a.m.–10:50 a.m. *Numerical Methods for PDEs and Applications, I, Room 330, BCC*
- 8:00 a.m.–10:45 a.m. *Recent Advancements in Mathematical Modeling of Cancer, I, Room 337, BCC*
- 8:00 a.m.–10:50 a.m. *Natural Resources Modeling, I, Room 336, BCC*
- 8:00 a.m.–10:50 a.m. *Geometry Labs United: Research, Visualization, and Outreach, I, Room 326, BCC*
- 8:00 a.m.–10:50 a.m. *Commutative Ring Theory: Research for Undergraduate and Early Graduate Students, I, Room 320, BCC*
- 8:00 a.m.–10:50 a.m. *Hopf Algebras and Tensor Categories, I, Room 318, BCC*
- 8:00 a.m.–10:50 a.m. *Mappings on Metric and Banach Spaces with Applications to Fixed Point Theory, I, Room 347, BCC*
- 8:00 a.m.–10:50 a.m. *Recent Advances and Trends in Computable Structure Theory (in honor of J. Remmel), I, Room 344, BCC*
- 8:00 a.m.–10:50 a.m. *Financial Mathematics, I, Room 338, BCC*
- 8:00 a.m.–10:45 a.m. *Recent Advances in Regularity Lemmas, I, Room 346, BCC*
- 8:00 a.m.–10:50 a.m. *A Showcase of Number Theory at Undergraduate Institutions, I, Room 325, BCC*
- 8:00 a.m.–10:50 a.m. *Optimal Methods in Applicable Analysis: Variational Inequalities, Low Rank Matrix Approximations, Systems Engineering, Cyber Security, I, Room 329, BCC*
- 8:00 a.m.–10:50 a.m. *25 years of Conferences for African-American Researchers in the Mathematical Sciences (CAARMS times 25), I, Room 314, BCC*

MAA INVITED PAPER SESSIONS

- 8:00 a.m.–10:50 a.m. *Trends in Mathematical and Computational Biology, Room 317, BCC*
- 8:00 a.m.–10:50 a.m. *Building Successful Communities in Mathematics, Room 323, BCC*
- 8:00 a.m.–10:40 a.m. **AMS CONTRIBUTED PAPER SESSION ON FLUID MECHANICS, Room 311, BCC**
- 8:00 a.m.–10:25 a.m. **AMS CONTRIBUTED PAPER SESSION ON CALCULUS OF VARIATIONS, OPTIMAL CONTROL, AND OPTIMIZATION, Room 312, BCC**
- 8:00 a.m.–10:10 a.m. **AMS CONTRIBUTED PAPER SESSION ON MATHEMATICAL PHYSICS AND RELATED TOPICS, Room 313, BCC**
- 8:00 a.m.–9:55 a.m. **AMS CONTRIBUTED PAPER SESSION ON GROUP THEORY AND GENERALIZATIONS, Room 333, BCC**
- 8:00 a.m.–8:55 a.m. **AMS CONTRIBUTED PAPER SESSION ON MATHEMATICS EDUCATION, Room 334, BCC**
- 8:00 a.m.–10:10 a.m. **AMS CONTRIBUTED PAPER SESSION ON ORDER, LATTICES, AND LOGIC, Room 335, BCC**
- 8:00 a.m.–10:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON THE SCHOLARSHIP OF TEACHING AND LEARNING IN COLLEGIATE MATHEMATICS, I, Room 322, BCC**
- 8:00 a.m.–10:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON DISCRETE MATHEMATICS IN THE UNDERGRADUATE CURRICULUM - IDEAS AND INNOVATIONS IN TEACHING, I, Room 305, BCC**
- 8:00 a.m.–10:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON MATHEMATICS AND THE ARTS, I, Room 306, BCC**
- 8:00 a.m.–10:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON TOUCH IT, FEEL IT, LEARN IT: TACTILE LEARNING ACTIVITIES IN THE UNDERGRADUATE MATHEMATICS CLASSROOM, I, Room 340, BCC**

- 8:00 a.m.–8:55 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON HISTORY OR PHILOSOPHY OF MATHEMATICS, Room 348, BCC**
- 8:00 a.m.–10:40 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON LINEAR ALGEBRA, Room 341, BCC**
- 8:00 a.m.–10:50 a.m. **SIAM MINISYMPOSIUM ON ADVANCES IN MATHEMATICAL MODELING OF COMPLEX MATERIALS SYSTEMS, Room 342, BCC**
- 8:00 a.m.–6:00 p.m. **PROJECT NEXT WORKSHOP, Room 308, BCC**
- 8:00 a.m.–5:30 p.m. **EMPLOYMENT CENTER, Exhibit Hall E, 100 Level, BCC**
- 8:15 a.m.–10:55 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON INTERDISCIPLINARY TOPICS IN MATHEMATICS, Room 302, BCC**
- AMS SPECIAL SESSIONS**
- 8:30 a.m.–10:50 a.m. *Bifurcations of Difference Equations and Discrete Dynamical Systems with Applications, I, Room 332, BCC*
- 8:40 a.m.–10:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON OPEN EDUCATIONAL RESOURCES: COMBINING TECHNOLOGICAL TOOLS AND INNOVATIVE PRACTICES TO IMPROVE STUDENT LEARNING, I, Room 303, BCC**
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #1: PART A *Mathematical Inquiry and Writing through Sports, Holiday Ballroom 1, 2nd Floor, Hilton***
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #2: PART A *Start Teaching Statistics using R and RStudio, Holiday Ballroom 2, 2nd Floor, Hilton***
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #7: PART A *Using Data Applications to Inspire Linear Algebra Topics in the Classroom, Holiday Ballroom 3, 2nd Floor, Hilton***
- 9:00 a.m.–10:40 a.m. **AMS CONTRIBUTED PAPER SESSION ON COMPUTER SCIENCE, Room 334, BCC**
- 9:00 a.m.–10:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON INTRODUCING MATHEMATICAL MODELING THROUGH COMPETITIONS, I, Room 304, BCC**
- 9:00 a.m.–9:25 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON OUTREACH, Room 301, BCC**
- 9:00 a.m.–9:45 a.m. **MAA-SIAM-AMS HRABOWSKI-GATES-TAPIA-MCBAY SESSION: LECTURE, Room 307, BCC**
- 9:00 a.m.–10:30 a.m. **AMS DIRECTORS OF UNDERGRADUATE STUDIES, Key Ballroom 2, 2nd Floor, Hilton**
- 9:00 a.m.–10:20 a.m. **MAA PANEL *What Every Student Should Know about the JMM, Room 349, BCC***
- AMS SPECIAL SESSIONS**
- 9:30 a.m.–10:50 a.m. *Symbolic Dynamics, I, Room 327, BCC*
- 9:30 a.m.–10:25 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON LOGIC AND FOUNDATIONS, Room 348, BCC**
- 9:35 a.m.–10:55 a.m. **MAA PANEL *Mathematics Placement Trends and Innovations that Increase Equitable Access & Success, Room 350, BCC***
- 9:35 a.m.–10:55 a.m. **MAA WORKSHOP *NSF Funding Opportunities in the Education and Human Resources Directorate and the Division of Mathematical Sciences, Room 324, BCC***
- 9:40 a.m.–10:55 a.m. **PROJECT NEXT WORKSHOP ON USING MATHEMATICAL SOFTWARE *Effective Use of Computer Software in Mathematics Classrooms, Room 308, BCC***
- 9:50 a.m.–10:30 a.m. **MAA-SIAM-AMS HRABOWSKI-GATES-TAPIA-MCBAY PANEL *Actions to increase the participation of underrepresented minority groups in mathematics., Room 307, BCC***

- 10:00 a.m.–10:50 a.m.** **MAA CONTRIBUTED PAPER SESSION ON INNOVATIVE CURRICULAR STRATEGIES FOR INCREASING MATHEMATICS MAJORS, Room 301, BCC**
- 10:05 a.m.–10:55 a.m.** **AMS INVITED ADDRESS** *Algebraic, Geometric, and Topological Methods in Optimization.* Jesús A. De Loera, **Ballrooms I & II, 400 Level, BCC**
- 10:20 a.m.–10:50 a.m.** **RADICAL DASH KICKOFF MEETING, Room 339, BCC**
- 11:10 a.m.–12:00 p.m.** **AMS-MAA INVITED ADDRESS** *What is the shape of a rational map?* Sarah Koch, **Ballrooms I & II, 400 Level, BCC**
- 12:15 p.m.–5:30 p.m.** **EXHIBITS AND BOOK SALES, Exhibit Hall F, 100 Level, BCC**
- 1:00 p.m.–1:50 p.m.** **AMS COLLOQUIUM LECTURES: LECTURE I** *Complex multiplication: past, present, future.* Benedict H. Gross, **Ballrooms I & II, 400 Level, BCC**
- 1:00 p.m.–2:55 p.m.** **MAA CONTRIBUTED PAPER SESSION ON TOUCH IT, FEEL IT, LEARN IT: TACTILE LEARNING ACTIVITIES IN THE UNDERGRADUATE MATHEMATICS CLASSROOM, II, Room 340, BCC**
- 1:00 p.m.–1:55 p.m.** **MAA GENERAL CONTRIBUTED PAPER SESSION ON MATHEMATICS AND TECHNOLOGY, Room 323, BCC**
- 2:15 p.m.–3:05 p.m.** **MAA INVITED ADDRESS** *Symmetry, almost.* Amanda Folsom, **Ballrooms I & II, 400 Level, BCC**
- AMS SPECIAL SESSIONS**
- 2:15 p.m.–5:35 p.m.** *Algorithmic Dimensions and Fractal Geometry, II (AMS-ASL), Room 343, BCC*
- 2:15 p.m.–6:05 p.m.** *How to Guard an Art Gallery and Other Discrete Mathematical Adventures (In Memory of T. S. Michael, 1960 to 2016), II, Room 345, BCC*
- 2:15 p.m.–6:05 p.m.** *Analysis of Fractional, Stochastic, and Hybrid Dynamic Systems with Applications, II, Room 328, BCC*
- 2:15 p.m.–6:00 p.m.** *New Directions in the Theory of Complex Multiplication, II, Room 321, BCC*
- 2:15 p.m.–6:05 p.m.** *Nonlinear Evolution Equations and Their Applications, II, Room 331, BCC*
- 2:15 p.m.–6:05 p.m.** *Quaternions, II, Room 319, BCC*
- 2:15 p.m.–6:00 p.m.** *Algebraic and Geometric Methods in Discrete Optimization, I, Room 344, BCC*
- 2:15 p.m.–6:05 p.m.** *Numerical Methods for PDEs and Applications, II, Room 330, BCC*
- 2:15 p.m.–6:00 p.m.** *Recent Advancements in Mathematical Modeling of Cancer, II, Room 337, BCC*
- 2:15 p.m.–6:05 p.m.** *Natural Resources Modeling, II, Room 336, BCC*
- 2:15 p.m.–6:00 p.m.** *Geometry Labs United: Research, Visualization, and Outreach, II, Room 326, BCC*
- 2:15 p.m.–6:05 p.m.** *Commutative Ring Theory: Research for Undergraduate and Early Graduate Students, II, Room 320, BCC*
- 2:15 p.m.–6:05 p.m.** *Hopf Algebras and Tensor Categories, II, Room 318, BCC*
- 2:15 p.m.–6:00 p.m.** *Mappings on Metric and Banach Spaces with Applications to Fixed Point Theory, II, Room 347, BCC*
- 2:15 p.m.–6:05 p.m.** *Financial Mathematics, II, Room 338, BCC*
- 2:15 p.m.–6:00 p.m.** *Recent Advances in Regularity Lemmas, II, Room 346, BCC*
- 2:15 p.m.–6:05 p.m.** *Bifurcations of Difference Equations and Discrete Dynamical Systems with Applications, II, Room 332, BCC*
- 2:15 p.m.–6:05 p.m.** *A Showcase of Number Theory at Undergraduate Institutions, II, Room 325, BCC*
- 2:15 p.m.–6:05 p.m.** *Optimal Methods in Applicable Analysis: Variational Inequalities, Low Rank Matrix Approximations, Systems Engineering, Cyber Security, II, Room 329, BCC*
- 2:15 p.m.–6:00 p.m.** *25 years of Conferences for African-American Researchers in the Mathematical Sciences (CAARMS times 25), II, Room 314, BCC*

