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# Mathematics People

## NSF Graduate Fellowships Announced

The National Science Foundation has announced awards in its Graduate Fellowship Program for fiscal year 1998. This program provides support for students pursuing doctoral study in all areas of science and engineering. Listed below are the names of the 1998 awardees in the mathematical sciences, followed by their undergraduate institutions (in parentheses) and the institutions where they plan to pursue graduate work.

AARON FRANCIS ARCHER (Harvey Mudd College) Cornell University; ERIC BAIR (Utah State University) Stanford University; JEREMY DAVID LIPSITZ BEM (Cornell University) University of California, Berkeley; DANIEL KALMAN BISS (Harvard University) Massachusetts Institute of Technology; KARIANE CALTA (Williams College) Harvard University; AMY ELLEN MAINVILLE COHN (Harvard University) Massachusetts Institute of Technology; MOON DUCHIN (Harvard University) Cornell University; PAUL JOSEPH ELLIS (Princeton University) Harvard University; TAMAR FRIEDMANN (Princeton University) Princeton University; SAMUEL GRUSHEVSKY (Harvard University) Harvard University; TIVON ELAN JACOBSON (University of Arizona) Cornell University; DAVID YEN JAO (Massachusetts Institute of Technology) Massachusetts Institute of Technology; CHRISTOPHER DAVID JERIS (University of Chicago) Harvard University; RAMESH OM JOHARI (Harvard University) Massachusetts Institute of Technology; NICHOLAS ANTHONY LOEHR (Virginia Polytechnic Institute and State University) Massachusetts Institute of Technology; BRIAN OLIVEIRA LUCENA (Harvard University) Brown University; LOUIS ARI MERLIN (Yale University) Stanford University; ANDREW M. NEITZKE (Princeton University) Harvard University; TREVOR HOWARD

PARK (University of Arizona) Cornell University; SETH S. PATINKIN (Indiana University, Bloomington) Princeton University; JACOB ANDREW RASMUSSEN (Princeton University) Harvard University; LAWRENCE PIERCE ROBERTS (Washington University) University of California, Berkeley; JESSICA ANN SHEPHERD (University of Utah) Princeton University; SUDHEER POORNACHANDRA SHUKLA (University of Maryland, College Park) University of Chicago; JOHN DAVID STOREY (North Carolina State University) North Carolina State University; HUA TANG (Harvard University) Stanford University; CHRISTOPHER RYAN VINROOT (North Carolina State University) Massachusetts Institute of Technology; RONALD ALLEN WALKER (University of Richmond) Princeton University; BENJAMIN CHARLES WALTER (Rice University) Massachusetts Institute of Technology; DAVID BRIAN WALTON (Brigham Young University) University of Arizona; STEPHEN SOONG WANG (Harvard University) Princeton University; LEAH JEANNINE WELTY (University of Chicago) Washington University; and ALEKSEY ZINGER (Massachusetts Institute of Technology) Massachusetts Institute of Technology.

**Editor's note:** The institutions of graduate study listed here are from the students' original applications. In some cases students will have switched institutions by the time the fellowship tenure begins.

—NSF announcement

## NSF Minority Graduate Fellowships Announced

The National Science Foundation has announced awards in its Minority Graduate Fellowship Program for fiscal year

1998. This program provides support for students who are members of minority groups and who are pursuing doctoral study in science and engineering. Listed below are the names of the 1998 awardees in the mathematical sciences, followed by their undergraduate institutions (in parentheses) and the institutions where they plan to pursue graduate work. DUANE DAVID GILYOT (Rice University) University of California, Berkeley; MONICA THERESA GREENWOOD (St. Bonaventure University) University of Maryland, College Park; SHARON ANN LOZANO (University of Texas, Austin) University of Texas, Austin; FRANCISCO RAMON RIOS (California State University, San Bernardino) University of California, Berkeley; JORGE FEDERICO RODRIGUEZ (Massachusetts Institute of Technology) University of California, San Diego; and NIKKI LATRINA WILLIAMS (Spelman College) Rice University.

**Editor's Note:** The institutions of graduate study listed here are from the students' original applications. In some cases students will have switched institutions by the time the fellowship tenure begins.

