

Mathematics People

Viazovska Awarded Salem Prize



Maryna Viazovska

MARYNA VIAZOVSKA of the Berlin Mathematical School and Humboldt University of Berlin has been awarded the 2016 Salem Prize “for her breakthrough work on densest sphere packings in dimensions 8 and 24 using methods of modular forms.” She earned her PhD from the University of Bonn in 2013 with her dissertation “Modular functions and special cycles.” She works in the areas of number theory, discrete geometry, approximation theory, and physics. The prize, in memory of Raphael Salem, is awarded yearly to young researchers for outstanding contributions to the field of analysis.

Editor’s note: For more on the work of Maryna Viazovska, see the feature article “A Conceptual Breakthrough in Sphere Packing” by Henry Cohn in the February 2017 *Notices*.

—Elly Gustafsson,
Institute for Advanced Study

Presidential Mentoring Awards Given

The Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring for fiscal year 2012 were awarded in 2015 by President Obama to fourteen individuals and one organization. Two scholars whose work involves the mathematical sciences were selected to receive awards: RAYMOND L. JOHNSON of the University of Maryland and J. TILAK RATNANATHER of Johns Hopkins University.



Raymond L. Johnson

Johnson was recognized “for his tireless and highly successful mentoring efforts with students from groups underrepresented in mathematics.” He was the first African American admitted to Rice University (1964), where he earned a doctorate in mathematics in 1969 for his dissertation, “A priori estimates and unique continuation theorems for second order parabolic equations.” He joined the faculty at Maryland in 1980, becoming the first African American to be pro-

moted to associate professor and the first to serve as Chair of the Department of Mathematics. His research began with work on non-well-posed problems, which led him to the study of Besov spaces and harmonic analysis. His interest in harmonic analysis continues today. After forty years at the University of Maryland, Johnson retired and returned to Rice as a visiting professor.

At the University of Maryland, Johnson personally mentored numerous graduate students, with the largest number of students advised in the period between 1990 and 2009. During that time, fifty-three underrepresented minority students pursued their MA and/or PhD degrees. All but one of these students was African American, and twenty-two of the students were African American women. Many of his graduate students graduated from smaller, historically black colleges and universities. Johnson’s mentoring plan involved regular group meetings to develop a sense of community, as well as course selection and counseling. Keenly aware of the need to familiarize minority students with interdisciplinary environments, Johnson encouraged his protégés to interact with minority graduate students across department lines.

Of his fifty-three graduate students, twenty-three completed their PhDs in mathematics. In 2000, the first African American woman earned a PhD in mathematics at the University of Maryland; in fact, three African American women graduated at the same time. Fourteen of his PhD recipients currently hold academic appointments at major US institutions of higher education, and three are tenured professors. Johnson was honored with the AAAS Lifetime Mentor Award in 2007.



J. Tilak Ratnanather

Ratnanather was recognized for his work “creating a system to support deaf and hard-of-hearing individuals in STEM.” He was the first congenitally deaf person to earn an undergraduate degree in mathematics from University College, London, in 1985, and in 1989 he became the first ever congenitally deaf individual in the world to be graduated with a doctorate in mathematics, which he earned from Oxford University. His interest in postdoctoral research in the auditory sciences brought him to Baltimore, Maryland, and the Johns Hopkins University School of Medicine. Ratnanather’s research interests include computational anatomy applications in neurodevelopmental and neurodegeneration disorders, as well as cochlear micromechanics and fluid mechanics.

There is a simple and powerful objective to Ratnanather’s mentoring programs: to provide opportunities for education and research in science, technology, engineering, and mathematics (STEM) for deaf and hard-of-hearing individuals who may not have otherwise been exposed to STEM and to achieve this objective through extensive and involved networking so that his protégés can later serve as mentors themselves.

The lack of accommodations for the deaf and hard of hearing at annual meetings of the Association for Research in Otolaryngology led him to begin his work to recruit deaf and hard-of-hearing students and pro-

vide the accommodation that allows them to participate in professional meetings. His success is clearly documented: In 1991, Ratnanather and one other graduate student were the only deaf and hard-of-hearing individuals pursuing studies in the auditory sciences. In 2011, there were seven deaf and hard-of-hearing faculty members in the auditory sciences, with more than fifteen currently pursuing graduate degrees in that field. He established the Hearing-Impaired Association for Research in Otolaryngology in 1992.