- 2:15 p.m.–5:05 p.m. *Symbolic Dynamics, II, Room 327, BCC*
- MAA INVITED PAPER SESSIONS**
- 2:15 p.m.–5:35 p.m. *Using Research about Teaching and Learning to Inform the Preparation of Graduate Students to Teach, Room 317, BCC*
- 2:15 p.m.–4:15 p.m. **MAA MINICOURSE #3: PART A** *Advanced Authoring in WeBWork: Turn good math problems into great ones & submit them to the OpenProblemLibrary, Holiday Ballroom 1, 2nd Floor, Hilton*
- 2:15 p.m.–4:15 p.m. **MAA MINICOURSE #4: PART A** *Teaching an Undergraduate Computational Science Course, Holiday Ballroom 2, 2nd Floor, Hilton*
- 2:15 p.m.–4:15 p.m. **MAA MINICOURSE #9: PART A** *Mathematical Art from Complex Analysis, Holiday Ballroom 3, 2nd Floor, Hilton*
- 2:15 p.m.–5:55 p.m. **AMS CONTRIBUTED PAPER SESSION ON DYNAMICAL SYSTEMS AND ERGODIC THEORY, Room 313, BCC**
- 2:15 p.m.–5:25 p.m. **AMS CONTRIBUTED PAPER SESSION ON LOW-DIMENSIONAL MANIFOLDS, Room 333, BCC**
- 2:15 p.m.–5:10 p.m. **AMS CONTRIBUTED PAPER SESSION ON TOPICS IN ANALYSIS, Room 335, BCC**
- 2:15 p.m.–5:25 p.m. **AMS CONTRIBUTED PAPER SESSION ON PARTIAL DIFFERENTIAL EQUATIONS, I, Room 312, BCC**
- 2:15 p.m.–6:10 p.m. **MAA CONTRIBUTED PAPER SESSION ON OPEN EDUCATIONAL RESOURCES: COMBINING TECHNOLOGICAL TOOLS AND INNOVATIVE PRACTICES TO IMPROVE STUDENT LEARNING, II, Room 301, BCC**
- 2:15 p.m.–5:10 p.m. **MAA CONTRIBUTED PAPER SESSION ON THE SCHOLARSHIP OF TEACHING AND LEARNING IN COLLEGIATE MATHEMATICS, II, Room 322, BCC**
- 2:15 p.m.–5:50 p.m. **MAA CONTRIBUTED PAPER SESSION ON INTEGRATING RESEARCH INTO THE UNDERGRADUATE CLASSROOM, Room 302, BCC**
- 2:15 p.m.–4:50 p.m. **MAA CONTRIBUTED PAPER SESSION ON DISCRETE MATHEMATICS IN THE UNDERGRADUATE CURRICULUM - IDEAS AND INNOVATIONS IN TEACHING, II, Room 305, BCC**
- 2:15 p.m.–5:30 p.m. **MAA CONTRIBUTED PAPER SESSION ON MATHEMATICS AND THE ARTS, II, Room 306, BCC**
- 2:15 p.m.–6:10 p.m. **MAA CONTRIBUTED PAPER SESSION ON MATHEMATICS AND SPORTS, I, Room 303, BCC**
- 2:15 p.m.–5:50 p.m. **MAA CONTRIBUTED PAPER SESSION ON UNDERGRADUATE STUDENT TAs IN MATHEMATICS, Room 304, BCC**
- 2:15 p.m.–6:25 p.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON ALGEBRA, I, Room 348, BCC**
- 2:15 p.m.–6:25 p.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON ANALYSIS, Room 341, BCC**
- 2:15 p.m.–5:05 p.m. **SIAM MINISYMPOSIUM ON MATHEMATICAL MODELS IN CANCER, Room 342, BCC**
- 2:15 p.m.–3:35 p.m. **MAA PANEL** *Pursuing New Directions in Your Academic Career, Room 350, BCC*
- 2:15 p.m.–3:35 p.m. **MAA PANEL** *Mental Health in the Mathematics Profession, Room 349, BCC*
- 2:15 p.m.–3:25 p.m. **MAA WORKSHOP** *Discussing Project Ideas with NSF/EHR Program Officers, Part I, Room 324, BCC*
- 2:15 p.m.–3:40 p.m. **ASSOCIATION FOR WOMEN IN MATHEMATICS PANEL DISCUSSION** *Promoting Inclusion in STEM., Room 316, BCC*

- 2:15 p.m.–4:30 p.m.** AMS SPECIAL EVENT *Activities in NSF's Division of Mathematical Sciences*, Room 307, BCC
- 2:30 p.m.–5:25 p.m.** AMS CONTRIBUTED PAPER SESSION ON SYSTEMS THEORY, CONTROL, INFORMATION AND COMMUNICATION, AND CIRCUITS, Room 334, BCC
- 2:45 p.m.–4:55 p.m.** AMS CONTRIBUTED PAPER SESSION ON FUNCTIONAL ANALYSIS, Room 311, BCC
- 2:45 p.m.–3:55 p.m.** MAA GENERAL CONTRIBUTED PAPER SESSION ON MODELING AND APPLICATIONS, I, Room 323, BCC
- 3:00 p.m.–4:55 p.m.** MAA CONTRIBUTED PAPER SESSION ON INQUIRY-BASED LEARNING AND TEACHING, I, Room 340, BCC
- 3:20 p.m.–4:10 p.m.** MAA INVITED ADDRESS *Sailing through data: discoveries and mirages.* Emmanuel Candes, Ballrooms I & II, 400 Level, BCC
- 3:35 p.m.–4:15 p.m.** MAA PANEL *Impacting Mathematics Instruction Through Meaningful Collaboration with Partner Discipline Faculty*, Room 350, BCC
- 3:45 p.m.–4:15 p.m.** AWM BUSINESS MEETING, Room 316, BCC
- 4:00 p.m.–5:00 p.m.** MAA SECTION OFFICERS, Room 323, BCC
- 4:15 p.m.–5:30 p.m.** PROJECT NEXT WORKSHOP ON PRODUCTIVE FAILURE *What can we learn from our teaching mistakes?*, Room 308, BCC
- 4:30 p.m.–6:00 p.m.** AMS COMMITTEE ON THE PROFESSION PANEL DISCUSSION *Permanent teaching faculty in research oriented departments.*, Room 315, BCC
- 4:30 p.m.–5:50 p.m.** TOWN HALL MEETING *Spectra: Identifying Workplace Best Practices for LGBTQ Mathematicians*, Room 339, BCC
- 4:30 p.m.–5:30 p.m.** RECEPTION FOR UNDERGRADUATE STUDENTS, Holiday Ballroom 4, 2nd Floor, Hilton
- 5:00 p.m.–6:25 p.m.** MAA GENERAL CONTRIBUTED PAPER SESSION ON TEACHING AND LEARNING ADVANCED MATHEMATICS, I, Room 305, BCC
- 5:30 p.m.–7:30 p.m.** CANADA/USA MATHCAMP ALUMNI & FRIENDS GATHERING, Poe B, 2nd Floor, Hilton
- 5:30 p.m.–6:30 p.m.** RECEPTION FOR GRADUATE STUDENTS AND FIRST-TIME PARTICIPANTS, Key Ballroom 7,9 & 10, 2nd Floor, Hilton
- 5:30 p.m.–8:00 p.m.** MATHEMATICAL INSTITUTES OPEN HOUSE, Grand Ballroom East West ABC, 1st Floor, Marriott Inner Harbor
- 6:00 p.m.–7:30 p.m.** JOHNS HOPKINS UNIVERSITY DEPARTMENT OF MATHEMATICS RECEPTION, Carroll A, 3rd Floor, Hilton
- 6:00 p.m.–8:00 p.m.** NORTH CAROLINA STATE UNIVERSITY, RECEPTION FOR ALUMNI AND FRIENDS OF THE DEPARTMENT OF MATHEMATICS, Johnson B, 1st Floor, Hilton
- 6:15 p.m.–7:15 p.m.** SIGMAA ON THE HISTORY OF MATHEMATICS (HOM SIGMAA) BUSINESS MEETING AND RECEPTION, Room 306, BCC
- 6:30 p.m.–7:30 p.m.** SIGMAA ARTS BUSINESS MEETING, Room 322, BCC
- 6:30 p.m.–8:00 p.m.** SIGMAA ON SPORTS BUSINESS MEETING, Room 303, BCC
- 7:00 p.m.–8:30 p.m.** {MATHILY, MATHILY-ER} YEARLY GATHER, Peale C, 1st Floor, Hilton
- 7:15 p.m.–8:00 p.m.** SIGMAA ON THE HISTORY OF MATHEMATICS (HOM SIGMAA) GUEST LECTURE *Crossing the pond: European mathematicians in 1920s America.*, Room 306, BCC
- 8:30 p.m.–9:20 p.m.** AMS JOSIAH WILLARD GIBBS LECTURE *Immunology for mathematicians.* Alan S. Perelson, Ballrooms I & II, 400 Level, BCC

9:30 p.m.–11:00 p.m. **ASSOCIATION FOR WOMEN IN MATHEMATICS RECEPTION AND AWARDS PRESENTATION, Room 327/328, BCC**

Thursday, January 17

7:30 a.m.–4:00 p.m. **JOINT MEETINGS REGISTRATION, Pratt Street Lobby, 300 Level, BCC**

7:30 a.m.–7:00 p.m. **EMAIL CENTER, Pratt Street Lobby, 300 Level, BCC**

7:45 a.m.–11:55 a.m. **AMS CONTRIBUTED PAPER SESSION ON RINGS AND ALGEBRAS, Room 334, BCC**

AMS SPECIAL SESSIONS

8:00 a.m.–11:50 a.m. *Definability and Decidability Problems in Number Theory, I (AMS-ASL), Room 343, BCC*

8:00 a.m.–11:50 a.m. *The Mathematics of Gravity and Light (a Mathematics Research Communities Session), I, Room 329, BCC*

8:00 a.m.–11:50 a.m. *Harmonic Analysis: Recent Developments on Oscillatory Integrals (a Mathematics Research Communities Session), I, Room 330, BCC*

