

Your *Master Teachers* for the NES/MAA Fall 2007 Meeting

Thomas Banchoff, Brown University

Dr. Thomas Banchoff received his BA from the University of Notre Dame in 1960 and his Ph.D. in 1964 from the University of California at Berkeley under the direction of Shiing-Shen Chern. He was a Benjamin Peirce Instructor at Harvard from 1964 - 1966 and a Fulbright post-doctorate fellow at the University of Amsterdam 1966 -1967 before his appointment to the faculty at Brown University in 1967. Dr. Banchoff's numerous awards for teaching, include the 1995 NES/MAA Award for Distinguished College or University Teaching of Mathematics, the 1996 Deborah and Franklin Tepper Haimo Award for Distinguished College or University of Mathematics, and the 1998 RI Professor of the Year from the Carnegie Foundation for the Advancement of Teaching. Most recently, Dr. Banchoff received the 2004 Director's Award for Distinguished Scholars from the National Science Foundation – he is one of eight to receive this award, the NSF's highest honor for excellence in teaching and research. Known for his pioneering research on the geometry of the fourth and higher dimensions, Dr. Banchoff is the author of more than eighty research articles and three books, *Beyond the Third Dimension*, *Linear Algebra Through Geometry*, and *Cusps of Gauss Mappings*, as well as a new introduction to *Flatland*. His 1978 film, "The Hypercube," won the Prix de la Recherche Fondementale at the Brussels Festival of Scientific and Technical Films. He is the founding editor of the electronic journal *Communications in Visual Mathematics* and past President of the Mathematical Association of America.

Ezra Brown, Virginia Polytechnic Institute and State University

Ezra (Bud) Brown has degrees from Rice and Louisiana State, and has been at Virginia Tech since 1969, where he is currently Alumni Distinguished Professor of Mathematics. His research interests include number theory and combinatorics, and he particularly enjoys discovering connections between apparently unrelated areas of mathematics. He received Virginia Tech's W. E. Wine Teaching Excellence Award in 1998 and his MAA MD-DC-VA section's award for outstanding university teaching in 1999. He has received the MAA's Polya (in 2000, 2001 and 2006) and Allendoerfer (in 2003) Awards for noteworthy expository papers. He enjoys singing (everything from grand opera to rock'n'roll), playing jazz piano, and working with students who are engaged in research. He occasionally bakes biscuits for his students.

Robert Case, Northeastern University

Robert Case is Professor of Mathematics Education at Northeastern University. He received a PhD in mathematics from Yeshiva University, where his doctoral dissertation in logic was mentored by Martin Davis. For the past twenty years he has been involved with equity in mathematics education in the cities. He has had a SUMMA grant from the MAA, an NSF grant for calculus reform outreach to the schools, and, most recently, a five-year Nellie Mae Foundation grant to promote AP calculus success among minority students at John O'Bryant High School in Boston. He has written about secondary school mathematics in the United States, in India and in the Netherlands. Robert Case has received the 2001 Northeastern University Outstanding Teacher of First Year Engineering Students Award, the 1986 Northeastern University Excellence in Teaching Award, the 1998 Northeastern Section of the 1999 MAA Distinguished Teaching Award, and the Haimo Award of the MAA.

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Carl Cowen, Indiana University - Purdue University at Indianapolis

Carl Cowen, a member of the IUPUI mathematics faculty, is a native of Indiana, was educated at Hanover College, Indiana University, Bloomington, University of Warwick (England), and received his PhD in theoretical mathematics from the University of California, Berkeley. After holding teaching positions in junior high school, small colleges, and a post doctoral position at the University of Illinois at Urbana-Champaign, he was a member of the mathematics faculty at Purdue University, West Lafayette, from 1978 to 2004. Cowen was Director of Purdue's Actuarial Science Program from 1992 to 1997 and was Head of Purdue's Mathematics Department from 1997 to 2002. He served as Dean of the IUPUI School of Science from 2004 to 2006. Cowen was honored for his success in teaching by the Purdue University School of Science, the Indiana Section of the MAA in 1995, and received the MAA's Haimo Award for Distinguished Teaching in 1997. Professor Cowen's primary pedagogical interests have been in linear algebra, in the use of technology, and in the preparation of high school mathematics teachers. He has directed more than 30 undergraduate students in research, mostly on topics in linear algebra. In addition, he has supervised eleven PhD students and several post doctoral faculty. For many years, Cowen's primary research interests have been in operator theory and complex analysis, but in the past few years he has devoted some of his research and pedagogical attention to applications of mathematics to biology, especially to neuroscience. In addition to his academic work, Cowen has been involved in the governance of each of MAA, AMS, and SIAM, and is currently finishing his terms as Past President of the Mathematical Association of America and Past President of the recently organized SIGMAA on Mathematical and Computational Biology.

Robert L. Devaney, Boston University

Robert L. Devaney is Professor of Mathematics at Boston University. He received his BA from Holy Cross College in Worcester, MA in 1969 and his PhD from the University of California at Berkeley in 1973 under the direction of Stephen Smale. He taught at Northwestern University and Tufts University before coming to Boston University in 1980. Dr. Devaney is renown for his teaching and his research, and he has won numerous awards for his teaching and for his innovations in teaching mathematics. In 1994, he received the Award for Distinguished College/University Teaching of Mathematics from the Northeastern Section of the Mathematical Association of America. In 1995, he was the recipient of the Deborah and Franklin Tepper Haimo Award for Distinguished College/University Teaching. In 1996, he was awarded the Boston University Scholar/Teacher of the Year Award. In 2002, he received the National Science Foundation Director's Award for Distinguished Teaching Scholars. In 2002, he received the ICTCM Award for Excellence and Innovation with the Use of Technology in Collegiate Mathematics. In 2003, he was the recipient of Boston University's Metcalf Award for Teaching Excellence. In 2004, he was named the Carnegie/CASE Massachusetts Professor of the Year. He is the author or co-author of several books on various aspects of dynamical systems theory. These include "An Introduction to Chaotic Dynamical Systems", a text for advanced college students in mathematics, as well as researchers in this field. He has also produced the Mandelbrot Set Explorer, an online, interactive series of explorations designed to teach students at all levels about the mathematics behind the interesting images known as the Mandelbrot and Julia sets.

