
Inside the AMS

2002 Arnold Ross Lecture

The 2002 Arnold Ross Lecture was sponsored by the AMS and the Museum of Science, Boston, on April 11. This was the thirteenth in a series of lectures for talented high school mathematics students.

Curtis McMullen of Harvard University spoke on “From Triangles to Infinity”. McMullen motivated the talk by asking the audience what path a lion should take to capture a human if both are in an enclosed ring. A little later in the talk he asked students in the audience to assemble polyhedra using interlocking triangles, given the constraint that a fixed number of triangles have to meet at each vertex. As the title of the talk suggests, there were many different areas of mathematics touched on, including Fermat’s Last Theorem, Zeno’s Paradoxes, hyperbolic and spherical geometry, the harmonic series, and tiling. Near the end of his talk, McMullen showed a path that a human could take to elude the lion and used results about infinite



Curtis McMullen delivering the 2002 Arnold Ross Lecture in Boston on April 11.

series to demonstrate the path’s effectiveness. The teachers and students who filled the Boston Museum of Science auditorium thoroughly enjoyed the lecture. Many students sought out McMullen after his talk to ask questions, and some even asked for his autograph.

After a break for refreshments, the AMS Public Awareness Office ran the Who Wants To Be A Mathematician game for ten Boston-area high school students who prequalified to play by taking a short test that had been sent to mathematics teachers a couple of weeks earlier. In this version of the game, the contestants were chosen by lottery before each round: Michelle Sonia (Notre Dame Academy), Andrew Brandt (Swampscott High School), Kevin Hausherr (North Middlesex Township), and Kristen Grauer-Gray (Framingham High School). They sat in the “hot seat” opposite the host, Mike Breen of the AMS, and were cheered by students and teachers from more than eighteen schools. No one won the \$2,000 grand prize, but Kristen Grauer-Gray succeeded in making it up to the last and hardest of fifteen questions covering algebra, geometry, trigonometry, logic, and history of mathematics.

All the contestants received a bag of mathematical gifts. Prizes awarded included AMS T-shirts and *The College Mathematics Journal*, published and donated by the Mathematical Association of America. Other prize donors were the Boston Museum of Science, Waterloo Maple, John Wiley & Sons, and Texas Instruments. In a raffle a student in the audience won a Maple Student Edition donated by Waterloo Maple.

The Committee for Arnold Ross Lectures is: Arthur T. Benjamin of Harvey Mudd College; Robert Devaney (chair) of Boston University; Deborah Tepper Haimo of the University of California, San Diego; Victoria A. Powers of Emory University; and Judy L. Walker of the University of Nebraska. Next year’s Arnold Ross Lecture will take place on the West Coast.

—Annette Emerson and Mike Breen, AMS Public Awareness Office

AMS Participates in CNSF Exhibition

On May 15, 2002, the AMS participated in the eighth annual exhibition of the Coalition for National Science Funding (CNSF). The exhibition was held in the Rayburn Office Building on Capitol Hill in Washington, DC.

The CNSF is an alliance of over ninety scientific and professional societies and universities that have banded together to support the goal of increasing the budget of the National Science Foundation (NSF). The purpose of the CNSF exhibition is to provide a forum where congressional representatives and their staffs can learn about scientific and engineering research being funded by the NSF. Thirty-one organizations and universities set up display booths and brought in scientists and engineers to talk about their work. The informal setting provides plenty of opportunity for one-on-one contact.

At the AMS booth Andrea Bertozzi of Duke University was on hand to discuss her research on “image inpainting”. Suppose one has a photograph that has been marred so that part of the image is obscured by scratches or other marks. Image inpainting is the process of restoring the image by appropriately filling in the obscuring marks. It turns out that some equations describing changes in color intensity in an image are related to the Navier-Stokes equations. Bertozzi and her collaborators, Marcelo Bertalmio and Guillermo Sapiro, were able to use this relationship to apply fluid dynamics techniques to image inpainting. In addition, techniques for handling boundary conditions in fluid flow are applicable to reconstructing boundaries of depicted objects. “It’s a synergistic and novel blend of ideas for classical fluid dynamics and current problems in digital image processing,” Bertozzi comments. “There are many, many examples of theory/computation/physics out there, but the image inpainting problem is really different because it brings together ideas from very different parts of science.” Her exhibit was visited by two North Carolina congressmen, Bob Etheridge and David Price.