8:00 a.m.–11:50 a.m. *Quantum Symmetries: Subfactors and Fusion Categories (a Mathematics Research Communities Session), I, Room 331, BCC*

8:00 a.m.–11:50 a.m. *Agent-based Modeling in Biological and Social Systems (a Mathematics Research Communities Session), I, Room 333, BCC*

8:00 a.m.–11:45 a.m. *New Directions in the Theory of Complex Multiplication, III, Room 321, BCC*

8:00 a.m.–11:45 a.m. *Algebraic and Geometric Methods in Discrete Optimization, II, Room 345, BCC*

8:00 a.m.–11:50 a.m. *Continued Fractions, I, Room 325, BCC*

8:00 a.m.–11:50 a.m. *Problems in Partial Differential Equations, I, Room 337, BCC*

8:00 a.m.–11:45 a.m. *Riordan Arrays, I, Room 347, BCC*

8:00 a.m.–11:45 a.m. *Stochastic Differential Equations and Applications, I, Room 326, BCC*

8:00 a.m.–11:50 a.m. *Recent Advances and Trends in Computable Structure Theory (in honor of J. Remmel), II, Room 344, BCC*

8:00 a.m.–11:50 a.m. *Analysis and Geometry of Nonlinear Evolution Equations, I, Room 336, BCC*

8:00 a.m.–11:50 a.m. *Women in Topology, I, Room 327, BCC*

8:00 a.m.–11:50 a.m. *Lattice Path Combinatorics and Applications, I, Room 338, BCC*

8:00 a.m.–11:50 a.m. *Recent Advances in Homological and Commutative Algebra, I, Room 318, BCC*

8:00 a.m.–11:50 a.m. *Mathematical Models in Ecology, Epidemiology, and Medicine, I, Room 319, BCC*

8:00 a.m.–11:50 a.m. *Recent Progress in Multivariable Operator Theory, I, Room 320, BCC*

8:00 a.m.–11:50 a.m. *Differential Equations on Fractals, I, Room 346, BCC*

8:00 a.m.–11:50 a.m. *The Mathematics of Historically Black Colleges and Universities (HBCUs) in the Mid-Atlantic, I, Room 314, BCC*

MAA INVITED PAPER SESSIONS

8:00 a.m.–11:20 a.m. *Inspiring Diversity in Mathematics: Culture, Community, and Collaboration, Room 317, BCC*

8:00 a.m.–10:50 a.m. *Research in Improving Undergraduate Mathematical Sciences Education: Examples Supported by the National Science Foundation's IUSE: EHR Program, Room 323, BCC*

8:00 a.m.–11:25 a.m. **AMS CONTRIBUTED PAPER SESSION ON NUMBER THEORY, I, Room 311, BCC**

8:00 a.m.–11:40 a.m. **AMS CONTRIBUTED PAPER SESSION ON PARTIAL DIFFERENTIAL EQUATIONS, II, Room 312, BCC**

- 8:00 a.m.–11:25 a.m. **AMS CONTRIBUTED PAPER SESSION ON GENERAL TOPOLOGY, ALGEBRAIC TOPOLOGY, AND TOPOLOGY OF MANIFOLDS, Room 313, BCC**
- 8:00 a.m.–10:10 a.m. **AMS CONTRIBUTED PAPER SESSION ON INTEGRAL EQUATIONS, OPERATIONAL CALCULUS, AND HARMONIC ANALYSIS, Room 335, BCC**
- 8:00 a.m.–11:15 a.m. **MAA CONTRIBUTED PAPER SESSION ON MATHEMATICS AND THE LIFE SCIENCES: INITIATIVES, PROGRAMS, CURRICULA, Room 305, BCC**
- 8:00 a.m.–10:35 a.m. **MAA CONTRIBUTED PAPER SESSION ON INEQUALITIES AND THEIR APPLICATIONS, Room 302, BCC**
- 8:00 a.m.–9:25 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON ALGEBRA, II, Room 348, BCC**
- 8:00 a.m.–11:40 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON GRAPH THEORY, I, Room 341, BCC**
- 8:00 a.m.–6:00 p.m. **PROJECT NEXT WORKSHOP, Room 308, BCC**
- 8:00 a.m.–11:30 a.m. **PME COUNCIL MEETING, Orioles, 2nd Floor, Marriott Inner Harbor**
- 8:00 a.m.–5:30 p.m. **EMPLOYMENT CENTER, Exhibit Hall E, 100 Level, BCC**
- 8:20 a.m.–11:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON RESEARCH IN UNDERGRADUATE MATHEMATICS EDUCATION (RUME), I, Room 340, BCC**
- AMS SPECIAL SESSIONS**
- 8:30 a.m.–11:50 a.m. *Number Theoretic Methods in Hyperbolic Geometry (a Mathematics Research Communities Session), I, Room 332, BCC*
- 8:30 a.m.–11:20 a.m. **SIAM MINISYMPOSIUM ON DATA ASSIMILATION: THEORY AND PRACTICE, Room 342, BCC**
- 8:45 a.m.–10:00 a.m. **MAA CONTRIBUTED PAPER SESSION ON THE EDGE (ENHANCING DIVERSITY IN GRADUATE EDUCATION) PROGRAM: PURE AND APPLIED TALKS BY WOMEN MATH WARRIORS, I, Room 322, BCC**
- 9:00 a.m.–9:50 a.m. **MAA INVITED ADDRESS** *A Dream Deferred: 50 Years of Blacks in Mathematics.* Edray Herber Goins, **Ballrooms I & II, 400 Level, BCC**
- AMS SPECIAL SESSIONS**
- 9:00 a.m.–11:20 a.m. *Research in Mathematics by Early Career Graduate Students, I, Room 328, BCC*
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #2: PART B** *Start Teaching Statistics using R and RStudio, Holiday Ballroom 2, 2nd Floor, Hilton*
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #5: PART A** *IBL SIGMAA Minicourse: Introduction to Inquiry-Based Learning, Holiday Ballroom 1, 2nd Floor, Hilton*
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #8: PART A** *Dance and Mathematics, Holiday Ballroom 5, 2nd Floor, Hilton*
- 9:00 a.m.–11:15 a.m. **MAA CONTRIBUTED PAPER SESSION ON INTRODUCING MATHEMATICAL MODELING THROUGH COMPETITIONS, II, Room 304, BCC**
- 9:00 a.m.–11:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON HUMANISTIC MATHEMATICS, Room 301, BCC**
- 9:00 a.m.–10:00 a.m. **SIGMAA ON BUSINESS, INDUSTRY, AND GOVERNMENT (BIG SIGMAA) BUSINESS MEETING, Room 306, BCC**
- 9:00 a.m.–10:20 a.m. **MAA PANEL** *Connecting High School and Post High School Mathematics, Room 349, BCC*
- 9:00 a.m.–10:20 a.m. **MAA PANEL** *Preparing Math and Stats Students for Industry Careers, Room 350, BCC*

- 9:00 a.m.–10:20 a.m. **MAA WORKSHOP** *Making it Happen: Modeling in Your Differential Equations Course*, **Room 324, BCC**
- 9:30 a.m.–11:55 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON NUMBER THEORY, I**, **Room 348, BCC**
- 9:30 a.m.–5:30 p.m. **EXHIBITS AND BOOK SALES**, **Exhibit Hall F, 100 Level, BCC**
- 10:00 a.m.–11:35 a.m. **MAA CONTRIBUTED PAPER SESSION ON INNOVATIVE AND EFFECTIVE WAYS TO TEACH LINEAR ALGEBRA, I**, **Room 303, BCC**
- 10:00 a.m.–12:00 p.m. **ESTIMATHON!** *A mindbending mixture of math and trivia.*, **Room 339, BCC**
- 10:00 a.m.–12:00 p.m. **MAA POSTER SESSION** *Mathematical Outreach Programs*, **Exhibit Hall G, 100 Level, BCC**
- 10:05 a.m.–10:55 a.m. **AWM-AMS NOETHER LECTURE** *Dynamics of systems with low complexity.* Bryna Kra, **Ballrooms I & II, 400 Level, BCC**
- 10:30 a.m.–12:00 p.m. **SIGMAA OFFICERS MEETING**, **Room 322, BCC**
- 10:35 a.m.–11:10 a.m. **MAA CONTRIBUTED PAPER SESSION ON MATHEMATICS AND THE ARTS, III**, **Room 306, BCC**
- 10:35 a.m.–11:55 a.m. **MAA WORKSHOP** *For Faculty on Fostering Student Engagement: Experience Classroom Practices from the MAA IP Guide*, **Room 324, BCC**
- 11:10 a.m.–12:00 p.m. **MAA PROJECT NEXT LECTURE ON TEACHING AND LEARNING**, **Room 309/310, BCC**
- 11:10 a.m.–12:00 p.m. **SIAM INVITED ADDRESS** *Development of Mathematical Methods for Next Generation Stent Design* Suncica Canic, **Ballrooms I & II, 400 Level, BCC**
- 1:00 p.m.–1:50 p.m. **AMS COLLOQUIUM LECTURES: LECTURE II** *Complex multiplication: past, present, future.* Benedict H. Gross, **Ballrooms I & II, 400 Level, BCC**
- AMS SPECIAL SESSIONS**
- 1:00 p.m.–3:20 p.m. *Definability and Decidability Problems in Number Theory, II (AMS-ASL)*, **Room 343, BCC**
- 1:00 p.m.–2:50 p.m. *The Mathematics of Gravity and Light (a Mathematics Research Communities Session), II*, **Room 329, BCC**
- 1:00 p.m.–3:50 p.m. *Harmonic Analysis: Recent Developments on Oscillatory Integrals (a Mathematics Research Communities Session), II*, **Room 330, BCC**
- 1:00 p.m.–3:50 p.m. *Number Theoretic Methods in Hyperbolic Geometry (a Mathematics Research Communities Session), II*, **Room 332, BCC**
- 1:00 p.m.–3:50 p.m. *Agent-based Modeling in Biological and Social Systems (a Mathematics Research Communities Session), II*, **Room 333, BCC**
- 1:00 p.m.–3:45 p.m. *Algebraic and Geometric Methods in Discrete Optimization, III*, **Room 345, BCC**
- 1:00 p.m.–3:50 p.m. *Continued Fractions, II*, **Room 325, BCC**
- 1:00 p.m.–3:50 p.m. *Problems in Partial Differential Equations, II*, **Room 337, BCC**
- 1:00 p.m.–3:50 p.m. *Riordan Arrays, II*, **Room 347, BCC**
- 1:00 p.m.–3:45 p.m. *Stochastic Differential Equations and Applications, II*, **Room 326, BCC**
- 1:00 p.m.–3:50 p.m. *Recent Advances and Trends in Computable Structure Theory (in honor of J. Remmel), III*, **Room 344, BCC**
- 1:00 p.m.–3:50 p.m. *Analysis and Geometry of Nonlinear Evolution Equations, II*, **Room 336, BCC**
- 1:00 p.m.–3:50 p.m. *Women in Topology, II*, **Room 327, BCC**
- 1:00 p.m.–3:50 p.m. *Lattice Path Combinatorics and Applications, II*, **Room 338, BCC**
- 1:00 p.m.–3:50 p.m. *Recent Advances in Homological and Commutative Algebra, II*, **Room 318, BCC**
- 1:00 p.m.–3:45 p.m. *Recent Advances in Regularity Lemmas, III*, **Room 346, BCC**
- 1:00 p.m.–3:20 p.m. *Research in Mathematics by Early Career Graduate Students, II*, **Room 328, BCC**