—NSF announcement

## Aumann Awarded Nemmers Prize in Economics

Northwestern University has awarded its 1997-98 Erwin Plein Nemmers Prize in economics to ROBERT J. AUMANN, a mathematical economist and professor of mathematics and economics at The Hebrew University of Jerusalem.

The Nemmers Prizes, awarded for work of lasting significance in economics and mathematics, are given every other year to scholars who display "outstanding achievement in their discipline as demonstrated by major contributions to new knowledge or the development of significant new modes of analysis." The prizes each carry a \$100,000 stipend.

In connection with the award, Aumann will spend a period of residence at Northwestern University, during which he will present a public lecture and will interact with students and members of the faculty.

Aumann has taught at The Hebrew University of Jerusalem since 1956. He has been one of the leaders in revolutionizing economics and other social sciences by expanding their analysis to issues of strategies, coalitions and information. His contributions include substantial discoveries about large competitive markets and games with a continuum of players, the development of the general model of coalitional games, and the first studies of dynamic strategic interaction with differential information. He founded the subject of interactive epistemology and established the logical foundation of rational correlated behavior.

Aumann received his bachelor of science degree from the City College of New York and his master's and doctoral degrees from the Massachusetts Institute of Technology. He is a past president of the Israel Mathematics Union. He has received the Harvey Prize in Science and Technology

from the Technion (Israel Institute of Technology) and the Israel Prize in Economics.

Aumann has written four books and dozens of scientific publications, has founded and edited leading scientific publications, and has organized some of the earliest conferences in game theory and economics.

The Nemmers Prizes, initiated in 1994, were made possible by bequests from the late Erwin P. Nemmers, a former member of the Northwestern University faculty, and his brother, the late Frederic E. Nemmers, both of Milwaukee, Wisconsin. The 1998 selection committees were composed of faculty members from the University of California at Berkeley, Harvard University, Massachusetts Institute of Technology, Yale University, and Northwestern University.

—Northwestern University announcement

## Erdős Awards Presented

The Paul Erdős National Awards of the World Federation of National Mathematics Competitions (WFNMC) for 1998 have been presented to MARK SAUL of Bronxville High School in Bronxville, New York; AGNIS ANDJANS of Latvia; and WOLFGANG ENGEL of Germany. Saul is an associate editor of the *Notices*.

The Erdős Award was established to recognize contributions by mathematicians who have played a significant role in developing mathematical challenges at the national level and who have been a stimulus for enriching mathematics learning.

The World Federation of National Mathematics Competitions is an organization of national mathematics competitions affiliated as a special interest group of the International Commission for Mathematical Instruction (ICMI). Its purpose is to provide a focal point for those interested in and concerned with conducting national mathematics competitions to stimulate mathematics learning.

The Erdős Awards were presented at the international conference of the WFNMC, held in July in ZhongShan, China.

—from the WFNMC

## Boltzmann Prize to Widom and Lieb

The 1998 Boltzmann Prize has been awarded to BENJAMIN WIDOM of Cornell University and ELLIOTT LIEB of Princeton University.

Widom was cited "for his illuminating studies of the statistical mechanics of fluids and fluid mixtures and their interfacial properties, especially his clear and general formulations of scaling hypotheses for the equation of state and surface tensions of fluids near critical points." Lieb was cited "for his outstanding mathematical investigations of fundamental problems in classical and quantum statisti-

cal physics, including exact solutions of a wide range of models with important applications.”

The Boltzmann Prize is given every three years by the Commission on Statistical Physics in the name of the International Union of Pure and Applied Physics.

—*Elaine Kehoe*

## Lieb Awarded Onsager Medal

ELLIOTT LIEB of Princeton University has been awarded the Lars Onsager Medal from the Norwegian University of Science and Technology for his contributions to statistical and mathematical physics.

Previous recipients of the Onsager Medal are Michael Fisher, Benjamin Widom, Walter Ebeling, Russell Donnelly, and Pierre-Gilles de Gennes.

—*Helge Holden*

*Norwegian University of Science and Technology*

## Mathematicians Elected to Royal Society of Canada

Four mathematicians have been elected as Fellows of the Royal Society of Canada. They are MARTIN T. BARLOW, University of British Columbia; VICTOR IVRII, University of Toronto; SCOTT A. VANSTONE, University of Waterloo; and ALFRED WEISS, University of Alberta.