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Joseph Gallian, University of Minnesota Duluth

Joe Gallian received a Ph. D. from Notre Dame in 1971. He has been at the University of Minnesota Duluth since 1972 where he is a Morse Alumni Distinguished University Professor of Teaching. Among his honors are the MAA's Haimo Award for distinguished teaching, the MAA Allendoerfer and Evans awards for exposition, an MAA Polya Lecturer, a term as MAA Second Vice President, co-director of the MAA's Project NExT, associate editor of the American Mathematical Monthly and the Mathematics Magazine, advisory board member for Math Horizons, and the Carnegie Foundation for the Advancement of Teaching Minnesota Professor of the Year in 2003. Since 1977 over 130 research papers written under his supervision by undergraduates in his summer research program have been published in mainstream journals. He has given more than 250 invited lectures at conferences and colleges and universities and is the author of more than 100 articles, the book "Contemporary Abstract Algebra" (6th edition) and coauthor of the book "For All Practical Purposes" (7th edition). His research interests include groups, graphs and combinatorics. Besides the usual math courses, he has taught a Humanities course called the "The Lives and Music of the Beatles" for more than 25 years and a liberal arts course on math and sports. In 2000 a Duluth newspaper cited him as one of the "100 Great Duluthians of the 20th Century."

Thomas Garrity, Williams College

Thomas Garrity was an undergraduate at the University of Texas in Austin, a graduate student at Brown and a post-doc at Rice. He then joined the faculty of Williams in 1989, where he has been ever since, save for sabbaticals spent at the University of Washington in Seattle and the University of Michigan in Ann Arbor. Currently at Williams, he is the William R. Kenan Jr. Professor of Mathematics, department chair and the director of the Williams College Project for Effective Teaching (Project PET). His research has been in algebraic geometry, differential geometry and, more recently, number theory. He is the author of *All the Mathematics You Missed [But Need to Know for Graduate School]* and appears, against Colin Adams, in the MAA DVD *The Great Debate: Which is the Better Number?*, moderated by Edward Burger. Among his honors is the 2004 Deborah and Franklin Tepper Haimo Award for Distinguished College or University of Mathematics.

Kenneth I. Gross, University of Vermont

Kenneth I. Gross is a distinguished mathematician who has had a profound impact on mathematics, education, and the lives of his students. Ken's teaching and mentoring have been inspirational for all levels of students, from high school students, to entry level college students, undergraduate mathematics majors and graduate students who are now accomplished mathematicians, elementary and middle school teachers, and adult learners who desire to further their education. Ken is the 2007 recipient of the NES/MAA Award for Distinguished College or University Teaching of Mathematics. He has also received the Chauvenet Prize and the Lester R. Ford Prize from the MAA. As a mathematician, Ken's research in the areas of Lie groups, representation theory, and harmonic analysis was supported by the National Science Foundation for over three decades before his interests turned to the mathematics training of teachers. In 1993, Ken and a high school teacher co-founded a residential summer enrichment program for talented Vermont high school students that is still thriving today as the Vermont "Governor's Institute in the Mathematical Sciences." In 1999, Ken founded the Vermont Mathematics Initiative (VMI), is a statewide master's degree granting program that trains K-8 teachers across the state of Vermont to serve as mathematics leaders in their schools and districts. Other programs modeled on VMI and utilizing VMI designed materials have been introduced in Arkansas, Massachusetts, Nebraska, and New Mexico. Ken is currently Professor of Mathematics and Education at the University of Vermont, where he has received the university's highest awards in both research and teaching.

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P. Joseph McKenna, University of Connecticut

Joe McKenna was born in Dublin in 1948 and did his undergraduate work in University College, Dublin. He then completed his Ph.D. under Lamberto Cesari at the University of Michigan. His research is mainly in nonlinear partial and ordinary differential equations and especially their periodic solutions. Much of his recent work concerns large nonlinear oscillations in suspension bridges. This has been covered in many science magazines such as Discover, Science News, Inventions and Technology as well as several undergraduate textbooks on differential equations. He described some of this in a Monthly article in 1999, for which he received the Lester Ford Prize at Mathfest 2000. Having previously worked in the Universities of Wyoming and Florida and University College, Cork, he is currently Professor of Mathematics at the University of Connecticut. He is the winner of the 2004 NES/MAA Award for Distinguished College or University Teaching of Mathematics. He is identified by the Science Citation Index as a highly cited researcher in mathematics, at www.isihighlycited.com. He was also quoted in William Safire's weekly column on language in the New York Times magazine.

Frank Morgan, Williams College

Frank Morgan studies optimal shapes and minimal surfaces. He has published over 100 articles and six books, including "Calculus Lite" and "The Math Chat Book," based on his live, call-in TV show and column. His teaching awards include the Baker Award at MIT, the 1992 MAA Northeastern Section Award Distinguished College or University Teaching of Mathematics, and the 1993 Deborah and Franklin Tepper Haimo Award for Distinguished College or University of Mathematics. Founder of the NSF "SMALL" Undergraduate Research Project, he is Atwell Professor of Mathematics at Williams College.