
Inside the AMS

AMS-AAAS 2002 Mass Media Fellow Chosen

The 2002 AMS-AAAS Mass Media Fellowship has been awarded to KATHERINE PAUR, a mathematics graduate student at Harvard University. Paur has been placed at the *Chicago Tribune* for her summer fellowship, beginning in June 2002, after an orientation in Washington, DC.

Paur did her undergraduate work at the Massachusetts Institute of Technology, graduating in 1999. She expects to receive her Ph.D. from Harvard in 2005.

—AMS Washington Office

AMS Capitol Hill Briefing

Ingrid Daubechies of Princeton University spoke on “Mathematics, Patterns, and Homeland Security” at this year’s Congressional lunch briefing on Capitol Hill for members of Congress and their staffs, held February 28, 2002. The Mathematical Sciences Research Institute (MSRI), in Berkeley, California, joined the AMS to sponsor the event, one in a series intended to bring mathematicians to Washington to discuss federally-funded research that affects sensitive issues currently before Congress.

Daubechies described how mathematicians use wavelet analysis in several of these areas; for example, the FBI uses wavelets to compress its vast library of fingerprint data. Wavelets are also a key ingredient in the analysis of sonar data.



At the congressional lunch briefing in Washington, DC, left to right: speaker Ingrid Daubechies, Congressman Vernon J. Ehlers, and MSRI director David Eisenbud.

David Eisenbud, MSRI director and AMS president-elect, welcomed guests on behalf of AMS and MSRI. James Schatz of the National Security Agency introduced the speaker and gave a short overview of the types of security issues encountered by NSA.

Congressman Rush Holt and Congressman Vernon J. Ehlers, long-time champions of science, were our Congressional hosts, and both attended the briefing.

—Monica Foulkes, AMS Washington Office

A Summer at Discovery.com

Each summer, the American Association for the Advancement of Science (AAAS) runs a fellowship program that places science graduate students in ten-week internships at media outlets. In sponsoring the AMS-AAAS Mass Media Fellowship, the AMS provides funds for one or two mathematics graduate students to participate each year. What follows are reflections by Rafe Jones, a mathematics graduate student at Brown University, about his fellowship at Discovery.com during the summer of 2001.

The deadline to apply for the AMS-AAAS Mass Media Fellowship is traditionally January 15 each year. Information about applying will appear in the “Stipends” section of the September issue of the Notices.

Words and writing have held my interest nearly as long and well as mathematics. Someday I hope to explore ways of combining these interests, perhaps by writing about math for the general public. In order to explore the world of writing for a general audience and to get a glimpse of how the media work, I decided to spend the summer as a AAAS-AMS Mass Media Fellow. I discovered that writing for the general public is a strange hybrid of information and amusement, and the tension between the two came into sharp focus during my ten week stint writing for Discovery.com, located in Bethesda, Maryland.

When I started the fellowship, Discovery.com had recently undergone dramatic cutbacks and changes. Only a year before, the website had been almost entirely independent from the Discovery TV channels, and the staff had been nearly three times as large. I arrived to find a relatively understaffed group that produced a website where nearly everything promoted or enhanced the content of Discovery’s TV programs. One exception stands out: a series of news pages, edited by Lori Cuthbert, the lone survivor of what was once a busy ten-person staff. Lori was responsible for bringing me to Discovery, and she served as

my mentor and director, finding me a series of interesting projects in various corners of the labyrinthine website. She spent a solid week showing me the protocols for creating pages, farming out work on the news sites to me, and introducing me to the startlingly good \$5 sushi lunch at the nearby Bethesda Food Court.

Lori also got me connected to Greg Henderson, executive producer of a package tied to the show “When Dinosaurs Roamed America,” and a former Supreme Court correspondent and long-distance bicyclist. Greg gave me my first meaty, independent assignment, one that I might not have gotten had the staff been less shorthanded. The dinosaur package featured a dinosaur ZIP code finder: type in your ZIP code, and up pops a list of the dinosaurs that used to roam your neighborhood. Clicking on one of the names in the list produced a small window containing a description of the dinosaur. These descriptions were my job. My mom tells me I was a dinosaur-obsessed child, and that enthusiasm bubbled up again as I researched the 25 different dinosaur species. I described the *Thescelosaurus* as a “swift, two-legged plant-muncher [who] liked to loiter in Cretaceous forests,” while the *Syntarsus* “cavorted through Early Jurassic arid lands, chasing down lizards and big insects for meals.” Though subsequent drastic cutting of my descriptions frustrated me a bit—I’d been told the final versions could be 100 words each when in fact only around 50 words survived—I was happy with them. The basic purpose of the pieces was to educate, but I felt I’d made them somewhat entertaining as well.