- 1:00 p.m.–3:50 p.m.** *Mathematical Models in Ecology, Epidemiology, and Medicine, II, Room 319, BCC*
- 1:00 p.m.–3:50 p.m.** *Recent Progress in Multivariable Operator Theory, II, Room 320, BCC*
- 1:00 p.m.–3:50 p.m.** *The Mathematics of Historically Black Colleges and Universities (HBCUs) in the Mid-Atlantic, II, Room 314, BCC*
- MAA INVITED PAPER SESSIONS**
- 1:00 p.m.–3:50 p.m.** *Modular Forms: Aesthetics and Applications, Room 317, BCC*
- 1:00 p.m.–3:00 p.m.** **MAA MINICOURSE #10: PART A** *Object Based Learning and the Smithsonian Learning Lab, Holiday Ballroom 1, 2nd Floor, Hilton*
- 1:00 p.m.–3:00 p.m.** **MAA MINICOURSE #11: PART A** *How to Run Successful Math Circles for Students and Teachers, Holiday Ballroom 2, 2nd Floor, Hilton*
- 1:00 p.m.–3:00 p.m.** **MAA MINICOURSE #9: PART B** *Mathematical Art from Complex Analysis, Holiday Ballroom 3, 2nd Floor, Hilton*
- 1:00 p.m.–3:10 p.m.** **AMS CONTRIBUTED PAPER SESSION ON PARTIAL DIFFERENTIAL EQUATIONS, III, Room 312, BCC**
- 1:00 p.m.–3:40 p.m.** **AMS CONTRIBUTED PAPER SESSION ON NUMERICAL ANALYSIS, I, Room 313, BCC**
- 1:00 p.m.–2:40 p.m.** **AMS CONTRIBUTED PAPER SESSION ON DIFFERENCE AND FUNCTIONAL EQUATIONS, Room 334, BCC**
- 1:00 p.m.–2:40 p.m.** **AMS CONTRIBUTED PAPER SESSION ON MECHANICS, OPTICS, AND ELECTROMAGNETIC THEORY, Room 335, BCC**
- 1:00 p.m.–4:15 p.m.** **MAA CONTRIBUTED PAPER SESSION ON OPEN EDUCATIONAL RESOURCES: COMBINING TECHNOLOGICAL TOOLS AND INNOVATIVE PRACTICES TO IMPROVE STUDENT LEARNING, III, Room 305, BCC**
- 1:00 p.m.–3:55 p.m.** **MAA CONTRIBUTED PAPER SESSION ON INTEGRATED STEM INSTRUCTION IN UNDERGRADUATE MATHEMATICS, Room 322, BCC**
- 1:00 p.m.–2:35 p.m.** **MAA CONTRIBUTED PAPER SESSION ON REVITALIZING COMPLEX ANALYSIS, Room 302, BCC**
- 1:00 p.m.–3:35 p.m.** **MAA CONTRIBUTED PAPER SESSION ON THE EDGE (ENHANCING DIVERSITY IN GRADUATE EDUCATION) PROGRAM: PURE AND APPLIED TALKS BY WOMEN MATH WARRIORS, II, Room 323, BCC**
- 1:00 p.m.–4:15 p.m.** **MAA CONTRIBUTED PAPER SESSION ON FORMATIVE AND SUMMATIVE ASSESSMENT OF MATHEMATICAL COMMUNICATION AND CONCEPTUAL UNDERSTANDING, I, Room 306, BCC**
- 1:00 p.m.–4:15 p.m.** **MAA CONTRIBUTED PAPER SESSION ON MATHEMATICS AND SPORTS, II, Room 303, BCC**
- 1:00 p.m.–4:15 p.m.** **MAA CONTRIBUTED PAPER SESSION ON INNOVATIVE AND EFFECTIVE WAYS TO TEACH LINEAR ALGEBRA, II, Room 304, BCC**
- 1:00 p.m.–4:15 p.m.** **MAA CONTRIBUTED PAPER SESSION ON TOUCH IT, FEEL IT, LEARN IT: TACTILE LEARNING ACTIVITIES IN THE UNDERGRADUATE MATHEMATICS CLASSROOM, III, Room 339, BCC**
- 1:00 p.m.–3:55 p.m.** **MAA CONTRIBUTED PAPER SESSION ON RESEARCH IN UNDERGRADUATE MATHEMATICS EDUCATION (RUME), II, Room 340, BCC**
- 1:00 p.m.–3:55 p.m.** **MAA GENERAL CONTRIBUTED PAPER SESSION ON MODELING AND APPLICATIONS, II, Room 348, BCC**
- 1:00 p.m.–3:40 p.m.** **MAA GENERAL CONTRIBUTED PAPER SESSION ON TEACHING AND LEARNING ADVANCED MATHEMATICS, II, Room 341, BCC**
- 1:00 p.m.–3:50 p.m.** **SIAM MINISYMPOSIUM ON HUMAN FACTORS IN MATHEMATICS EDUCATION, Room 342, BCC**

- 1:00 p.m.–2:30 p.m. **AMS COMMITTEE ON EDUCATION GUIDED DISCUSSION** *Evidence-based teaching: how do we all get there?*, **Room 315, BCC**
- 1:00 p.m.–2:20 p.m. **MAA PANEL** *Advising and Mentorship: Fostering Successful Students*, **Room 350, BCC**
- 1:00 p.m.–2:20 p.m. **MAA PANEL** *Coping Professionally with Unprofessional Behavior*, **Room 349, BCC**
- 1:00 p.m.–2:15 p.m. **PROJECT NEXT WORKSHOP ON STANDARDS-BASED GRADING** *Tools and Tips for Successful Implementation*, **Room 308, BCC**
- 1:00 p.m.–1:30 p.m. **THE DOLCIANI AWARD LECTURES**, **Room 301, BCC**
- 1:00 p.m.–3:00 p.m. **SUMMER PROGRAM FOR WOMEN IN MATHEMATICS (SPWM) REUNION**, **Peale C, 1st Floor, Hilton**
- 1:30 p.m.–3:55 p.m. **AMS CONTRIBUTED PAPER SESSION ON NUMBER THEORY, II**, **Room 311, BCC**
- AMS SPECIAL SESSIONS**
- 2:00 p.m.–4:50 p.m. *Quantum Symmetries: Subfactors and Fusion Categories (a Mathematics Research Communities Session)*, **II, Room 331, BCC**
- 2:00 p.m.–3:50 p.m. *Symbolic Dynamics*, **III, Room 321, BCC**
- 2:00 p.m.–3:40 p.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON TEACHING AND LEARNING DEVELOPMENTAL MATHEMATICS**, **Room 301, BCC**
- 2:00 p.m.–4:00 p.m. **MAA POSTER SESSION: PROJECTS SUPPORTED BY THE NSF DIVISION OF UNDERGRADUATE EDUCATION**, **Exhibit Hall G, 100 Level, BCC**
- 2:15 p.m.–3:05 p.m. **AMS INVITED ADDRESS** *From knots to symplectic geometry and algebra*. Peter Ozsvath, **Ballrooms I & II, 400 Level, BCC**
- 2:35 p.m.–3:55 p.m. **MAA PANEL** *Pathways to Leadership*, **Room 349, BCC**
- 2:35 p.m.–3:55 p.m. **MAA WORKSHOP** *How to Talk about Math So People Want to Listen*, **Room 324, BCC**
- 2:45 p.m.–4:15 p.m. **AMS EDUCATION AND DIVERSITY DEPARTMENT PANEL** *Bridge-to-PhD and Postbac Programs Working to Open Doors for Students from Underrepresented Groups*, **Room 316, BCC**
- 3:00 p.m.–3:55 p.m. **AMS CONTRIBUTED PAPER SESSION ON COMBINATORICS AND GRAPH THEORY, V**, **Room 334, BCC**
- 3:10 p.m.–4:00 p.m. **MAA CONTRIBUTED PAPER SESSION ON PHILOSOPHY OF MATHEMATICS, I**, **Room 302, BCC**
- 3:20 p.m.–4:10 p.m. **AMS INVITED ADDRESS** *A mathematical introduction to the molecular biology of the cell*. Lior Pachter, **Ballrooms I & II, 400 Level, BCC**
- 4:25 p.m.–5:25 p.m. **JOINT PRIZE SESSION**, **Ballrooms I & II, 400 Level, BCC**
- 5:30 p.m.–6:00 p.m. **SIGMAA ON THE PHILOSOPHY OF MATHEMATICS (POM SIGMAA) RECEPTION**, **Room 304, BCC**
- 5:30 p.m.–6:30 p.m. **JOINT PRIZE SESSION RECEPTION**, **Ballrooms I & II Lobby, 400 Level, BCC**
- 5:30 p.m.–7:00 p.m. **NATIONAL ASSOCIATION OF MATHEMATICIANS (NAM) AND THE NATIONAL SECURITY AGENCY (NSA) SPECIAL PRESENTATION** *Town Hall Meeting on the Status of the African Diaspora in the Mathematical Sciences*, **Room 316, BCC**
- 5:30 p.m.–7:30 p.m. **ASSOCIATION OF CHRISTIANS IN THE MATHEMATICAL SCIENCES RECEPTION AND LECTURE**, **Stadium Ballroom, 2nd Floor, Marriott Inner Harbor**
- 5:30 p.m.–6:30 p.m. **BUDAPEST SEMESTERS IN MATHEMATICS ANNUAL ALUMNI REUNION**, **Promenade, 1st Floor, Marriott Inner Harbor**

- 5:30 p.m.–7:00 p.m. **MAA TWO-YEAR COLLEGE RECEPTION, Key Ballroom 11 & 12, 2nd Floor, Hilton**
- 5:30 p.m.–7:30 p.m. **PENN STATE’S EBERLY COLLEGE OF SCIENCE AND DEPARTMENT OF MATHEMATICS RECEPTION, Carroll B, 3rd Floor, Hilton**
- 5:30 p.m.–7:00 p.m. **UNIVERSITY OF MICHIGAN MATHEMATICS ALUMNI AND FRIENDS RECEPTION, Brent, 3rd Floor, Hilton**
- 6:00 p.m.–6:15 p.m. **SIGMAA ON THE PHILOSOPHY OF MATHEMATICS (POM SIGMAA) BUSINESS MEETING, Room 304, BCC**
- 6:00 p.m.–6:45 p.m. **SIGMAA ON QUANTITATIVE LITERACY (SIGMAA QL) JOINT GUEST LECTURE AND RECEPTION** *The power of quantitative literacy in the era of alternative facts.*, **Room 301, BCC**
- 6:00 p.m.–7:00 p.m. **UNIVERSITY OF CHICAGO MATHEMATICS ALUMNI RECEPTION, Johnson B, 1st Floor, Hilton**
- 6:00 p.m.–8:00 p.m. **SPECTRA RECEPTION FOR LGBT MATHEMATICIANS AND ALLIES, Harbor Ballroom, 1st Floor, Marriott Inner Harbor**
- 6:00 p.m.–8:00 p.m. **NSA’S WOMEN IN MATHEMATICS SOCIETY NETWORKING SESSION, Paca, 3rd Floor, Hilton**
- 6:00 p.m.–8:00 p.m. **UNIVERSITY OF WATERLOO FACULTY OF MATHEMATICS ALUMNI & FRIENDS RECEPTION, Pickergill, 2nd Floor, Hilton**
- 6:15 p.m.–7:00 p.m. **SIGMAA ON THE PHILOSOPHY OF MATHEMATICS (POM SIGMAA) GUEST LECTURE** *The Rigour of Proof.*, **Room 304, BCC**
- 6:30 p.m.–8:00 p.m. **MSRI RECEPTION FOR CURRENT AND FUTURE DONORS, Carroll A, 3rd Floor, Hilton**
- 6:30 p.m.–8:30 p.m. **PROMYS AND ROSS RECEPTION FOR ALUMNI AND FRIENDS, Poe B, 2nd Floor, Hilton**
- 8:00 p.m.–10:00 p.m. **LIVE STORY TELLING WITH STORY COLLIDER: WHO INFLUENCED YOUR START AS A MATHEMATICIAN?, Key Ballroom 1,2, & 3, 2nd Floor, Hilton**
- 8:15 p.m.–9:45 p.m. **KNITTING CIRCLE** *Knitting Circle: Bring a project (knitting/crochet/tatting/beading/etc.) and chat with other mathematical crafters.*, **Key Ballroom 8, 2nd Floor, Hilton**

