

# 2015 Class of the Fellows of the AMS

Sixty-three mathematical scientists from around the world have been named Fellows of the American Mathematical Society (AMS) for 2015, the program's second year.

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 2015 class of Fellows was honored at a dessert reception held during the Joint Mathematics Meetings in San Antonio, TX. 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, as well as instructions for making nominations, visit the web page [www.ams.org/profession/ams-fellows](http://www.ams.org/profession/ams-fellows).



**AMS Immediate Past President David Vogan addresses the Fellows at JMM 2015.**

**Prakash Belkale**, University of North Carolina at Chapel Hill  
*For contributions to algebraic geometry and representation theory.*

**John J. Benedetto**, University of Maryland  
*For contributions to theoretical and applied harmonic analysis as well as for editorial service, mentoring, and professional leadership.*

**Andreas R. Blass**, University of Michigan  
*For contributions to logic, computer science, algebra, and geometry, as well as exposition and mentoring.*

**Jonathan Michael Borwein**, University of Newcastle  
*For contributions to nonsmooth analysis and classical analysis as well as experimental mathematics and visualization of mathematics.*

**Maury Bramson**, University of Minnesota-Twin Cities  
*For contributions to stochastic processes and their applications.*

**Martin Robert Bridson**, University of Oxford  
*For contributions to geometric group theory as well as its exposition, and for service to the mathematical community.*

**Daniel Bump**, Stanford University  
*For contributions to number theory, representation theory, combinatorics, and random matrix theory, as well as mathematical exposition.*

**Richard Canary**, University of Michigan  
*For contributions to low-dimensional topology and hyperbolic geometry as well as for service and teaching in mathematics.*

**Alfonso Castro**, Harvey Mudd College  
*For contributions to nonlinear analysis and elliptic partial differential equations as well as for service to individual departments and the larger community.*

**Xiuxiong Chen**, Stony Brook University  
*For contributions to differential geometry, particularly the theory of extremal Kahler metrics.*

**Nikolai Chernov**,\* University of Alabama at Birmingham  
*For contributions to dynamical systems and statistical mechanics.*

**Henry Cohn**, Microsoft Research  
*For contributions to discrete mathematics, including applications to computer science and physics.*

**Marc Culler**, University of Illinois at Chicago  
*For contributions to geometry and topology of 3-manifolds, geometric group theory, and the development of software for mathematical research.*

**Michael W. Davis**, Ohio State University, Columbus  
*For contributions to geometric group theory, transformation groups, and topology, particularly regarding aspherical manifolds.*

**Jesus A. DeLoera**, University of California, Davis  
*For contributions to discrete geometry and combinatorial optimization as well as for service to the profession, including mentoring and diversity.*

**Paul Dupuis**, Brown University  
*For contributions to the theoretical and numerical study of stochastic systems, as well as for editorial contributions and mentoring.*

**Alan Edelman**, Massachusetts Institute of Technology  
*For contributions to random matrix theory, numerical linear algebra, high-performance algorithm, and applications.*

**Charles L. Epstein**, University of Pennsylvania  
*For contributions to analysis, geometry, and applied mathematics including medical imaging, as well as for service to the profession.*

**James Allen Fill**, Johns Hopkins University, Baltimore  
*For contributions to theory and applications of Markov chains and to probabilistic analysis of algorithms.*

**Donald A.S. Fraser**, University of Toronto  
*For contributions to the theory and foundations of statistics, as well as for leadership and influence on the advancement of the statistical sciences.*

**Allan Greenleaf**, University of Rochester  
*For contributions to inverse problems with applications to cloaking as well as for service to the AMS.*

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## Fellows of the AMS

**Karsten Grove**, University of Notre Dame

*For contributions to Riemannian geometry.*

**Matthew J. Gursky**, University of Notre Dame

*For contributions to conformal geometry, nonlinear partial differential equations, and the geometry and topology of four-dimensional manifolds.*

**Robert M. Hardt**, Rice University

*For contributions to calculus of variations, partial differential equations, and analytic approaches to geometry and topology, as well as mentoring.*

**Aloysius G. Helminck**, North Carolina State University

*For contributions to the representations and applications of symmetric spaces as well as for leadership in developing programs that attract and retain mathematics students.*

**Mourad E. H. Ismail**, King Saud University and the University of Central Florida

*For contributions to classical analysis and special function theory, as well as for service to the community.*

**Carl G. Jockusch**, University of Illinois, Urbana-Champaign

*For contributions to logic, computability theory, and Turing structures.*

**Arthur J. Krener**, University of California, Davis

*For contributions to the geometric theory of nonlinear control and estimation.*

**Phil Kutzko**, University of Iowa

*For contributions to representations of  $p$ -adic groups and the local Langlands program, as well as for recruitment and mentoring of under-represented minority students.*

**David R. Larson**, Texas A&M University

*For contributions to operator theory and functional analysis as well as teaching of mathematics.*