If the dinosaur pieces were meant to entertain as well as inform, my next project focused almost exclusively on information. A package tied to Shark Week included a page containing a compendium of shark-related news stories from the past year. Lori and I had to scrape to get enough stories, and ended up including a couple that probably were not entertaining enough. We dug up stories from Discovery’s archives and various places on the Web. Where the stories were incomplete, I fleshed them out, and wrote from scratch one story on shark feeding—where paid dive leaders attract sharks with dead fish so that dive-tourists can see them up close. The different voices I heard while doing interviews for that story have stuck with me. A dive-shop owner whose business depended in part on shark feeding defended it in colloquial but passionate terms; a scientist I reached on his cell phone at a music shop attacked the feedings with a rambling indignation chock full of statistics. This gave me valuable experience with actual journalism, and I learned a great deal as well from the extensive editing the piece received.

After that the pendulum swung dramatically to entertainment. I went to work on a package tied to a three-part TV series called “The Human Face.” I undertook the writing and building of a page devoted to the first part of the series, about an ex-plastic surgeon who’d developed a mask that he deemed the shape of the perfect face. Although the doctor’s work didn’t seem to be devoid of science—he claimed to have done extensive studies showing a broad preference for faces that fit his mask—he went well beyond claiming his mask simply fit beautiful faces. He

asserted that in each human mind is a genetically determined “ideal” face that he had discovered. This claim is the one that draws viewers, and I believe is the reason Discovery decided to devote an entire show to the mask. However, I learned that not many scholars accept the notion of “ideal” bodies or parts of bodies, and in fact such ideas hark back to the dark days of eugenics. I soon discovered, though, that I wasn’t allowed to call the doctor’s theories into question. The purpose of the package was to get people to watch the show, and casting doubt on the claims of the mask’s perfection didn’t further that purpose. I wrote a piece that focused mainly on the math the doctor used to make the mask, but I had to include his theories in a relatively prominent place, essentially without an opposing viewpoint.

During this project, another Mass Media Fellow passed me a press release that proved to be my most memorable learning experience on the difficulty of writing for a general audience on a topic one knows well. The press release detailed recent progress towards showing that the digits of π are normal—that is, that any string of n digits is as likely to occur as any other such string. Up until this point, my math background had served me well: It gave me some general analytical skills, but meant I knew little more than the average person about most science that appears in the news. Having just understood the basics of a subject makes it much easier to write for a general audience. With the π story, though, my knowledge was a liability. I think the story held genuine interest for the public, and Lori was curious, but my first attempt at putting the story into comprehensible terms resulted in an article without a clear main point and too full of intricate details. A second rewriting led to a much more understandable story whose main point wasn’t stated in a way that made it compelling enough. A third rewriting made the point compelling, I thought, but by then the story’s window of opportunity had passed, and I don’t think it got any further consideration.

I have not reached any ironclad conclusions about the relationship between news and entertainment. During my experience with the beauty mask, I saw that excessive emphasis on entertainment compromises the value of an article. From my experience with the π piece, I learned that excessive emphasis on complicated information also diminishes an article’s impact. Good writing manages to balance concerns of education and entertainment, even though the two aren’t always compatible. I feel fortunate to have worked on projects where education took precedence over entertainment—most of the work at Discovery has more in common with the beauty mask story than with the shark news archive. Though Discovery may lean a bit too far to the side of entertainment for my tastes, this leaning helped me better understand the role of entertainment in effective public communication.

I take away from the summer a sense that communicating science to the general public is difficult, but that there is in the public a real hunger for scientific stories, as evidenced by the impressively large number of hits on the various news pages on Discovery’s site. Although I don’t plan to pursue a career in journalism, the skills I gained

this summer will make me a better communicator of science from within the scientific community. As math is a particularly difficult subject to communicate well to the public, we are in need of articulate mathematicians who have some rapport with the media. I hope to be able to provide help on that front, as math depends on public exposure for funding, public trust, and the making of future mathematicians.

—*Rafe Jones, Brown University*

STIX Fonts Given Unicode Codes

STIX (Scientific and Technical Information eXchange) is a project that aims to produce a free font set to meet the needs of scientific and technical publishing both online and in print. A major milestone of STIX was reached recently, with the release of a set of unique, universally standardized computer codes for a large collection of mathematical and technical symbols.

