

2004 Award for Distinguished Public Service

The 2004 Award for Distinguished Public Service was presented at the 110th Annual Meeting of the AMS in Phoenix in January 2004.

The Award for Distinguished Public Service is presented every two years to a research mathematician who has made a distinguished contribution to the mathematics profession during the preceding five years. The purpose of the award is to encourage and recognize those individuals who contribute their time to public service activities in support of mathematics. The award carries a cash prize of \$4,000.

The Award for Distinguished Public Service is made by the AMS Council, acting on the recommendation of a selection committee. For the 2004 award the members of the selection committee were: D. J. Lewis (chair), William James Lewis, Calvin C. Moore, William Y. Velez, and Margaret H. Wright.

Previous recipients of the award are: Kenneth M. Hoffman (1990), Harvey B. Keynes (1992), I. M. Singer (1993), D. J. Lewis (1995), Kenneth C. Millett (1998), Paul J. Sally Jr. (2000), and Margaret H. Wright (2002).

The 2004 Award for Distinguished Public Service was presented to RICHARD TAPIA. The text that follows presents the selection committee's citation, a brief biographical sketch, and the recipient's response upon receiving the award.

Citation

The award for Distinguished Public Service is given to Richard A. Tapia for inspiring and teaching thousands of people (from elementary school students to senior citizens) to study and appreciate the mathematical sciences. His dedication to opening doors for underrepresented minorities and women is legendary, as is his determination to reach students who would otherwise be discouraged or overlooked. Educational and outreach programs that he has

founded and leads, such as the Rice University Center for Excellence and Equity in Education, represent a continuing tribute to his energy and perseverance. More than half of Richard's Ph.D. students have been women, and more than a third have been underrepresented minorities. In addition, his life has been filled with many other forms of public service: he was a member of the National Science Board from 1996–2002; in 1996 he was one of the first recipients of a Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring; and he is a founding member of the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS).

Biographical Sketch

Richard Tapia is a mathematician and professor in the Department of Computational and Applied Mathematics at Rice University in Houston, Texas. He is internationally known for his research in the computational and mathematical sciences and is a national leader in education and outreach programs.

Tapia's current Rice positions are Noah Harding Professor of Computational and Applied Mathematics; associate director of Graduate Studies, Office of Research and Graduate Studies; and director of the Center for Excellence and Equity in Education.

Tapia was born in Los Angeles to parents who separately immigrated from Mexico as teenagers in search of educational opportunities for themselves and for future generations. Tapia was the first in his family to attend college. He received B.A., M.A., and Ph.D. degrees in mathematics from the University of California, Los Angeles. In 1967 he joined the Department of Mathematics at UCLA and then spent two years on the faculty at the University of Wisconsin. In 1970 he moved to Rice University, where he was promoted to associate professor in



Richard Tapia

1972 and full professor in 1976. He chaired the department from 1978 to 1983. He is currently an adjunct faculty member of Baylor College of Medicine and the University of Houston.

Tapia has authored or coauthored two books and over eighty mathematical research papers. He has delivered numerous invited addresses at national and international mathematical conferences and serves on several national advisory boards.

Due to Tapia's efforts, Rice has received national recognition for its educational outreach programs, and the Rice Computational and Applied Mathematics Department has become a national leader in producing women and underrepresented minority Ph.D. recipients in the mathematical sciences. Thirty-five mathematics students have received, or are currently working on, the Ph.D. degree under his direction or codirection. Of these thirty-five students, fifteen have been women and eight have been underrepresented minorities.

As associate director of Graduate Studies at Rice University, Tapia supervises a group of graduate students from all areas. He meets with the group regularly to monitor their progress, and many of these students are involved in community and educational outreach.

Under Tapia's direction Rice's Alliances for Graduate Education and the Professoriate (AGEP) Program, funded by the National Science Foundation, provides opportunities for undergraduate and graduate students in science, mathematics, and engineering to participate in university activities and work for the summer under the guidance of researchers at Rice. Over the years Tapia has impacted hundreds of teachers through two summer programs: the Mathematical and Computational Sciences Awareness workshop and GirlTECH.

Among his many honors:

- The National Atomic Museum Foundation of Hispanics in Science and Engineering named Tapia Exhibit Honoree in Albuquerque, New Mexico, in October 2003.
- In January 2002 Tapia was inducted into the Texas Science Hall of Fame. The Texas Science Hall of Fame is a tribute to the "giants" who shape the world through their innovative use of science.
- In October 2001 Tapia was honored with the Reginald H. Jones Distinguished Service Award by NACME, Inc., in Baltimore, Maryland.
- Tapia's work at improving the representation of underrepresented groups was celebrated with a

symposium entitled "The Richard Tapia Celebration of Diversity in Computing". It is the first in a series of events designed to celebrate the technical contributions and career interests of diverse people in computing fields. The symposium, sponsored by the Association for Computing Machinery and IEEE-Computer Society, took place in Houston, Texas.

- In May 2000 Cornell University established a lecture series to honor Tapia and David Blackwell, professor at the University of California, Berkeley. The lecture series provides a forum for the research of African-American, Latino, and American Indian scientists working in the fields of mathematical and statistical sciences.

