



2019 Class of Fellows of the AMS

Sixty-five mathematical scientists from around the world have been named Fellows of the American Mathematical Society (AMS) for 2019.

The Fellows of the American Mathematical Society program recognizes members who have made outstanding contributions to the creation, exposition, advancement, communication, and utilization of mathematics. Among the goals of the program are to create an enlarged class of mathematicians recognized by their peers as distinguished for their contributions to the profession and to honor excellence.

The 2019 class of Fellows was honored at a dessert reception held during the Joint Mathematics Meetings in Baltimore, Maryland. Names of the individuals who are in this year's class, their institutions, and citations appear below.

The nomination period for Fellows is open each year from February 1 to March 31. For [additional information about the Fellows program](http://www.ams.org/profession/ams-fellows), as well as instructions for making nominations, visit the web page www.ams.org/profession/ams-fellows.



Then AMS President Kenneth A. Ribet welcoming the new Class of Fellows of the AMS at JMM in Baltimore.

Joseph A. Ball, Virginia Polytechnic Institute and State University

For contributions to operator theory, analytic functions, and service to the profession.

John S. Baras, University of Maryland

For contributions to the mathematical foundations and applications of systems theory, stochastic systems, stochastic control, network security and trust, mentoring and academic leadership.

Saugata Basu, Purdue University

For contributions to algorithmic and quantitative real algebraic geometry, computational complexity, and o-minimal structures.

Bonnie Berger, Massachusetts Institute of Technology

For contributions to computational biology, bioinformatics, algorithms and for mentoring.

Christopher J. Bishop, Stony Brook University

For contributions to the theory of harmonic measures, quasiconformal maps and transcendental dynamics.

Martin Bridgeman, Boston College

For contributions to hyperbolic geometry and low-dimensional topology and service to the mathematical community.

Fioralba Cakoni, Rutgers The State University of New Jersey
New Brunswick

For contributions to analysis of partial differential equations especially in inverse scattering theory.

Hector D. Ceniceros, University of California,
Santa Barbara

For contributions to numerical analysis, fluid mechanics, and soft materials and for professional leadership, outreach and guidance of postdoctoral, graduate and undergraduate students.

Mark Andrea De Cataldo, Stony Brook University

For contributions to algebraic geometry, especially questions involving the topology of algebraic varieties and mappings.

Tommaso de Fernex, University of Utah

For contributions to algebraic geometry, in particular his work on birational rigidity of hypersurfaces.

FROM THE AMS SECRETARY

Alicia Dickenstein, University of Buenos Aires
For contributions to computational algebra and its applications, especially in systems biology, and for global leadership in supporting underrepresented groups in mathematics.

Richard S. Falk, Rutgers The State University of New Jersey New Brunswick
For contributions to numerical analysis and for service to the mathematical community.

Paul M. N. Feehan, Rutgers The State University of New Jersey New Brunswick
For contributions to gauge theory.

Shmuel Friedland, University of Illinois at Chicago
For contributions to the theory of matrices, tensors, and their applications to other areas.

Stephan Ramon Garcia, Pomona College
For contributions to operator theory and leadership in undergraduate research and mentoring.

Skip Garibaldi, Center for Communications Research, La Jolla
For contributions to group theory and service to the mathematical community, particularly in support of promoting mathematics to a wide audience.

Rebecca F. Goldin, George Mason University
For contributions to differential geometry and service to the mathematical community, particularly in support of promoting mathematical and statistical thinking to a wide audience.

Daniel Groves, University of Illinois at Chicago
For contributions to geometric group theory and low-dimensional topology.

Larry Guth, Massachusetts Institute of Technology
For contributions to harmonic analysis, combinatorics and geometry, and for exposition of high level mathematics.

Michael Harris, Columbia University
For contributions to arithmetic geometry, particularly the theory of automorphic forms, L-functions and motives.

Harald Andrés Helfgott, Mathematics Institute, Georg-August University Göttingen and CNRS
For contributions to analytic number theory, additive combinatorics and combinatorial group theory.

Susan Hermiller, University of Nebraska-Lincoln
For contributions to combinatorial and geometric group theory and for service to the profession, particularly in support of underrepresented groups.

Jeffrey Hoffstein, Brown University
For contributions to analytic number theory and to the development of lattice-based quantum resistant cryptography.

Fern Yvette Hunt, National Institute of Standards and Technology
For outstanding applications of mathematics to science and technology, exceptional service to the US government, and for outreach and mentoring.

Sergei V. Ivanov, University of Illinois, Urbana-Champaign
For contributions in combinatorial and geometric group theory.

Stephen C. Jackson, University of North Texas
For contributions to set theory and its applications.

Dihua Jiang, University of Minnesota-Twin Cities
For contributions to automorphic forms, L-functions, representation theory, and the Langlands Program.

Matthew Kahle, Ohio State University, Columbus
For contributions to stochastic topology, mentoring and service to the mathematics community.

