MAA Prizes Presented in Washington, DC

At the Joint Mathematics Meetings in Washington, DC, in January 2009, the Mathematical Association of America (MAA) presented several prizes.

Gung and Hu Award for Distinguished Service

The Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics is the most prestigious award made by the MAA. It honors distinguished contributions to mathematics and mathematical education, in one particular aspect or many, and in a short period or over a career.

Robert Megginson received the 2009 Gung and Hu Award. Megginson has devoted a great deal of time and energy to addressing the problem of underrepresentation of minorities in mathematics. He has worked on the problem through committees of professional societies and through programs on college and university campuses, as well as through direct interaction with minority students. For example, beginning in 1992, he helped design and teach programs for precollege students at Turtle Mountain Community College, a tribally controlled college of the Turtle Mountain Chippewa Nation in North Dakota. He has also mentored many undergraduate and graduate students from varied backgrounds who have gone on to receive degrees in mathematically based disciplines.

Megginson was co-chair of the MAA Committee on Minority Participation in Mathematics, as well as chair of the MAA's Coordinating Council on Human Resources, of the Human Resources Advisory Committee of the Mathematical Sciences Research Institute (MSRI) in Berkeley, and of the subcommittee of the AMS Committee on the Profession charged with identifying successful diversity programs. Currently Megginson chairs the Committee on Opportunities in Science of the American Association for the Advancement of Science. His service in helping underrepresented students succeed in mathematics and science is complemented and enriched by many of his other professional activities, such as serving as co-principal investigator on several grants that have helped fund MAA's National Research Experiences for Undergraduates Program. At the University of Michigan, he designed, directed, and implemented a reformed precalculus program that emphasized cooperative learning, and he was director of the Michigan mathematics laboratory, a walk-in tutoring service.

Megginson has been on the faculty of the University of Michigan since 1992. His mathematical area is functional analysis, specifically the geometry of Banach spaces. He served as deputy director of MSRI from 2002 through 2004, after which he returned to the University of Michigan, where he is currently Arthur F. Thurnau Professor of Mathematics and Associate Dean for Undergraduate and Graduate Education in the College of Literature, Science, and the Arts.

For his record of mentoring students and other works on underrepresentation, Megginson was one of ten individuals who were honored at the White House with the 1997 U.S. Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring.

Haimo Awards for Teaching

The Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching were established in 1991. These awards honor college or university teachers who have been widely recognized as extraordinarily successful and whose teaching effectiveness has been shown to have had influence beyond their own institutions.

The 2009 Haimo Awards were presented to Michael Bardzell, David Pengelley, and Vali Siadat.

Michael Bardzell has had a pronounced impact, both locally at Salisbury University in Maryland and well beyond. At Salisbury he has involved in research many students with a variety of backgrounds. Over the last twelve years, his students have presented their work at various national and regional venues, and his students have won awards

for their presentations. A variety of publications have resulted from their work. Together with faculty from five institutions, Bardzell received two grants from the National Science Foundation, one of which focused on visualizing abstract mathematics and included his organization of two summer undergraduate research retreats at New College of Florida. The grants have also led to a set of laboratory exercises that help students study and explore abstract algebra, dynamical systems, and number theory. In his twelve years at Salisbury, Bardzell has taught twenty-four different courses, many of which he designed. These include a capstone course, two cross-listed courses with computer science, and four graduate courses for in-service teachers. In partnership with school districts in Maryland and Delaware, he and his colleagues have developed a series of workshops for high school teachers in geometry, in real world mathematics, and in algebra. Bardzell won the Distinguished Faculty Award of Salisbury in 2001 and the MAA MD-DC-VA Sectional Teaching Award in 2007.

For the past twenty years, David Pengelley has been continually reinventing his teaching, and the mathematical community has benefited greatly from those innovations. At the beginning of the calculus reform movement, he and his colleagues developed a program for using major multi-step problems to engage students in imaginative thinking, to challenge them to integrate ideas, and to express them in a written report. These teaching innovations have been disseminated in the MAA volume, *Student Research Projects in Calculus*, a best-seller. Pengelley is passionate about using primary historical sources in teaching. At New Mexico State University, he developed honors courses based on primary sources, leading to two coauthored textbooks, and has disseminated this pedagogy through many national and international presentations and minicourses. Pengelly has also done his own original research in the history of mathematics. NSF has supported Pengelley's innovations through seven multi-year grants spanning twenty years. In 2007 he won a Faculty Outstanding Achievement Award from the College of Arts and Sciences at New Mexico State University, and in both 1993 and 2008 he won the MAA Southwestern Section Teaching Award. On campus, Pengelley is an extremely popular and successful teacher. His teaching methods and their connections to the history of mathematics have been disseminated through a wide variety of publications and talks, nationally and internationally, and even through a broadcast interview with the BBC.