Friday, January 18

- 7:17 a.m.–9:00 a.m. **YP17 HCSSIM REUNION BREAKFAST, Poe, 2nd Floor, Hilton**
- 7:30 a.m.–4:00 p.m. **JOINT MEETINGS REGISTRATION, Pratt Street Lobby, 300 Level, BCC**
- 7:30 a.m.–8:00 p.m. **EMAIL CENTER, Pratt Street Lobby, 300 Level, BCC**
- AMS SPECIAL SESSIONS**
- 8:00 a.m.–10:50 a.m. *Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, I (AMS-MAA-SIAM)*, **Room 343, BCC**
- 8:00 a.m.–10:50 a.m. *Stochastic Analysis and Applications in Finance, Actuarial Science and Related Fields, I*, **Room 345, BCC**
- 8:00 a.m.–10:45 a.m. *Mathematics in the Realm of Cyber Research, I*, **Room 332, BCC**
- 8:00 a.m.–10:50 a.m. *Recent Advances in Inverse Problems and Imaging, I*, **Room 330, BCC**
- 8:00 a.m.–10:50 a.m. *Advances in Operator Theory, Operator Algebras, and Operator Semigroups, I*, **Room 344, BCC**
- 8:00 a.m.–10:50 a.m. *Mathematical Analysis in Fluid Dynamics, I*, **Room 336, BCC**
- 8:00 a.m.–10:50 a.m. *Analytic Number Theory, I*, **Room 319, BCC**

- 8:00 a.m.–10:50 a.m. *Geometric and Topological Combinatorics, I, Room 320, BCC*
- 8:00 a.m.–10:50 a.m. *Harmonic Analysis, Partial Differential Equations, and Applications, I, Room 328, BCC*
- 8:00 a.m.–10:50 a.m. *Multiscale Problems in the Calculus of Variations, I, Room 329, BCC*
- 8:00 a.m.–10:50 a.m. *Geometry and Dynamics of Continued Fractions, I, Room 337, BCC*
- 8:00 a.m.–10:50 a.m. *Topology, Structure and Symmetry in Graph Theory, I, Room 338, BCC*
- 8:00 a.m.–10:50 a.m. *Algebraic Structures Motivated by Knot Theory, I, Room 346, BCC*
- 8:00 a.m.–10:50 a.m. *Arithmetic Statistics, I, Room 318, BCC*
- 8:00 a.m.–10:50 a.m. *If You Build It They Will Come: Presentations by Scholars in the National Alliance for Doctoral Studies in the Mathematical Sciences, I, Room 327, BCC*
- 8:00 a.m.–10:45 a.m. *Low Complexity Models in Data Analysis and Machine Learning, I, Room 331, BCC*
- 8:00 a.m.–10:50 a.m. *Recent Advances in Biological Modeling and Related Dynamical Analysis, I, Room 326, BCC*
- 8:00 a.m.–11:00 a.m. *Counting Methods in Number Theory, I, Room 314, BCC*
- 8:00 a.m.–10:50 a.m. *Geometric and Topological Generalization of Groups, I, Room 347, BCC*
- 8:00 a.m.–10:50 a.m. *Mathematical Investigations of Spatial Ecology and Epidemiology, I, Room 325, BCC*
- 8:00 a.m.–10:50 a.m. *Differential Equations on Fractals, II, Room 321, BCC*
- MAA INVITED PAPER SESSIONS**
- 8:00 a.m.–10:20 a.m. *The Past 50 Years of African Americans in the Mathematical Sciences, Room 317, BCC*
- 8:00 a.m.–10:25 a.m. **AMS CONTRIBUTED PAPER SESSION ON NUMERICAL ANALYSIS, II, Room 311, BCC**
- 8:00 a.m.–10:40 a.m. **AMS CONTRIBUTED PAPER SESSION ON MATHEMATICS IN THE LIFE SCIENCES, ECOLOGY, AND RELATED FIELDS, I, Room 312, BCC**
- 8:00 a.m.–10:55 a.m. **AMS CONTRIBUTED PAPER SESSION ON COMBINATORICS AND GRAPH THEORY, I, Room 313, BCC**
- 8:00 a.m.–10:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON OPEN EDUCATIONAL RESOURCES: COMBINING TECHNOLOGICAL TOOLS AND INNOVATIVE PRACTICES TO IMPROVE STUDENT LEARNING, Room 303, BCC**
- 8:00 a.m.–10:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON MATHEMATICAL EXPERIENCES AND PROJECTS IN BUSINESS, INDUSTRY, AND GOVERNMENT (BIG), Room 304, BCC**
- 8:00 a.m.–10:35 a.m. **MAA CONTRIBUTED PAPER SESSION ON ETHNOMATHEMATICS: IDEAS AND INNOVATIONS IN THE CLASSROOM, Room 301, BCC**
- 8:00 a.m.–10:50 a.m. **MAA CONTRIBUTED PAPER SESSION ON PHILOSOPHY OF MATHEMATICS, II, Room 302, BCC**
- 8:00 a.m.–10:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON INQUIRY-BASED LEARNING AND TEACHING, II, Room 339, BCC**
- 8:00 a.m.–10:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON MATHEMATICS AND THE ARTS, IV, Room 306, BCC**
- 8:00 a.m.–10:35 a.m. **MAA CONTRIBUTED PAPER SESSION ON RESEARCH IN UNDERGRADUATE MATHEMATICS EDUCATION(RUME), III - THE TEACHING AND LEARNING OF PROOF AND UPPER-DIVISION MATH, Room 340, BCC**
- 8:00 a.m.–10:40 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON MODELING AND APPLICATIONS, III, Room 348, BCC**
- 8:00 a.m.–10:10 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON TEACHING AND LEARNING CALCULUS, I, Room 322, BCC**

- 8:00 a.m.–10:55 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON APPLIED MATHEMATICS, I, Room 341, BCC**
- 8:00 a.m.–9:20 a.m. **MAA PANEL** *Advanced Placement Calculus and Student Understanding*, Room 349, BCC
- 8:00 a.m.–6:00 p.m. **PROJECT NEXT WORKSHOP, Room 308, BCC**
- 8:00 a.m.–5:30 p.m. **EMPLOYMENT CENTER, Exhibit Hall E, 100 Level, BCC**
- 8:30 a.m.–10:30 a.m. **AMS-MAA GRAD SCHOOL FAIR** *Undergrads! Take this opportunity to meet representatives from mathematical science graduate programs.*, Exhibit Hall G, 100 Level, BCC
- 9:00 a.m.–9:50 a.m. **MAA INVITED ADDRESS** *A mathematical journey of culture, community, and collaboration.* Pamela Harris, **Ballrooms I & II, 400 Level, BCC**
- 9:00 a.m.–9:50 a.m. **ASL INVITED ADDRESS** *Ramsey theory of the Henson graphs.* Natasha Dobrinen, **Room 315, BCC**
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #1: PART B** *Mathematical Inquiry and Writing through Sports*, **Holiday Ballroom 1, 2nd Floor, Hilton**
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #6: PART A** *Visualizing Multivariable Calculus & Differential Equations using CalcPlot3D*, **Holiday Ballroom 2, 2nd Floor, Hilton**
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #7: PART B** *Using Data Applications to Inspire Linear Algebra Topics in the Classroom*, **Holiday Ballroom 3, 2nd Floor, Hilton**
- 9:00 a.m.–10:55 a.m. **AMS CONTRIBUTED PAPER SESSION ON SEQUENCES, APPROXIMATIONS, AND FOURIER ANALYSIS, Room 334, BCC**
- 9:00 a.m.–10:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON INCLUSIVE EXCELLENCE - ATTRACTING, INVOLVING, AND RETAINING WOMEN AND UNDERREPRESENTED GROUPS IN MATHEMATICS, I, Room 305, BCC**
- 9:30 a.m.–10:30 a.m. **MAA POSTER SESSION: RECREATIONAL MATHEMATICS: PUZZLES, CARD TRICKS, GAMES, AND GAMBLING, MAA Pavilion, Exhibit Hall F, 100 Level, BCC**
- 9:30 a.m.–5:30 p.m. **EXHIBITS AND BOOK SALES, Exhibit Hall F, 100 Level, BCC**
- 9:35 a.m.–10:55 a.m. **MAA PANEL** *Increasing Diversity and Retention in STEM Through Math-Focused First-Year Seminars*, **Room 349, BCC**
- 9:45 a.m.–10:55 a.m. **MAA WORKSHOP** *Discussing Project Ideas with NSF/EHR Program Officers, Part II*, **Room 324, BCC**
- 10:00 a.m.–10:50 a.m. **ASL INVITED ADDRESS** *35 years later: A fresh perspective on classifiable theories.* Michael Chris Laskowski, **Room 315, BCC**
- 10:05 a.m.–10:55 a.m. **AMS INVITED ADDRESS** *The roaring twenties in American mathematics.* Karen Hunger Parshall, **Ballrooms I & II, 400 Level, BCC**
- 10:30 a.m.–11:00 a.m. **RADICAL DASH PRIZE SESSION, Room 350, BCC**
- 11:10 a.m.–12:00 p.m. **AMS-MAA INVITED ADDRESS** *Miracles of Algebraic Graph Theory.* Daniel A Spielman, **Ballrooms I & II, 400 Level, BCC**
- 11:30 a.m.–1:00 p.m. **MAA COMINDS PROJECT TEAM MEETING, Hopkins, 3rd Floor, Hilton**
- 12:00 p.m.–1:00 p.m. **MAA STUDENT POSTER SESSION JUDGE'S ORIENTATION, Room 316, BCC**
- 12:00 p.m.–1:00 p.m. **BUDAPEST SEMESTERS IN MATHEMATICS EDUCATION (BSME) INFORMATIONAL SESSION, Poe, 2nd Floor, Hilton**
- 1:00 p.m.–1:50 p.m. **AMS COLLOQUIUM LECTURES: LECTURE III** *Complex multiplication: past, present, future.* Benedict H. Gross, **Ballrooms I & II, 400 Level, BCC**
- 1:00 p.m.–1:50 p.m. **ASL INVITED ADDRESS** *Valuations and \mathfrak{o} -minimality.* Jana Marikova, **Room 315, BCC**