Ratnanather has personally mentored thirteen deaf or hard-of-hearing students in both STEM and medical school programs (five of whom are pursuing careers in medicine). His mentoring work includes twenty hearing female students, all of whom have pursued doctoral degrees in STEM. He continues to think about how new ideas in education and technology can broaden access by people with hearing loss.

—From a *National Science Foundation* announcement

Radunskaya Receives AAAS Mentor Award



Ami Radunskaya

AMI RADUNSKAYA of Pomona College has been honored with the 2016 Mentor Award of the American Associa-

tion for the Advancement of Science for launching “dramatic education and research changes leading to an increase in the number of female doctorates in the field of mathematics.” She has mentored eighty-two students—eighty of whom are women—in earning their PhD degrees in mathematics. Twenty-three of her students are African American and five are Latino, and most of them are now affiliated with universities and colleges. Radunskaya is president-elect of the Association for Women in Mathematics and director of the Enhancing Diversity in Graduate Education (EDGE) program in mathematics. She earned her PhD in mathematics from Stanford University and has been honored with several awards for teaching and mentoring, as well as being named the AWM Falconer Lecturer in 2010.

—From an *AAAS* announcement

Mnev Awarded Lichnerowicz Prize



Pavel Mnev

PAVEL MNEV of Notre Dame University has been awarded the André Lichnerowicz Prize in Poisson geometry for his work, which is “at the interface of Poisson geometry, topology, and mathematical physics.” Mnev received his PhD in 2008 from the Steklov Institute of Mathematics in St. Petersburg under the direction of Ludwig Fadeev and has held positions at the University of Zurich and the Max Planck

Institute. His research interests are in mathematical physics, in particular in the interactions of quantum field theory with topology, homological/homotopical algebra, and supergeometry. The award is given for outstanding work by a young mathematician in Poisson geometry.

—From a University of Notre Dame announcement

Burkhardt and Swan Receive Castelnovo Award



Hugh Burkhardt and Malcolm Swan

HUGH BURKHARDT and MALCOLM SWAN of the Shell Centre for Mathematical Education at Nottingham University have been awarded the 2016 inaugural Emma Castelnovo Award for Excellence in the Practice of Mathematics Education “in recognition of their more than thirty-five years of development and implementation of innovative, influential work in the practice of mathematics education, including the development of curriculum and assessment materials, instructional design concepts, teacher preparation programs, and educational system changes.” The Castelnovo Award is given by the International Commission on Mathematical Instruction (ICMI) to recognize outstanding achievements in the practice of mathematics education.

—From an ICMI announcement

Rizell Receives Wallenberg Fellowship



Georgios Dimitroglou Rizell

GEORGIOS DIMITROGLOU RIZELL of Uppsala University has been awarded a Wallenberg Academy Fellowship for his contributions to the development of symplectic geometry. According to the prize citation, “As a Wallenberg Academy Fellow he will continue to build upon the theory by investigating and classifying so-called Lagrangian submanifolds; these are subspaces whose properties are important for understanding the ambient symplectic space.” Wallenberg Fellows receive five-year grants of 5–9 million Swedish krona (approximately US\$542,000–976,000), depending on the field, and may apply for an additional five years. The program was established by the Knut and Alice Wallenberg Foundation in close cooperation with five learned academies and sixteen Swedish universities to give the most promising young researchers a work situation that enables them to focus on their projects and address difficult research questions over an extended period of time.

—From a Wallenberg Academy announcement

Mathematical Society of Japan Prizes

The Mathematical Society of Japan (MSJ) awarded the following prizes at the MSJ Autumn Meeting in 2016.

The 2016 Autumn Prize was awarded to SHIGEYUKI MORITA, emeritus professor at the University of Tokyo and Tokyo Institute of Technol-



Shigeyuki Morita

ogy, for his outstanding contributions to work on cohomology theory of mapping class groups and outer automorphism groups of free groups. The MSJ Autumn Prize and the MSJ Spring Prize are the most prestigious prizes awarded by the MSJ to its members.