Vali Siadat of City College of Chicago, Richard J. Daley Campus, cares deeply about the success of his students and does whatever it takes to help them achieve their educational goals. He is best known for his Keystone Project, a synergistic teaching program that focuses on frequent assessment, constant feedback, and student support. In a controlled experiment with 800 entering college students, 63% of Keystone students passed an "Elements of Algebra" class, while only 18% passed in the control group. An interesting concomitant result was that the Keystone students also achieved significant positive gains on a standardized reading test whereas those in the control group did not. Siadat has also been a leader in Project Access, a NASA-funded mathematics-based summer program for low-income and minority students from middle schools and high schools. As a scholar with two doctorates, one in pure mathematics and another in mathematics education, he has done research to develop innovative approaches in pedagogy and improvement of teaching of undergraduate mathematics. Among his awards are the Distinguished Professor Award of Richard J. Daley College in 1999-2000, the 1999 Exemplary Initiatives in the Classroom Award from the National Council of Instructional Administrators, and the MAA Illinois Section's Distinguished Teaching Award in 2002. In 2005 he received the Carnegie Foundation for the Advancement of Teaching Illinois Professor of the Year Award.

Chauvenet Prize

The Chauvenet Prize recognizes a member of the MAA who has written an outstanding expository article. First awarded in 1925, the prize is named for William Chauvenet, who was a professor of mathematics at the United States Naval Academy.

HAROLD BOAS of Texas A&M University won the 2009 Chauvenet Prize for his article "Reflections on the arbelos", *American Mathematical Monthly*, **113** (2006), no. 3, 236–249. As with most good mathematical stories, this fascinating piece begins with a problem, a geometry problem that was sent to the author by a young mathematician and that deals with a mathematical figure known as an "arbelos". (An arbelos is the region bounded by three semicircles, tangent in pairs, with diameters on the same line.) The subject's long history, on which much of this erudite and beautifully written paper dwells, is smoothly interwoven with interesting results and elegant proofs. Reflections and inversions in lines and circles are key tools. The classical remarkable theorem, attributed to Pappus by default, concerning an infinite chain in an arbelos, is described. The proof by Pappus was a tour de force of Euclidean geometry, while the modern proof using inversion is elegantly simple. Connections are made with Pythagorean triangles (i.e., right triangles that are similar to triangles having sides with integral lengths), and also with the Gothic arch. The author made a surprising discovery. Textbooks in solid mechanics deal with "Mohr's circle", which comes up in analyzing shear

stress. The relevant linear-algebra theorem is that the range of a certain mapping is an arbelos. In addition to Pappus, Jacob Steiner, William Thomson (Lord Kelvin), and Leon Bankoff play roles in the story. (Bankoff was a dentist with a strong interest in mathematics, including the arbelos.) This paper stands out as a model of expository excellence.

Euler Book Prize

The Euler Book Prize is given to the author(s) of an outstanding book about mathematics. The prize was given for the first time in 2007, to commemorate the 300th anniversary of the birth of Leonhard Euler.

SIOBHAN ROBERTS was awarded the 2009 Euler Prize for her book *King of Infinite Space: Donald Coxeter, the Man Who Saved Geometry* (Walker and Company, 2006). This book by Siobhan Roberts gives an intimate and engaging portrait of one of the most influential mathematicians of the last century. It also provides a mathematical history of those years, including the currents set in motion by Hilbert's 23 problems, the influence of Bourbaki, and the unexpected applications of mathematics to computer science, communications, information, crystallography, medical research, environmental studies, as well as in art—Coxeter's work directly inspired *Circle Limit III* by M.C. Escher. Above all, it gives a superbly readable account, in personal terms, of the search for beauty that sets mathematics in motion and of the synergy of individual and group efforts that make it happen. It's an engaging page-turner, even for nonmathematically trained readers, and it will offer them an insider's look at the world of mathematics and the people who create it. The scope of Roberts' research and scholarship is impressive and fully documented in fine print with 74 pages of endnotes, a 14-page bibliography, and eight appendices. *King of Infinite Space* will fascinate the general reader with its detailed and frank account of Coxeter's personal life. It will also strike a special chord with mathematicians, because it honors the spirit of wonder and openness that Coxeter embodied in his approach to mathematics.

Certificates of Meritorious Service

Each year the MAA presents Certificates of Meritorious Service for service at the national level or for service to a section of the MAA. Those honored in 2009 are: Carl C. Cowen (Purdue University), Indiana Section; Richard Anderson (Louisiana State University), Louisiana-Mississippi Section (posthumous award); John Fuelberth (Wayne State College), Nebraska-Southeast South Dakota Section; John R. Michel (Marietta College), Ohio Section; and David R. Stone (Georgia Southern University), Southeastern Section.

—From MAA announcements