In its booth the Mathematical Association of America (MAA) highlighted an NSF-funded Research Experiences for Undergraduates program headed by Joseph Gallian of the University of Minnesota, Duluth. On hand were two undergraduate mathematics majors who participated in Gallian’s program: Sarah Moss of Harvard University and Melanie Wood of Duke University. The Society for Industrial and Applied Mathematics (SIAM) brought in Omar Ghattas of Carnegie Mellon University, whose specialty is computational science.

AMS president Hyman Bass and president-elect David Eisenbud were present, as were the presidents of the MAA and SIAM. The exhibition faced stiff competition for the attention of congressional representatives, as there were some other noteworthy events going on in Washington, DC, including an appearance by former First Lady Nancy Reagan. Nevertheless, at least eight members of Congress came to the exhibition, including Representatives Lois Capps (D-CA), Bob Etheridge (D-NC), Rodney Frelinghuysen (R-NJ), Virgil H. Goode (I-VA), Gil Gutknecht (R-MN),

Rush Holt (D-NJ), David Price (D-NC), and Lynn Rivers (D-MI). Also in the crowd were Rita Colwell (NSF director), Philippe Tondeur (outgoing director of NSF’s Division of Mathematical Sciences), and over a hundred congressional staff members.

Samuel M. Rankin III, director of the AMS Washington Office, currently serves as chair of the CNSF and worked closely with the other groups to organize the exhibition. “The CNSF exhibition provides a good way for members of Congress and their staffs to meet mathematicians and scientists on an informal basis and to get a better understanding of why research is important for the national interest,” Rankin comments. “These personal interactions help enormously in building support for the NSF.”

—*Monica Foulkes, AMS Washington Office,
and Allyn Jackson*

Deaths of AMS Members

SATOSHI ARIMA, of Tokyo, Japan, died on May 8, 2002. He was a member of the Society for 41 years.

WILLIAM F. DONOGHUE JR., of the University of California, Irvine, died on April 3, 2001. He was a member of the Society for 51 years.

WILLIAM T. EATON, of the University of Texas at Austin, died on December 30, 2001. He was a member of the Society for 35 years.

JOAQUIN O. LOUSTAUNAU, of Las Cruces, NM, died on March 4, 2002. He was a member of the Society for 24 years.

DOROTHY MCCOY, of Plainview, TX, died on November 21, 2001. She was a member of the Society for 72 years.

LILLY A. MONHEIT, of San Diego, CA, died on March 31, 2002. She was a member of the Society for 41 years.

CECIL J. NESBITT, of the University of Michigan, Ann Arbor, died on October 22, 2001. He was a member of the Society for 63 years.

MARK JAMES PATON, of Buckingham, England, died on October 27, 2001. He was a member of the Society for 10 years.

ROBIN ROBINSON, of Hanover, NH, died on March 3, 2002. He was a member of the Society for 72 years.

HERBERT S. SHANK, of Cortland, NY, died on March 3, 2002. He was a member of the Society for 44 years.

MAYNARD W. SHELLY, of Lawrence, KS, died on May 3, 2002. He was a member of the Society for 44 years.

GEORGE R. SMITH, of Arlington, VA, died on January 30, 2002. He was a member of the Society for 17 years.

B. ANDREAS TROESCH, of Beverly Hills, CA, died on October 30, 2001. He was a member of the Society for 47 years.

BRYANT TUCKERMAN, of Briarcliff Manor, NY, died on May 19, 2002. He was a member of the Society for 62 years.

ROBERT L. VAUGHT, of the University of California, Berkeley, died on April 2, 2002. He was a member of the Society for 53 years.