The 2016 Analysis Prizes were awarded to SOICHIRO KATAYAMA of Osaka University for studies on null structure in systems of nonlinear hyperbolic partial differential equations; to SHIGEAKI KOIKE of Tohoku University for work on the theory of L^p -viscosity solutions for fully nonlinear elliptic and parabolic partial differential equations; and to TOMOHIRO SAKAMOTO of the Tokyo Institute of Technology for studies on nonequilibrium stochastic dynamical systems by exact solutions.

The 2016 Geometry Prizes were awarded to TERUHIKO SOMA of Tokyo Metropolitan University for a series of works on 3-manifold theory and to SHIGEHARU TAKAYAMA of the University of Tokyo for the algebro-geometric study of birationality of pluri-

canonical maps of algebraic varieties of general type.

The 2016 Takebe Katahiro Prizes were awarded to NORIHISA IKOMA of Kanazawa University for work on variational and nonvariational approaches for nonlinear elliptic problems; to TAKEFUMI NOSAKA of Kyushu University for work on algebraic topology of quandles and low-dimensional manifolds; and to MAKOTO YAMASHITA of Ochanomizu University for operator algebraic studies on quantum groups. The Takebe Katahiro Prize is awarded to young researchers who have obtained outstanding results.

The 2016 Takebe Katahiro Prizes for Encouragement of Young Researchers were awarded to KEN ABE of Kyoto University for work on the analysis of the Navier-Stokes equations by maximum norm; to YOSHIHIRO ABE of Kobe University for detailed estimates on cover times and local times of random walks on graphs; to TAKAHIRO OBA of Tokyo Institute of Technology for work on contact manifolds and their Stein fillings; to RYO KANDA of Osaka University for work on atom spectra of Grothendieck categories; to YU KITABEPPU of Kyoto University for work on geometry of spaces with Ricci curvature bounded below; and to YUTA WAKASUGI of Nagoya University for studies on the asymptotic behavior of solutions to damped wave equations. The Takebe Prize is intended for young mathematicians who are deemed to have begun promising careers in research by obtaining significant results.

—From an MSJ announcement

Prizes of the New Zealand Mathematical Society

The New Zealand Mathematical Society (NZMS) has announced several awards for 2016.

DAVID BRYANT of the University of Otago and BERND KRAUSKOPF of the University of Auckland have been

named recipients of the NZMS Research Award. Bryant was honored for “work developing mathematical, statistical and computational tools for evolutionary biology, and work drawing on evolutionary biology to develop new theories in mathematics.” Krauskopf was honored for “outstanding contributions to dynamical systems, especially bifurcation theory and its application to diverse physical phenomena.”

GAVEN MARTIN of Massey University received the Kalman Prize for Best Paper for his article with T. H. Marshall “Minimal co-volume hyperbolic lattices, II: Simple torsion in a Kleinian group,” *Annals of Mathematics* 176(2012). [See Martin's cover story in the December 2016 *Notices*.]

ALEXANDER MELNIKOV of Massey University received the Early Career Award for “highly original contributions to the theory of computability in algebra and topology.”

NAOMI GENDLER of the University of Auckland was awarded the Aitken Prize for best contributed talk by a student at the annual NZMS Colloquium for her talk “Pulse dynamics of fibre lasers with saturable absorbers.”

—From an NZMS announcement

Jackson Awarded 2016 Rosenthal Prize

TRACI JACKSON of Oak Valley Middle School, San Diego, California, has been awarded the 2016 Rosenthal Prize for Innovation in Math Teaching for her lesson “Creating color combos: Visual modeling of proportional relationships!” In the lesson, students explore proportional reasoning by mixing colored solutions, creating different color combinations to visualize ratios. Jackson received a cash award of US\$25,000. The second place award went to DENA LORDI of Diamond Bar High School in Diamond Bar, California, for her lesson “Where can I find a weightless stick?” In this lesson, students trace the changing balance point on a scale as weights are added

in order to identify the mean value of a set of numbers. Runners-up were CRYSTAL FROMMERT, JEMAL GRAHAM, and MARIA HERNANDEZ.