They will be inducted in November.

The Royal Society of Canada encompasses a broad range of disciplines and is dedicated to promoting and developing learning and research in the arts and sciences.

—*from a Royal Society of Canada press release*

## Benguria Wins Guggenheim Fellowship

RAFAEL D. BENGURIA of the Pontifical Catholic University of Chile has been awarded a John Simon Guggenheim Fellowship for his work in spectral properties of linear and nonlinear boundary value problems. Benguria was selected as Fellow in Mathematics by the 1998 Latin American and Caribbean Committee of the Foundation.

The Foundation offers fellowships to scholars and artists to aid their research in all fields of knowledge and creation in any of the arts under the freest possible conditions and irrespective of race, color, or creed.

—*Guggenheim Foundation*

## B. H. Neumann Awards Given

The B. H. Neumann Awards for 1998 have been awarded by the Board of the Australian Mathematics Trust to DAVID C. HUNT, University of New South Wales; NATHAN HOFFMAN, retired from the Western Australian Department of Education and Edith Cowan University, and HANS LAUSCH, Monash University.

The awards, named for Bernhard H. Neumann, are presented each year to mathematicians who have made important contributions over many years to the enrichment of mathematics learning in Australia and its region.

—*Board of the Australian Mathematics Trust*

## Sloan Dissertation Fellowships

The Alfred P. Sloan Foundation has announced the names of the 1998 recipients of Sloan Dissertation Fellowships. Fifty fellowships are awarded on a national competitive basis in two fields: mathematics and economics. In each field, leading doctoral departments are invited to nominate candidates. The Foundation does not accept applications from individual students. The awards provide full tuition and a stipend for the dissertation year.

The following lists the names and affiliations of those receiving Sloan Dissertation Fellowships in mathematics.

JINHO BAIK, New York University; MATTHEW BAKER, University of California, Berkeley; SERGEY BARANNIKOV, University of California, Berkeley; MIRA BERNSTEIN, Harvard University; DANIEL K. DUGGER, Massachusetts Institute of Technology; NATHAN DUNFIELD, University of Chicago; SIDDHARTHA GADGIL, California Institute of Technology; JONATHAN P. HANKE, Princeton University; DENIS HIRSCHFELDT, Cornell University; ALEXANDRU DAN IONESCU, Princeton University; ADAM LOGAN, Harvard University; PAUL A. LOOMIS, Purdue University; BENJAMIN MCKAY, Duke University; WAI YAN PONG, University of Illinois at Chicago; VICTOR SCHARASCHKIN, University of Michigan; KRISHNAN SHANKAR, University of Maryland; CHAD SPROUSE, University of California, Los Angeles; DMITRY TAMARKIN, Pennsylvania State University; TITUS TEODORESCU, Columbia University; GUOLING TON, Johns Hopkins University; JEREMY TYSON, University of Michigan; JEFF ALAN VIACLOVSKY, Princeton University; MAXIM VYBORNOV, Yale University; HANS ULRICH WALTHER, University of Minnesota; and CHIU-KWONG WONG, University of California, Los Angeles.

—*Alfred P. Sloan Foundation*

## AMS Menger Awards at the International Science and Engineering Fair

The 1998 International Science and Engineering Fair (ISEF) was held May 10–16, 1998, in the Tarrant County Convention Center in Fort Worth, Texas. Student winners were among 1,012 ninth- through twelfth-graders who earned



**AMS Menger Awards.**

**Back row, left to right: M. Y. Lee, R. L. Barnes, A. E. Eroshin, J. R. Rahe; middle row: J. A. Goldstein, D. Yamins, J. A. Kelner, M. C. Ong, D. C. Rennard; front row: J. R. Walk, S. Flannery, H. Yu, and A. W. Salamon.**

the right to compete by winning top prizes at local, regional, state, or, in the case of some foreign students, national science fairs to reach the finals at ISEF. Prizes included plaques, certificates, T-shirts, books, magazine/journal subscriptions, organizational memberships, and cash awards. In addition to ISEF recognition, there were special awards made by other groups, including professional and educational organizations, industry, branches of the military, and colleges and universities. In particular, millions of dollars of scholarship funds were awarded.