- In September Tapia received a 2000 Peace Award for Education from the Spiritual Assembly of the Baha'is of Houston. With unity of humanity as a guiding principle, the Baha'is of Houston present three awards—for education, for humanitarianism, and for peace—each year to individuals or organizations for their work in serving the community and breaking down barriers of culture, race, class, and creed. The awards are presented in association with the International Day of Peace, a day designated by the United Nations "to commemorating and strengthening the ideas of peace both within and among all nations and peoples."

- The Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) honored Tapia with the 2000 SACNAS Distinguished Scientist Award at their annual national meeting in Atlanta, Georgia, on October 14, 2000. Tapia was selected for his ongoing commitment to educational opportunities for women and minority students and in honor of a lifetime of achievement in his field and for dedication to the future of young scientists.

- In 1999 Tapia was awarded the Giants in Science Award by the Quality Education for Minorities (QEM) Network.

- Tapia received the 1997 Lifetime Mentor Award from the American Association for the Advancement of Science.

- In 1997 Tapia was inducted into the Hispanic Engineer National Achievement Awards Conference Hall of Fame.

- President Clinton appointed Tapia to the National Science Board (NSB), the governing body of the National Science Foundation in 1996. Tapia also received the 1996 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring. Later that year he was named the Hispanic Engineer of the Year by *Hispanic Engineer* magazine, the first academic to receive this honor.

- Tapia was awarded the inaugural A. Nico Habermann Award by the Computer Research Association in 1994 for outstanding contributions in aiding

members of underrepresented groups within the computing research community.

- In the same year Tapia was selected Professor of the Year by the Association of Hispanic School Administrators of the Houston Independent School District.

- In 1992 Tapia was elected to the National Academy of Engineering, the first native-born Hispanic to receive this honor.

- Students at Rice University voted Tapia the 1991 winner of the George R. Brown Award for superior teaching.

- Tapia was given the College Level Educator of the Year Award by *Hispanic Engineer* magazine and named one of the twenty most influential leaders in minority math education by the National Research Council in 1990.

- Tapia was asked to serve as chair of the National Research Council's Board on Higher Education and Workforce, as cochair of all educational outreach and training activities for both the University of Illinois Supercomputer Center (NCSA) and the San Diego Supercomputer Center, and as cochair of the Research Board for Building Engineering and Science Talent (BEST).

Response

It is a great honor to be recognized by the American Mathematical Society. No recognition can be more cherished than recognition conferred by one's peers and colleagues. I thank the selection committee for choosing me for this prestigious award. Even more, I thank the AMS for establishing this award, which formally recognizes the importance of outreach and public service.

Throughout my formative years my parents instilled in me the value of education, community, and outreach to others. As a result, in my professional life I have valued not only academic scholarship but also teaching and mentoring, public service, and outreach to the general community. I never thought that these activities detracted from each other—I grew up thinking that they went hand in hand, each influencing and supporting the others. For example, credibility in scholarly research facilitates credibility in public service, while outreach activities broaden one's perspective, revealing that different people learn and understand mathematics in different ways.

This award is especially satisfying, because formal recognition by prestigious organizations validates the importance of public service and outreach activities. In turn, this validation promotes public service within the mathematics community. I want young mathematicians to see that there are many dimensions to mathematical scholarship. In addition to scholarly research, the activities of teaching and mentoring, expository writing, increasing awareness and understanding of

mathematics in a broader community, and other public service activities are both valuable and necessary for the scientific health of our nation.

My own development benefitted enormously from the guidance and support of others. My mother and my father came separately from Mexico to the United States as young teenagers in search of educational opportunities. Times were difficult when they arrived. My parents were not able to achieve their own educational goals, but their dreams were realized for their five children, each of whom graduated from college.

My siblings and I were born and raised in Los Angeles. I am a product of public education, from my primary education in the Los Angeles public schools through my doctoral degree from UCLA. I strongly believe that quality public education is essential to the educational health and scientific competitiveness of our nation.

As a graduate student at UCLA, I was greatly influenced by my professors. In particular, David Sanchez gave me direction at a time when I greatly needed guidance, while Magnus Hestenes shaped how I think about mathematics.

My first faculty position was at the Mathematics Research Center at the University of Wisconsin. My experiences at MRC, where I learned so much in so many ways from so many people, were crucial to my professional development. I particularly thank Michael Golomb, Barkley Rosser, I. J. Schoenberg, and Hans Weinberger for mentoring me and for showing me that excellence and graciousness need not be mutually exclusive.

Rice University has been my home for more than three decades. The students I have taught and known, and from whom I have learned, have played an essential role in shaping my vision of what is important. The Rice administration, especially Ken Kennedy as director of the Center on Parallel Computation and current Rice president Malcolm Gillis, have strongly supported that vision and allowed me to pursue it.

Recently, my six years on the National Science Board further expanded my horizons, allowing me to discern critical national needs in science and mathematics, including representation by all members of our society. I thank the National Science Foundation for this extraordinary opportunity to learn and to serve.

Finally, I thank my family. My wife, Jean, has been a wise advisor and an enthusiastic supporter of my activities. And I have learned so much from my children: my daughter, Becky; my son, Richard; and my late daughter, Circee, to whose memory I dedicate this award.