—From a National Museum of Mathematics announcement

W. Wistar Comfort (1933–2016)



William Wistar Comfort

WILLIAM WISTAR “WIS” COMFORT, long-time associate secretary of the AMS, was known to many for his gallantry, dry wit, and humility. He was a widely published mathematician and scholar whose teaching career spanned five decades. A formidable runner and racquet sports athlete, Wis was beloved by his peers for his sense of fairness. As a lifelong Quaker, he could be counted on to speak for the marginalized or overlooked.

Wis held academic positions at Harvard University, the University of Rochester, and the University of Massachusetts at Amherst. He came to Wesleyan in July 1967 and from 1982 onwards was the Edward Burr Van Vleck Professor of Mathematics. He served as department chair three times before retiring in December 2007.

He continued to publish mathematical works in the weeks leading up to his death; more will be published posthumously. Wis mentored more than twenty-five graduate students and has about 150 publications with

fifty-seven coauthors from at least seventeen countries.

Wis worked principally in general topology, with a specialty in topological groups and cardinal invariants. He enjoyed infinitary combinatorics and their applications to topological structures. He held various editorial and advocacy positions for mathematical journals.

He had an extensive record of service to the AMS, including ten years, from 1973 to 1983, as associate secretary for the Eastern Section. He also served on the AMS Council, as well as several committees. He was the topology editor for the *Proceedings* from 1971 to 1974, and in the last year of that period served as managing editor. He was named a Fellow of the AMS in the 2013 inaugural class.

Born on April 19, 1933, in Bryn Mawr, Pennsylvania, Wis Comfort graduated from Haverford College (Pennsylvania) in 1954. His roots at Haverford run deep. His father, Howard Comfort II, was head of the Classics Department, and his grandfather, William Wistar Comfort, for whom he was named, was a noted Quaker scholar and president of Haverford from 1917 to 1940. Wis received the PhD degree from the University of Washington (Seattle) in 1958, where his thesis director was Edwin Hewitt. He married Mary Constance Lyon in March 1957, and the couple produced two children, Martha Wistar Comfort and Howard Comfort III, and enjoyed fifty-nine years of marriage before Mary Connie passed in May 2016.

Wis Comfort's principal postretirement avocation was Dixieland trombone, and he was affiliated with many groups in Connecticut and Maine. His rich, deep singing voice delighted many, and he worked assiduously at his music, living and breathing the old-time tunes.

—Martha Wistar Comfort

Robert Seeley (1932–2016)



Robert Seeley

ROBERT SEELEY, professor emeritus of mathematics at the University of Massachusetts at Boston, was a pioneer in the theory of pseudo-differential operators. He earned his PhD at the Massachusetts Institute of Technology with Alberto Calderón and taught at Harvey Mudd College and Brandeis University before settling at the University of Massachusetts. He was as interested in the beginners as in the math majors, so he gladly taught the full range of courses. When students were ready for advanced work beyond what was available in the curriculum, he cheerfully and regularly supervised independent study. In retirement he taught mathematics in prisons.

Seeley was one of the first Fellows of the AMS and a member-at-large of the AMS Council from 1972 to 1974.

One of the great mathematical inventions of the 1960s was the theory of pseudo-differential operators. This theory made possible both the Atiyah-Singer Index Theorem and “microlocal” techniques with which one could apply the tools of symplectic geometry and dynamical systems to problems in partial differential equation theory. The origins of microlocal analysis were the papers on “singular integral operators” of Calderón and Zygmund in the late 1950s, but it was Seeley's work in the next decade that turned these ideas into the modern theory of pseudo-differential operators.

Bob Seeley was a deep, thoughtful, kind family man, a mainstay of the Quaker community in Cambridge, and a world traveler who spent sabbaticals

in Peru, Mexico, Italy, and the Netherlands. He loved to sing, bike, run, and ski cross-country. Visitors to his home in Newton enjoyed both his hospitality and the marvels of carpentry he installed there to complement the furniture he built.

—Ethan Bolker,
University of Massachusetts Boston

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