- 1:00 p.m.–1:50 p.m.** **MAA LECTURE FOR STUDENTS** *Drawing conclusions from drawing a square.* Annalisa Crannell, **Room 309/310, BCC**
- 1:00 p.m.–4:45 p.m.** **CURRENT EVENTS BULLETIN, Room 307, BCC**
- AMS SPECIAL SESSIONS**
- 1:00 p.m.–5:50 p.m.** *Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, II (AMS-MAA-SIAM), Room 343, BCC*
- 1:00 p.m.–5:50 p.m.** *Stochastic Analysis and Applications in Finance, Actuarial Science and Related Fields, II, Room 345, BCC*
- 1:00 p.m.–5:45 p.m.** *Mathematics in the Realm of Cyber Research, II, Room 332, BCC*
- 1:00 p.m.–5:50 p.m.** *Recent Advances in Inverse Problems and Imaging, II, Room 330, BCC*
- 1:00 p.m.–5:50 p.m.** *Orthogonal Polynomials, Quantum Probability, Harmonic and Stochastic Analysis, I, Room 321, BCC*
- 1:00 p.m.–5:50 p.m.** *Advances in Operator Theory, Operator Algebras, and Operator Semigroups, II, Room 344, BCC*
- 1:00 p.m.–5:50 p.m.** *Mathematical Analysis in Fluid Dynamics, II, Room 336, BCC*
- 1:00 p.m.–5:50 p.m.** *Analytic Number Theory, II, Room 319, BCC*
- 1:00 p.m.–5:50 p.m.** *Geometric and Topological Combinatorics, II, Room 320, BCC*
- 1:00 p.m.–5:50 p.m.** *Harmonic Analysis, Partial Differential Equations, and Applications, II, Room 328, BCC*
- 1:00 p.m.–5:50 p.m.** *Multiscale Problems in the Calculus of Variations, II, Room 329, BCC*
- 1:00 p.m.–5:50 p.m.** *Geometry and Dynamics of Continued Fractions, II, Room 337, BCC*
- 1:00 p.m.–5:50 p.m.** *Topology, Structure and Symmetry in Graph Theory, II, Room 338, BCC*
- 1:00 p.m.–5:50 p.m.** *Algebraic Structures Motivated by Knot Theory, II, Room 346, BCC*
- 1:00 p.m.–5:50 p.m.** *Arithmetic Statistics, II, Room 318, BCC*
- 1:00 p.m.–5:50 p.m.** *If You Build It They Will Come: Presentations by Scholars in the National Alliance for Doctoral Studies in the Mathematical Sciences, II, Room 327, BCC*
- 1:00 p.m.–5:45 p.m.** *Low Complexity Models in Data Analysis and Machine Learning, II, Room 331, BCC*
- 1:00 p.m.–5:50 p.m.** *Recent Advances in Biological Modeling and Related Dynamical Analysis, II, Room 326, BCC*
- 1:00 p.m.–3:20 p.m.** *Geometric and Topological Generalization of Groups, II, Room 347, BCC*
- 1:00 p.m.–5:50 p.m.** *Mathematical Investigations of Spatial Ecology and Epidemiology, II, Room 325, BCC*
- MAA INVITED PAPER SESSIONS**
- 1:00 p.m.–3:20 p.m.** *Mathematical Thinking for Modern Data Science Problems, Room 317, BCC*
- AMS SPECIAL SESSIONS**
- 1:00 p.m.–5:50 p.m.** *History of Mathematics, I (AMS-MAA-ICHM), Room 314, BCC*
- 1:00 p.m.–3:00 p.m.** **MAA MINICOURSE #12: PART A** *Keep Teaching Statistics using R and RStudio, Holiday Ballroom 3, 2nd Floor, Hilton*
- 1:00 p.m.–3:00 p.m.** **MAA MINICOURSE #3: PART B** *Advanced Authoring in WeBWork: Turn good math problems into great ones & submit them to the OpenProblemLibrary, Holiday Ballroom 1, 2nd Floor, Hilton*
- 1:00 p.m.–3:00 p.m.** **MAA MINICOURSE #4: PART B** *Teaching an Undergraduate Computational Science Course, Holiday Ballroom 2, 2nd Floor, Hilton*
- 1:00 p.m.–4:55 p.m.** **AMS CONTRIBUTED PAPER SESSION ON NUMBER THEORY, III, Room 311, BCC**
- 1:00 p.m.–5:55 p.m.** **AMS CONTRIBUTED PAPER SESSION ON PARTIAL DIFFERENTIAL EQUATIONS, IV, Room 312, BCC**

- 1:00 p.m.–5:40 p.m. AMS CONTRIBUTED PAPER SESSION ON COMBINATORICS AND GRAPH THEORY, II, Room 313, BCC
- 1:00 p.m.–5:10 p.m. AMS CONTRIBUTED PAPER SESSION ON OPERATOR THEORY, Room 334, BCC
- 1:00 p.m.–5:10 p.m. AMS CONTRIBUTED PAPER SESSION ON OPERATIONS RESEARCH, MATHEMATICAL PROGRAMMING, OPTIMIZATION, GAME THEORY, ECONOMICS, AND MATHEMATICS IN THE SOCIAL AND BEHAVIORAL SCIENCES, Room 335, BCC
- 1:00 p.m.–4:15 p.m. MAA CONTRIBUTED PAPER SESSION ON MATHEMATICAL THEMES IN A FIRST-YEAR SEMINAR, Room 322, BCC
- 1:00 p.m.–2:55 p.m. MAA CONTRIBUTED PAPER SESSION ON APPROACHES TO MATHEMATICS REMEDIATION IN BACCALAUREATE-GRANTING INSTITUTIONS, I, Room 301, BCC
- 1:00 p.m.–2:55 p.m. MAA CONTRIBUTED PAPER SESSION ON FOSTERING CREATIVITY IN UNDERGRADUATE MATHEMATICS COURSES, I, Room 302, BCC
- 1:00 p.m.–4:55 p.m. MAA CONTRIBUTED PAPER SESSION ON IT'S CIRCULAR: CONJECTURE, COMPUTE, ITERATE, Room 306, BCC
- 1:00 p.m.–4:55 p.m. MAA CONTRIBUTED PAPER SESSION ON THE TEACHING AND LEARNING OF UNDERGRADUATE ORDINARY DIFFERENTIAL EQUATIONS, Room 324, BCC
- 1:00 p.m.–5:55 p.m. MAA CONTRIBUTED PAPER SESSION ON INQUIRY-BASED LEARNING AND TEACHING, III, Room 339, BCC
- 1:00 p.m.–3:55 p.m. MAA CONTRIBUTED PAPER SESSION ON INCLUSIVE EXCELLENCE - ATTRACTING, INVOLVING, AND RETAINING WOMEN AND UNDERREPRESENTED GROUPS IN MATHEMATICS, II, Room 303, BCC
- 1:00 p.m.–4:55 p.m. MAA CONTRIBUTED PAPER SESSION ON TECHNOLOGY AND RESOURCES IN STATISTICS AND DATA SCIENCE EDUCATION, Room 305, BCC
- 1:00 p.m.–4:15 p.m. MAA CONTRIBUTED PAPER SESSION ON RESEARCH IN UNDERGRADUATE MATHEMATICS EDUCATION (RUME), IV - THE TEACHING AND LEARNING OF CALCULUS, Room 340, BCC
- 1:00 p.m.–5:55 p.m. MAA GENERAL CONTRIBUTED PAPER SESSION ON APPLIED MATHEMATICS, II, Room 341, BCC
- 1:00 p.m.–6:10 p.m. MAA GENERAL CONTRIBUTED PAPER SESSION ON PROBABILITY AND STATISTICS, I, Room 348, BCC
- 1:00 p.m.–5:45 p.m. SIAM MINISYMPOSIUM ON RECENT DEVELOPMENTS IN NUMERICAL METHODS FOR FLUIDS., Room 342, BCC
- 1:00 p.m.–4:30 p.m. NAM HAYNES-GRANVILLE-BROWNE SESSION OF PRESENTATIONS BY RECENT DOCTORAL RECIPIENTS, Room 333, BCC
- 1:00 p.m.–2:20 p.m. MAA PANEL *MAA Instructional Practices Guide's Value for Your Department*, Room 349, BCC
- 1:00 p.m.–2:15 p.m. PROJECT NEXT WORKSHOP *Mentoring Undergraduate Research for Beginners*, Room 308, BCC
- 2:00 p.m.–2:50 p.m. ASL INVITED ADDRESS *Some questions and results for classical algebraic structures.* Sergey Goncharov, Room 315, BCC
- 2:00 p.m.–3:30 p.m. AMS DIRECTORS OF GRADUATE STUDIES, Key Ballroom 2, 2nd Floor, Hilton
- 2:15 p.m.–4:00 p.m. ROCKY MOUNTAIN MATHEMATICS CONSORTIUM BOARD OF DIRECTORS MEETING, Ravens, 1st Floor, Marriott Inner Harbor
- 2:30 p.m.–3:40 p.m. PRESENTATIONS BY MAA TEACHING AWARD RECIPIENTS, Room 309/310, BCC