For the eleventh time the American Mathematical Society presented the Karl Menger Memorial Awards at the ISEF. This year's AMS judging panel consisted of eight mathematicians: Victor A. Belfi and Robert S. Doran (Texas Christian University), Neal Brand, John W. Neuberger, and Henry A. Warchall (University of North Texas), Jerome A. Goldstein, chair (University of Memphis), Marius N. Nkashama (University of Alabama, Birmingham), and Julian Palmore (University of Illinois at Urbana-Champaign). The panel considered 65 projects, including all 52 projects entered in mathematics. Each panel member inspected each project, and each student was interviewed by at least two panel members. The winners (one first-place winner, two second-place winners, four third-place winners) were given cash prizes, and they and the five honorable-mention winners were given copies of *What's Happening in the Mathematical Sciences* by Barry Cipra (published by the AMS) and a short intellectual biography of Karl Menger, in whose honor the awards are named. The Karl Menger Memorial prize winners were as follows:

First Place (\$1,000): JONATHAN ADAM KELNER, "The Universality of the Near-Zero Microscopic Eigenvalue Spectrum of Random Matrix Ensembles of Infinite Variance",

Senior, The Wheatley School, Old Westbury, New York.

Second Place (\$500 each): MICHAEL YANCHEE LEE, "Algebraic Generalizations of Van der Waerden's Theorem on Arithmetic Progressions", Senior, Norman High School, Norman, Oklahoma; DANIEL YAMINS, Senior, Great Neck South High School, Great Neck, New York.

Third Place (\$250 each): ALEXEY EVGENJEVITCH EROSHIN, "Several Properties of Periodic Fractions", Junior, Moscow Chemical Lyceum, Moscow, Russia; SARAH FLANNERY, "Cryptography: Science of Secrecy", Senior, Scoil Mhuire Gan Smal, Blarney, County Cork, Ireland; JEREMY RYAN RAHE, "Prime Factorials! 2", Junior, Bellaire High School, Houston, Texas; JENNIFER ROSE WALK, "Did Pythagoras Know Everything? A Three-Year Study", Sophomore, Suncoast Community High School, Riviera Beach, Florida.

Honorable Mention: RICHARD LEE BARNES, "Seeking the Center: Determining the Minimum Value of C in a Trifocal Curve", Sophomore, E. C. Glass High School, Lynchburg, Virginia; MATTHEW CHRISTOPHER ONG, "A Polynomial-Based Approach to Mapping Multi-valued Propositional Logics", Junior, Cheyenne Central High School, Cheyenne, Wyoming; DAVID CARL RENNARD, "An Identity Expressing  $n!$  as a Combination of  $n$ th Powers of Consecutive Integers from the  $n$ th Row of Pascal's Triangle", Junior, Central High School, Omaha, Nebraska; ANNA WELLING SALAMON, "What Patterns Exist in the Factors of the Fibonacci Numbers?", Senior, San Diego High School, San Diego, California; HUI YU, "Yu's First Theorem", Junior, El Cerrito High School, El Cerrito, California.

Within each category, the names above were listed alphabetically. The titles indicate the breadth and scope of the projects. But the panel was mainly impressed with the enthusiasm and quality of the work done by these twelve winners and numerous other talented youngsters as well. Our first prize went to a student who classified his project as physics. Our winners included two 16-year-olds from abroad, a woman from Blarney (Cork), and a man from Moscow. It was quite interesting to have John Neuberger serve on the panel. John was Karl Menger's colleague at the Illinois Institute of Technology in the 1960s.

The Society's participation in ISEF is supported in part by income from the Karl Menger Fund, which was established by the family of the late Karl Menger. For more information about this program, contact Timothy Goggins, AMS Development Officer, by e-mail (tjg@ams.org) or by telephone (401-455-4110).