Efstratia (Effie) Kalfagianni, Michigan State University
For contributions to knot theory and 3-dimensional topology, and for mentoring.

Andrew Knyazev, University of Colorado, Denver
For contributions to numerical partial differential equations, computational mathematics and linear algebra, with industrial applications.

W.B. Raymond Lickorish, University of Cambridge
For contributions to knot theory and low-dimensional topology.

Dan Margalit, Georgia Institute of Technology
For contributions to low-dimensional topology and geometric group theory, exposition, and mentoring.

John Edward McCarthy, Washington University
For contributions to operator theory and functions of several complex variables.

Steven Joel Miller, Williams College
For contributions to number theory and service to the mathematical community, particularly in support of mentoring undergraduate research.

Ngaiming Mok, The University of Hong Kong
For contributions to complex differential and algebraic geometry.

Elchanan Mossel, Massachusetts Institute of Technology
For contributions to probability, combinatorics, computing, and especially the interface between them.

FROM THE AMS SECRETARY

Camil Muscalu, Cornell University

For contributions to multi-linear harmonic analysis with applications to partial differential equations and for expository writing in modern harmonic analysis.

Andrew Neitzke, University of Texas at Austin

For contributions to research on the boundary of geometry and physics.

Lenhard Ng, Duke University

For contributions to Floer homology and low-dimensional topology and service to the mathematical community.

Claudia Polini, University of Notre Dame

For contributions to commutative algebra and for service to the profession.

Alex Poltoratski, Texas A&M University

For contributions to harmonic analysis, operator and spectral theory.

Vladimir Retakh, Rutgers The State University of New Jersey New Brunswick

For contributions to noncommutative algebra and noncommutative algebraic geometry.

J. Maurice Rojas, Texas A&M University

For contributions to algorithmic algebraic geometry, complexity theory, and scientific computation, and mentoring of student research at all levels.

Min Ru, University of Houston

For contributions to complex analysis and geometry, particularly Nevalinna theory and the theory of minimal surfaces.

Thomas Schick, Mathematics Institute, Georg-August University Göttingen

For contributions to index theory and the geometry and topology of manifolds.

Anne Schilling, University of California, Davis

For contributions to algebraic combinatorics, combinatorial representation theory, and mathematical physics and for service to the profession.

Stefan Schwede, Universität Bonn

For contributions to homotopy theory.

Julius L. Shaneson, University of Pennsylvania

For contributions to topology.



Members of the 2019 Class of Fellows of the AMS who attended the reception at JMM in Baltimore, pictured with then AMS President Kenneth A. Ribet and then AMS President-Elect Jill C. Pipher.

Ratnasingham Shivaji, University of North Carolina at Greensboro

For contributions to the theory of semipositone elliptic questions applied to reaction diffusion systems, for mentoring and for providing leadership for the inception of a doctoral program in mathematics.

Aravind Srinivasan, University of Maryland

For contributions to theoretical computer science, discrete probability, network science and applications and for service to the profession.

Irena Swanson, Reed College

For contributions to commutative algebra, exposition, service to the profession and mentoring.

Murad S. Taqqu, Boston University

For contributions to self-similar random processes and their applications to real world phenomena such as diverse internet traffic and hydrology.

Valerio Toledano Laredo, Northeastern University

For contributions to the representation theory of quantum groups.

Valentino Tosatti, Northwestern University

For contributions in geometric analysis and complex geometry.

Burt Totaro, University of California, Los Angeles

For contributions to algebraic geometry, Lie theory and cohomology and their connections and for service to the profession.

Peter E. Trapa, University of Utah

For contributions to Lie theory and for service to his university and to math circles initiatives.

Moshe Y. Vardi, Rice University

For contributions to the development and use of mathematical logic in computer science.

Eric Vigoda, Georgia Institute of Technology

For contributions to theoretical computer science, in particular through its interactions with probability, combinatorics and statistical physics and for service to the profession.

Alexander A. Voronov, University of Minnesota-Twin Cities

For contributions to mathematical physics, operad theory and homotopical algebra.

Zhenghan Wang, University of California, Santa Barbara

For contributions to quantum computing and topological quantum field theory.

Olof B. Widlund, New York University, Courant Institute

For contributions to numerical analysis of domain decompositions within computational mathematics and for incubation through his writing and mentorship of a broad international, creative community of practice applied to highly resolved systems simulations.

Tonghai Yang, University of Wisconsin, Madison

For contributions to the theory of Shimura varieties, L-functions, automorphic forms, and complex multiplication.

Zhiwei Yun, Massachusetts Institute of Technology

For contributions to geometry, number theory, and representation theory, including his construction of motives with exceptional Galois groups.

Chongchun Zeng, Georgia Institute of Technology

For contributions to applied dynamical systems and nonlinear partial differential equations.

Wei Zhang, Massachusetts Institute of Technology

For contributions to number theory, algebraic geometry and geometric representation theory.

Credits

Photos by Kate Awtrey, Atlanta Convention Photography.