- 2:30 p.m.–4:00 p.m. AMS COMMITTEE ON SCIENCE POLICY HOSTS A CONVERSATION WITH DR. ANNE KINNEY (HEAD, DIRECTORATE FOR MATHEMATICAL & PHYSICAL SCIENCES AT THE NATIONAL SCIE, Room 316, BCC
- 3:00 p.m.–5:20 p.m. ASL CONTRIBUTED PAPER SESSION, Room 315, BCC
- 3:15 p.m.–6:10 p.m. MAA GENERAL CONTRIBUTED PAPER SESSION ON GEOMETRY, Room 301, BCC
- 4:00 p.m.–5:00 p.m. CONSORTIUM FOR ORDINARY DIFFERENTIAL EQUATIONS EDUCATORS MEET-AND-GREET HOUR *CODEE invites all who teach ODEs to join us for a meet-and-greet hour.*, Room 323, BCC
- 4:30 p.m.–5:15 p.m. SIGMAA ON BUSINESS, INDUSTRY, AND GOVERNMENT (BIG SIGMAA) GUEST LECTURE, Room 302, BCC
- 4:30 p.m.–6:00 p.m. MAA STUDENT POSTER SESSION, Exhibit Hall G, 100 Level, BCC
- 4:30 p.m.–6:30 p.m. AMS CONGRESSIONAL FELLOWSHIP SESSION, Room 316, BCC
- 5:00 p.m.–6:15 p.m. AWM WORKSHOP: POSTER PRESENTATIONS BY WOMEN GRADUATE STUDENTS AND RECEPTION, Pratt St Lobby, adjacent to JMM registration, BCC
- 5:00 p.m.–7:00 p.m. MAA PANEL *Advising Actuarial Science Students*, Room 349, BCC
- 5:15 p.m.–6:00 p.m. SIGMAA ON BUSINESS, INDUSTRY, AND GOVERNMENT (BIG SIGMAA) RECEPTION, Room 302, BCC
- 5:30 p.m.–7:30 p.m. TEXAS A & M UNIVERSITY MATHEMATICS DEPARTMENT ALUMNI, STUDENT, AND FACULTY RECEPTION, Carroll B, 3rd Floor, Hilton
- 6:00 p.m.–7:00 p.m. SIGMAA ON MATHEMATICAL AND COMPUTATIONAL BIOLOGY(BIO SIGMAA) RECEPTION AND BUSINESS MEETING, Room 303, BCC
- 6:00 p.m.–6:45 p.m. SIGMAA ON MATHEMATICS INSTRUCTION USING THE WEB (WEB SIGMAA) BUSINESS MEETING, RECEPTION, AND GUEST LECTURE *Using CalcPlot3D to Create Dynamic Figures for OER Textbooks and to 3D Print Surfaces for Multivariable Calculus and Beyond.*, Room 324, BCC
- 6:00 p.m.–7:00 p.m. MATHEMATICALLY BENT THEATER *Performed by Colin Adams and the Mobiusbandaid Players.*, Room 309/310, BCC
- 6:00 p.m.–7:00 p.m. SIGMAA ON UNDERGRADUATE RESEARCH BUSINESS MEETING, Room 322, BCC
- 6:00 p.m.–7:00 p.m. AMS MATHEMATICAL REVIEWS RECEPTION, Promenade, 1st Floor, Marriott Inner Harbor
- 6:00 p.m.–8:40 p.m. NAM RECEPTION AND BANQUET, Holiday Ballroom 6, 2nd Floor, Hilton
- 6:00 p.m.–8:00 p.m. UNIVERSITY OF CALIFORNIA, SAN DIEGO RECEPTION FOR MATHEMATICS, Johnson B, 1st Floor, Hilton
- 6:00 p.m.–7:30 p.m. UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN DEPARTMENT OF MATHEMATICS ALUMNI RECEPTION, Johnson A, 1st Floor, Hilton
- 6:30 p.m.–7:30 p.m. SIGMAA ON INQUIRY BASED LEARNING BUSINESS MEETING, Room 339, BCC
- 6:30 p.m.–7:30 p.m. SIGMAA ON MATH CIRCLES FOR STUDENTS AND TEACHERS BUSINESS MEETING, Room 306, BCC
- 6:30 p.m.–7:30 p.m. SIGMAA ON MATHEMATICAL KNOWLEDGE FOR TEACHING, Room 340, BCC
- 6:30 p.m.–7:30 p.m. SIGMAA ON STATISTICS EDUCATION BUSINESS MEETING, Room 323, BCC
- 7:00 p.m.–7:45 p.m. SIGMAA ON MATHEMATICAL AND COMPUTATIONAL BIOLOGY GUEST LECTURE *Mathematics in medicine.*, Room 303, BCC
- 7:00 p.m.–8:30 p.m. MAA SPECIAL PRESENTATION: *Poetry Reading*, Room 301, BCC

- 7:00 p.m.–8:30 p.m. **SCUDEM GATHERING AND REUNION, Douglas, 3rd Floor, Hilton**
- 7:30 p.m.–8:30 p.m. **SIGMAA ON STATISTICS EDUCATION GUEST LECTURE, Room 323, BCC**
- 7:45 p.m.–8:35 p.m. **NAM COX-TALBOT ADDRESS** *A Seat at the Table: Equity and Social Justice in Mathematics Education.* Talithia Denese Williams, **Holiday Ballroom 6, 2nd Floor, Hilton**
- 8:00 p.m.–10:00 p.m. **BACKGAMMON!** *Learn to play backgammon from expert players.*, **Key Ballroom 9 & 10, 2nd Floor, Hilton**
- 8:00 p.m.–10:00 p.m. **PROJECT NEXT RECEPTION** *All Project NExT Fellows, consultants, and other friends of Project NExT are invited.*, **Stadium Ballroom, 2nd Floor, Marriott Inner Harbor**

Saturday, January 19

- 7:30 a.m.–1:00 p.m. **JOINT MEETINGS REGISTRATION, Pratt Street Lobby, 300 Level, BCC**
- 7:30 a.m.–1:00 p.m. **EMAIL CENTER, Pratt Street Lobby, 300 Level, BCC**
- AMS SPECIAL SESSIONS**
- 8:00 a.m.–9:50 a.m. *Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, III (AMS-MAA-SIAM), Room 344, BCC*
- 8:00 a.m.–11:20 a.m. *Advances in Quantum Walks, Quantum Simulations, and Related Quantum Theory, I, Room 337, BCC*
- 8:00 a.m.–11:50 a.m. *Mathematicians at Sea (in the Sky, or on Land): Defense Applications of Mathematics, I, Room 332, BCC*
- 8:00 a.m.–11:50 a.m. *Enumerative Combinatorics, I, Room 318, BCC*
- 8:00 a.m.–11:20 a.m. *Orthogonal Polynomials, Quantum Probability, Harmonic and Stochastic Analysis, II, Room 343, BCC*
- 8:00 a.m.–11:50 a.m. *Using Modeling to Motivate the Study of Differential Equations, I, Room 336, BCC*
- 8:00 a.m.–11:50 a.m. *Group Representation Theory and Character Theory, I, Room 330, BCC*
- 8:00 a.m.–11:50 a.m. *Advances and Applications in Integral and Differential Equations, I, Room 331, BCC*
- 8:00 a.m.–11:50 a.m. *Algebraic, Discrete, Topological and Stochastic Approaches to Modeling in Mathematical Biology, I, Room 347, BCC*
- 8:00 a.m.–11:45 a.m. *Statistical, Variational, and Learning Techniques in Image Analysis and their Applications to Biomedical, Hyperspectral, and Other Imaging, I, Room 346, BCC*
- 8:00 a.m.–11:50 a.m. *Network Science, I, Room 320, BCC*
- 8:00 a.m.–11:50 a.m. *Number Theory, Arithmetic Geometry, and Computation, I, Room 325, BCC*
- 8:00 a.m.–11:50 a.m. *Topological Data Analysis: Theory and Applications, I, Room 345, BCC*
- 8:00 a.m.–11:50 a.m. *Advances by Early Career Women in Discrete Mathematics, I, Room 338, BCC*
- 8:00 a.m.–11:50 a.m. *Not KNerds: A Community for Knot Theory, I, Room 329, BCC*
- 8:00 a.m.–11:50 a.m. *Mathematics of Coding Theory and Applications, I, Room 319, BCC*
- 8:00 a.m.–11:50 a.m. *Partition Theory and Related Topics, I, Room 321, BCC*
- 8:00 a.m.–11:50 a.m. *Localization and Delocalization for Disordered Quantum Systems, I, Room 326, BCC*
- MAA INVITED PAPER SESSIONS**
- 8:00 a.m.–10:50 a.m. *Beauty and Art from Research Mathematics, Room 323, BCC*
- AMS SPECIAL SESSIONS**
- 8:00 a.m.–11:50 a.m. *History of Mathematics, II (AMS-MAA-ICHM), Room 314, BCC*

- 8:00 a.m.–10:00 a.m. **MAA MINICOURSE #11: PART B** *Object Based Learning and the Smithsonian Learning Lab*, **Holiday Ballroom 2, 2nd Floor, Hilton**
- 8:00 a.m.–11:40 a.m. **AMS CONTRIBUTED PAPER SESSION ON GEOMETRY**, **Room 311, BCC**
- 8:00 a.m.–11:40 a.m. **AMS CONTRIBUTED PAPER SESSION ON COMBINATORICS AND GRAPH THEORY, III**, **Room 313, BCC**
- 8:00 a.m.–11:55 a.m. **AMS CONTRIBUTED PAPER SESSION ON LINEAR ALGEBRA AND ALGEBRAIC GEOMETRY**, **Room 333, BCC**
- 8:00 a.m.–11:40 a.m. **AMS CONTRIBUTED PAPER SESSION ON STATISTICS**, **Room 334, BCC**
- 8:00 a.m.–10:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON APPROACHES TO MATHEMATICS REMEDIATION IN BACCALAUREATE-GRANTING INSTITUTIONS, II**, **Room 301, BCC**
- 8:00 a.m.–11:35 a.m. **MAA CONTRIBUTED PAPER SESSION ON FOSTERING CREATIVITY IN UNDERGRADUATE MATHEMATICS COURSES, II**, **Room 302, BCC**
- 8:00 a.m.–11:35 a.m. **MAA CONTRIBUTED PAPER SESSION ON INCORPORATING PROGRAMMING AND COMPUTING IN THE MATH MAJOR CURRICULUM**, **Room 305, BCC**
- 8:00 a.m.–10:15 a.m. **MAA CONTRIBUTED PAPER SESSION ON INNOVATIVE PATHWAYS TO QUANTITATIVE LITERACY**, **Room 304, BCC**
- 8:00 a.m.–11:55 a.m. **MAA CONTRIBUTED PAPER SESSION ON INCLUSIVE EXCELLENCE - ATTRACTING, INVOLVING, AND RETAINING WOMEN AND UNDERREPRESENTED GROUPS IN MATHEMATICS, III**, **Room 303, BCC**
- 8:00 a.m.–11:25 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON TEACHING AND LEARNING INTRODUCTORY MATHEMATICS**, **Room 339, BCC**
- 8:00 a.m.–10:55 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON NUMBER THEORY, II**, **Room 348, BCC**
- 8:00 a.m.–11:55 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON TOPOLOGY**, **Room 340, BCC**
- 8:00 a.m.–12:20 p.m. **AWM WORKSHOP:WINCOMPTOP: APPLIED AND COMPUTATIONAL TOPOLOGY, I**, **Room 307, BCC**
- 8:00 a.m.–6:00 p.m. **PROJECT NEXT WORKSHOP**, **Room 308, BCC**
- 8:15 a.m.–11:55 a.m. **AMS CONTRIBUTED PAPER SESSION ON MATHEMATICS IN THE LIFE SCIENCES, ECOLOGY, AND RELATED FIELDS, II**, **Room 312, BCC**
- 8:15 a.m.–11:40 a.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON GRAPH THEORY, II**, **Room 341, BCC**
- AMS SPECIAL SESSIONS**
- 8:30 a.m.–11:50 a.m. *Latinx in Math, I*, **Room 327, BCC**
- 8:30 a.m.–11:45 a.m. *Geometry of Representation Spaces, I*, **Room 328, BCC**
- MAA INVITED PAPER SESSIONS**
- 8:30 a.m.–10:50 a.m. *Research in Undergraduate Mathematics Education: Highlights from the Annual SIGMAA on RUME Conference*, **Room 317, BCC**
- 8:30 a.m.–12:00 p.m. **SIAM MINISYMPOSIUM ON ANALYTICAL TECHNIQUES IN IMAGING ELECTRICAL PROPERTIES OF TISSUE IN COUPLED PHYSICS MODELS.**, **Room 342, BCC**
- 8:30 a.m.–9:45 a.m. **PROJECT NEXT WORKSHOP** *Building Interdisciplinary Bridges*, **Room 308, BCC**
- 9:00 a.m.–9:50 a.m. **AMS INVITED ADDRESS** *On torsion subgroups in class groups of number fields.* **Lillian B. Pierce, Ballrooms I & II, 400 Level, BCC**
- 9:00 a.m.–9:50 a.m. **ASL INVITED ADDRESS** *Computable aspects of homogeneous structures.* **Douglas Cenzer, Room 315, BCC**