—Jerome A. Goldstein

## Students Receive Awards for Outstanding Paper Presentations

The AMS sponsors an annual prize that is awarded by Pi Mu Epsilon. The prize was instituted in 1989, in honor of PME's seventy-fifth anniversary. PME administers the prize and uses it to recognize the best student papers presented at a PME student paper session. Each recipient of the AMS Award for Outstanding Pi Mu Epsilon Student Paper Presentation receives a check for \$100. Following is a list of the recipients for this award during the last five years.

### 1993 Awards

VLADIMIR DIMITRIJEVIC, Youngstown State University, "A Marble Drop Method for Solving Linear Programs"; JENNIFER GARRETT, Miami University, "Bayesian Probability and Credibility Theory in Insurance Ratemaking"; LAUREN D. HARTMAN, Washington and Lee University, "Differential Hyperbolic Geometry"; JON HESTER, Hendrix College, "Data Structures in the Implementation of the Huffman Algorithm"; and JOEL M. WISDOM, University of Tennessee, Chattanooga, "A Study of the Representations of Even Numbers as the Sum of Two Primes".

### 1994 Awards

ANDREW DOUGLASS, Miami University, "The Problems of Scale in the Hyperbolic World"; ALLEN HARBAUGH, Boston University, "The Number Theoretic Properties of the Dynamical System Known as Rigid Rotation"; KATHRYN NYMAN, Carthage College, "Quantum Cryptography"; SONNY VU, University of Illinois, "On  $(B, n)$ -Happiness Sequences"; and JEB F. WILLENBRING, North Dakota State University, "The Combinatorics of Semi-Direct Products of Cyclic Groups".

### 1995 Awards

ARON ATKINS, Worcester Polytechnic Institute, "The Traveling Salesman Returns Home" and "A Non-heuristic Minimum Cycle Algorithm"; ASHLEY CARTER, University of Wisconsin, Parkside, "Applications of the Polya-Burnside Theorem to Teaching, Toys and Jewelry"; ALAYNE CLARE, Youngstown State University, "Check Digits and License Numbers"; and SCOTT CLARK, Youngstown State University, "The Triangle Peg Game".

### 1996 Awards

SCOTT CLARK, Youngstown State University, "Extensions of the Tower of Hanoi"; STEPHEN HAPTONSTAHL, Louisiana State University, "Computing Integrals for the Invariant Measure of Elementary Fractals"; KIM JORDAN, Youngstown State University, "Graceful Creatures of the Sea"; PI-YEH LIU, Clarion University, "Two-Color Radio Numbers for Some Inequalities"; VINCENT LUCARELLI, Youngstown State University, "Qualitative Analysis of Dynamical Systems"; and EUGENE SY, University of California, Davis, "Pipeflow in the Region of a Bifurcation".

### 1997 Awards

JEFF CLOUSE, Youngstown State University, "Is Coca-Cola an Underachiever?"; JOSHUA HORTSMAN and JAYME MOORE, Rose-Hulman Institute of Technology, "Meetings, Bloody Meetings"; VINCENT LUCARELLI, Youngstown State University,

"Why Is 9 Prime?"; MICHAEL PERRY, University of Akron, "On the Brink of Bankruptcy: A Mathematical Model Describing the Social Security System in the United States"; and SHERYLE PROPER, Allegheny College, "Symmetry Structure Analysis of Finite Designs and Infinite Patterns in Decorative Art Work: Amish Quilt Patterns and Other Rural Designs".

—Allyn Jackson

## Visiting Mathematicians

### (Supplementary List)

Mathematicians visiting other institutions internationally during the 1998–99 academic years were listed in the June/July 1998 issue of the *Notices*, pp. 730–31; August 1998 issue of the *Notices*, p. 885; and the September 1998 issue of the *Notices*, p. 994. The following is an update (home country is listed in parentheses).

ANDRZEJ CZYGRINOW (Poland), Arizona State University, *Discrete Math*, 8/98–5/99.

SERGEI SUSLOV (Russia), Arizona State University, *Classical Analysis and Approximation Theory, Orthogonal Polynomials and q-Special Functions, Theory of Group Representations, Integral Transformations and Their Applications in Theoretical and Mathematical Physics*, 5/98–8/99.

XIAO-QIANG ZHAO (China), Arizona State University, *Differential Equations, Dynamical Systems, and Mathematical Biology*, 8/98–5/99.