**Irena Lasiecka**, University of Memphis

*For contributions to control theory of partial differential equations, mentorship, and service to professional societies.*

**Kristin E. Lauter**, Microsoft Research

*For contributions to arithmetic geometry and cryptography as well as service to the community.*

**Fanghua Lin**, New York University, Courant Institute

*For contributions to partial differential equations, geometric measure theory, calculus of variations, and applied analysis.*

**Hans Lindblad**, Johns Hopkins University, Baltimore

*For contributions to nonlinear partial differential equations and mathematical physics.*

**Mitchell Luskin**, University of Minnesota, Twin Cities

*For contributions to numerical analysis and applications to materials science.*

**Michael A. Mandell**, Indiana University, Bloomington

*For contributions to algebraic topology.*

**Donald A. Martin**, University of California, Los Angeles

*For contributions to mathematical logic, especially proofs and applications of determinacy, as well as service to the profession.*

**Gordana Matic**, University of Georgia

*For contributions to low-dimensional and contact topology.*

**Jonathan Christopher Mattingly**, Duke University

*For contributions to the analysis of stochastic systems.*

**Willard Miller Jr.**, University of Minnesota, Twin Cities

*For contributions to applied mathematics, especially special function theory, and for service to the mathematical community.*

**Washington Mio**, Florida State University

*For contributions to topology as well as to the mathematics, statistics, and applications of shape analysis.*



AMS Fellows Reception, JMM 2015.

**Konstantin Mischaikow**, Rutgers The State University of New Jersey New Brunswick

*For contributions to dynamical systems as well as to applied and computational topology.*

**Irina Mitrea**, Temple University

*For contributions to partial differential equations and related fields as well as outreach to women and under-represented minorities at all educational levels.*

**Paul S. Muhly**, University of Iowa

*For contributions to operator theory as well as mentoring and service to the community.*

**Andrea R. Nahmod**, University of Massachusetts, Amherst

*For contributions to nonlinear Fourier analysis, harmonic analysis, and partial differential equations, as well as service to the mathematical community.*

**Gabriel Navarro**, University of Valencia

*For contributions to representation theory.*

**Alexander Olshanskii**, Vanderbilt University

*For contributions to combinatorial and geometric group theory.*

**Mihnea Popa**, Northwestern University

*For contributions to algebraic geometry.*

**Andrei Rapinchuk**, University of Virginia

*For contributions to the arithmetic theory of algebraic groups and geometry of locally symmetric spaces.*

**Charles Rezk**, University of Illinois, Urbana-Champaign

*For contributions to theoretical and computational aspects of algebraic topology and homotopy theory.*

**Igor Rivin**, Temple University

*For contributions to geometry and related fields, pure and applied.*

**Yongbin Ruan**, University of Michigan

*For contributions to geometry, theoretical physics, and their interconnections, particularly Gromov-Witten theory and quantum cohomology.*

**Wilhelm Schlag**, University of Chicago

*For contributions to harmonic analysis, mathematical physics, and nonlinear partial differential equations.*

**Rolf Schneider**, Albert-Ludwigs-Universität

*For contributions to convex geometry.*

**Denis Serre**, Ecole Normale Supérieure de Lyon

*For contributions to hyperbolic conservation laws and mathematical exposition.*



AMS Associate Executive Director of Meetings and Professional Services, T. Christine Stevens with reception attendees Kenneth C. Millett, University of California, Santa Barbara, Robert D. Edwards, University of California, Los Angeles, and Janis Millett.

**Brooke Shipley**, University of Illinois at Chicago  
*For contributions to homotopy theory and homological algebra as well as for service to the mathematical community.*

**Cesar E. Silva**, Williams College  
*For contributions to ergodic theory as well as exposition and mentoring undergraduates in research.*

**Christina Sormani**, The City University of New York, Lehman College and The Graduate Center  
*For contributions to geometry, including the study of Ricci curvature, and for mentoring activities, especially for young mathematicians from underrepresented groups.*

**Michael Stillman**, Cornell University  
*For contributions to implementation and algebra of symbolic computation.*

**Zhi-Qiang Wang**, Utah State University  
*For contributions to nonlinear analysis and applications in nonlinear differential equations.*

**C. Eugene Wayne**, Boston University  
*For contributions to dynamical systems and mathematical physics.*

**Charles A. Weibel**, Rutgers The State University of New Jersey New Brunswick  
*For contributions to K-theory, motivic cohomology, and related fields.*

**Christopher Thomas Woodward**, Rutgers The State University of New Jersey New Brunswick  
*For contributions to symplectic and algebraic geometry as well as for dedication to the teaching of mathematics.*

\* deceased

—See more at: [www.ams.org/profession/ams-fellows/new-fellows](http://www.ams.org/profession/ams-fellows/new-fellows)

—Photos courtesy of Goen South.



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