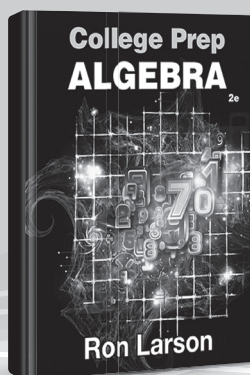
- 9:00 a.m.–11:00 a.m.** **MAA MINICOURSE #5: PART B** *IBL SIGMAA Minicourse: Introduction to Inquiry-Based Learning*, **Holiday Ballroom 1, 2nd Floor, Hilton**
- 9:00 a.m.–11:00 a.m.** **MAA MINICOURSE #8: PART B** *Dance and Mathematics*, **Holiday Ballroom 5, 2nd Floor, Hilton**
- 9:00 a.m.–11:15 a.m.** **MAA CONTRIBUTED PAPER SESSION ON FORMATIVE AND SUMMATIVE ASSESSMENT OF MATHEMATICAL COMMUNICATION AND CONCEPTUAL UNDERSTANDING, II**, **Room 306, BCC**
- 9:00 a.m.–10:20 a.m.** **MAA PANEL** *Calculus Before the Senior Year of High School: Issues and Options*, **Room 349, BCC**
- 9:00 a.m.–9:50 a.m.** **NAM PANEL DISCUSSION** *NAM 2019-2069: Where Do We Go from Here?*, **Room 316, BCC**
- 9:00 a.m.–12:00 p.m.** **EXHIBITS AND BOOK SALES**, **Exhibit Hall F, 100 Level, BCC**
- 9:45 a.m.–10:55 a.m.** **MAA WORKSHOP** *Calculus: Near-Numbers*, **Room 324, BCC**
- 10:00 a.m.–10:50 a.m.** **MAA INVITED ADDRESS** *The Inclusion Principle: the importance of community in mathematics.* **Deanna Haunsperger, Ballrooms I & II, 400 Level, BCC**
- 10:00 a.m.–10:50 a.m.** **MAA INTERACTIVE LECTURE FOR STUDENTS AND TEACHERS**, **Room 309/310, BCC**
- 10:00 a.m.–10:50 a.m.** **ASL INVITED ADDRESS** *A forcing axiom for a non-special Aronszajn tree.* **John Krueger, Room 315, BCC**
- AMS SPECIAL SESSIONS**
- 10:00 a.m.–11:50 a.m.** *Counting Methods in Number Theory, II*, **Room 344, BCC**
- 10:00 a.m.–10:50 a.m.** **NAM BUSINESS MEETING**, **Room 316, BCC**
- 10:30 a.m.–11:50 a.m.** **MAA PANEL** *Listening and Responding to Students' Thinking, from Elementary to Undergraduate Mathematics*, **Room 349, BCC**
- 10:30 a.m.–12:00 p.m.** **SIGMAA ON MATH CIRCLES FOR STUDENTS AND TEACHERS** *Math Wrangle*, **Room 322, BCC**
- 11:00 a.m.–12:00 p.m.** **MATHEMATI-CON PRESENTS: SHOWTIME!** *Interview with the 2019 JPBM Communications Award Winner, Hidden Figures author Margot Lee Shetterly, followed by a meet-and-greet and autograph signing at noon.*, **Room 309/310, BCC**
- 12:15 p.m.–12:45 p.m.** **AMS BUSINESS MEETING**, **Ballrooms I & II, 400 Level, BCC**
- 1:00 p.m.–1:50 p.m.** **NAM CLAYTOR-WOODARD LECTURE** *On Mathematical Problems in Geometric Optics.* **Henok Mawi, Room 316, BCC**
- 1:00 p.m.–1:50 p.m.** **ASL INVITED ADDRESS** *Fifty years in the model theory of theory of differential fields.* **David Marker, Room 315, BCC**
- AMS SPECIAL SESSIONS**
- 1:00 p.m.–5:50 p.m.** *Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, IV (AMS-MAA-SIAM)*, **Room 343, BCC**
- 1:00 p.m.–3:20 p.m.** *Advances in Quantum Walks, Quantum Simulations, and Related Quantum Theory, II*, **Room 337, BCC**
- 1:00 p.m.–5:50 p.m.** *Mathematicians at Sea (in the Sky, or on Land): Defense Applications of Mathematics, II*, **Room 332, BCC**
- 1:00 p.m.–5:50 p.m.** *Enumerative Combinatorics, II*, **Room 318, BCC**
- 1:00 p.m.–3:50 p.m.** *Using Modeling to Motivate the Study of Differential Equations, II*, **Room 336, BCC**
- 1:00 p.m.–5:50 p.m.** *Latinx in Math, II*, **Room 327, BCC**
- 1:00 p.m.–5:20 p.m.** *Group Representation Theory and Character Theory, II*, **Room 330, BCC**

- 1:00 p.m.–3:50 p.m. *Advances and Applications in Integral and Differential Equations, II, Room 331, BCC*
- 1:00 p.m.–5:50 p.m. *Algebraic, Discrete, Topological and Stochastic Approaches to Modeling in Mathematical Biology, II, Room 347, BCC*
- 1:00 p.m.–4:50 p.m. *Statistical, Variational, and Learning Techniques in Image Analysis and their Applications to Biomedical, Hyperspectral, and Other Imaging, II, Room 346, BCC*
- 1:00 p.m.–5:50 p.m. *Network Science, II, Room 320, BCC*
- 1:00 p.m.–5:50 p.m. *Number Theory, Arithmetic Geometry, and Computation, II, Room 325, BCC*
- 1:00 p.m.–5:50 p.m. *Counting Methods in Number Theory, III, Room 344, BCC*
- 1:00 p.m.–5:50 p.m. *Topological Data Analysis: Theory and Applications, II, Room 345, BCC*
- 1:00 p.m.–5:50 p.m. *Advances by Early Career Women in Discrete Mathematics, II, Room 338, BCC*
- 1:00 p.m.–5:50 p.m. *Not KNerds: A Community for Knot Theory, II, Room 329, BCC*
- 1:00 p.m.–5:50 p.m. *Mathematics of Coding Theory and Applications, II, Room 319, BCC*
- 1:00 p.m.–5:50 p.m. *Partition Theory and Related Topics, II, Room 321, BCC*
- 1:00 p.m.–5:50 p.m. *Localization and Delocalization for Disordered Quantum Systems, II, Room 326, BCC*
- MAA INVITED PAPER SESSIONS**
- 1:00 p.m.–3:50 p.m. *Mathematics and Policy, Room 317, BCC*
- AMS SPECIAL SESSIONS**
- 1:00 p.m.–4:50 p.m. *History of Mathematics, III (AMS-MAA-ICHM), Room 314, BCC*
- 1:00 p.m.–3:00 p.m. **MAA MINICOURSE #10: PART B** *Object Based Learning and the Smithsonian Learning Lab, Holiday Ballroom 1, 2nd Floor, Hilton*
- 1:00 p.m.–3:00 p.m. **MAA MINICOURSE #12: PART B** *Keep Teaching Statistics using R and RStudio, Holiday Ballroom 3, 2nd Floor, Hilton*
- 1:00 p.m.–3:00 p.m. **MAA MINICOURSE #6: PART B** *Visualizing Multivariable Calculus & Differential Equations using CalcPlot3D, Holiday Ballroom 2, 2nd Floor, Hilton*
- 1:00 p.m.–5:25 p.m. **AMS CONTRIBUTED PAPER SESSION ON COMMUTATIVE ALGEBRA, Room 311, BCC**
- 1:00 p.m.–5:55 p.m. **AMS CONTRIBUTED PAPER SESSION ON MATHEMATICS IN THE LIFE SCIENCES, ECOLOGY, AND RELATED FIELDS, III, Room 312, BCC**
- 1:00 p.m.–5:25 p.m. **AMS CONTRIBUTED PAPER SESSION ON COMBINATORICS AND GRAPH THEORY, IV, Room 313, BCC**
- 1:00 p.m.–5:25 p.m. **AMS CONTRIBUTED PAPER SESSION ON ORDINARY DIFFERENTIAL EQUATIONS, Room 333, BCC**
- 1:00 p.m.–2:35 p.m. **MAA CONTRIBUTED PAPER SESSION ON MEANINGFUL MODELING IN THE FIRST TWO YEARS OF COLLEGE, Room 306, BCC**
- 1:00 p.m.–4:55 p.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON TEACHING AND LEARNING CALCULUS, II, Room 339, BCC**
- 1:00 p.m.–4:10 p.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON GRAPH THEORY, III, Room 341, BCC**
- 1:00 p.m.–5:40 p.m. **MAA GENERAL CONTRIBUTED PAPER SESSION ON PROBABILITY AND STATISTICS, II, Room 348, BCC**
- 1:00 p.m.–5:30 p.m. **SIAM MINISYMPOSIUM ON FLOW-INDUCED (IN)STABILITY OF ELASTIC STRUCTURES, Room 342, BCC**
- 1:00 p.m.–2:45 p.m. **AMS SPECIAL PRESENTATION** *Who Wants to Be a Mathematician—Championship Contest., Room 309/310, BCC*

- 1:00 p.m.–2:30 p.m.** **SIGMAA ON MATH CIRCLES FOR STUDENTS AND TEACHERS (SIGMAA MCST) SPECIAL PRESENTATION** *Math Circle Demonstration, Room 322, BCC*
- 1:15 p.m.–5:10 p.m.** **AMS CONTRIBUTED PAPER SESSION ON PROBABILITY THEORY AND STOCHASTIC PROCESSES, Room 334, BCC**
- 1:15 p.m.–5:25 p.m.** **MAA GENERAL CONTRIBUTED PAPER SESSION ON OTHER TOPICS, Room 340, BCC**
- 1:15 p.m.–2:30 p.m.** **PROJECT NEXT WORKSHOP ON FLIPPED CLASSROOM** *Maximizing Student Outcomes in Flipped Classrooms, Room 308, BCC*
- AMS SPECIAL SESSIONS**
- 1:30 p.m.–5:45 p.m.** *Geometry of Representation Spaces, II, Room 328, BCC*
- 2:00 p.m.–4:50 p.m.** **ASL CONTRIBUTED PAPER SESSION, Room 315, BCC**
- 2:00 p.m.–4:50 p.m.** **AWM WORKSHOP:WINCOMPTOP: APPLIED AND COMPUTATIONAL TOPOLOGY, II, Room 307, BCC**
- 2:00 p.m.–2:45 p.m.** **MAA BUSINESS MEETING, Room 316, BCC**
- 3:00 p.m.–3:50 p.m.** **MAA-AMS-SIAM GERALD AND JUDITH PORTER PUBLIC LECTURE** *Big data, inequality, and democracy. Cathy O’Neil, Ballrooms I & II, 400 Level, BCC*
- 7:00 p.m.–9:30 p.m.** **2019 AMS “UNTIL NEXT TIME” SOCIAL, Maryland Science Center, 601 Light Street, Baltimore**

College Prep Algebra, 2e

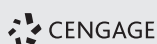
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