The wide variety of symbols used in scientific and technical writing mean that authors and publishers often patch together font sets by mixing proprietary and freely available fonts. Font licensing considerations can restrict the exchange of these fonts sets and sometimes of the documents created with them. The aim of STIX is to address these problems in both print and electronic media. STIX is a project of a group of six publishers (including the AMS) and is overseen by a team of about ten electronic publishing professionals drawn from the publishers' staffs.

The first goal of STIX has now been largely realized: to ensure that all the symbols to be included in the STIX font set have Unicode codes. Like the familiar ASCII system, Unicode is a system for encoding written material into a form that can be processed by computer. But where ASCII represents only the (unaccented) Latin alphabet, Unicode has the capacity to provide 16-bit codes for 64,000 characters and symbols. The goal of Unicode is to provide such codes for all symbols in all languages, so that speakers of any language can communicate directly in their own language, without artificial mechanisms for adding accents or transliterating into a different alphabet. All Web browser suppliers are now basing their products on Unicode, which will eventually replace ASCII. In the spring of 2002, Unicode Version 3.2 was released, and it includes all of the symbols the STIX project had identified as needing codes. (See http://www.unicode.org/press/press_release-3.2.html for further information on the Unicode release.)

The second goal of STIX is the actual creation of the STIX fonts. After a round of bids was received, a well respected font vendor was chosen to develop the fonts. The vendor has been delivering the symbols on an ongoing basis, and at the time of this writing had finished development of about half of the symbols, the total number of which runs into the thousands. The STIX team is currently carrying out refinements and testing. The fonts, which will be available under license but free of charge, should be complete in late 2003.

Free availability of a universal font set will facilitate the flow of scientific and technical communication by simplifying exchange of documents among authors and publishers. It will also improve the on-screen appearance of technical symbols in Web documents. The STIX team has had close cooperation with the developers of the MATHML markup language for presenting mathematics in Web documents. In this way, the STIX project will contribute to the realization of mathematics publishing on the World Wide Web.

STIX is a project of STIPUB (Scientific and Technical Information Publishers), which consists of the AMS, the American Chemical Society, the American Institute of Physics, the American Physical Society, the Institute of Electrical and Electronics Engineers, and Elsevier, Inc. The cost of the development of the STIX fonts is being shared among the STIPUB members.

—*Allyn Jackson*

Deaths of AMS Members

HARALD BERGSTROM, Goteborg, Sweden, died on April 23, 2001. He was a member of the Society for 47 years.

RICHARD L. W. BROWN, York University, Canada, died on March 9, 2002. He was a member of the Society for 37 years.

JULIUS S. DWORK, of Essex Junction, VT, died on February 20, 2002. He was a member of the Society for 56 years.

FRITZ HERZOG, Michigan State University, died on November 21, 2001. Born on December 6, 1902, he was a member of the Society for 66 years.

SOLOMON HURWITZ, professor emeritus of City College, City University of New York (Manhattan), died on December 22, 2001. Born on April 11, 1907, he was a member of the Society for 58 years.

LEONCE LESIEUR, of Sceaux, France, died on March 26, 2002. He was a member of the Society for 52 years.

ROBERT C. MEACHAM, of St. Petersburg, FL, died on February 19, 2002. He was a member of the Society for 53 years.

MENAHEM MAX SCHIFFER, professor emeritus of mathematics, Stanford University, died on November 11, 1997. Born in 1911, he was a member of the Society for 50 years.

LOWELL I. SCHOENFELD, of Grand Island, NY, died on February 6, 2002. He was a member of the Society for 58 years.

BINYAMIN SCHWARZ, professor emeritus, Technion-Israel Institute of Technology, Haifa, died on August 10, 2001. Born on December 7, 1919, he was a member of the Society for 46 years.

CHARLES STEELE, of Lowell, MA, died on December 25, 2001. He was a member of the Society for 31 years.

NAZA TANOVIC-MILLER, of Sarajevo, Bosnia-Herzegovina, died on November 15, 2001. She was a member of the Society for 8 years.

ALAN T. THOMAS, of Louisville, KY, died on September 16, 2001. He was a member of the Society for 44 years.

KAZUSHIGE UENO, of Tokyo, Japan, died on April 9, 2002. He was a member of the Society for 16 years.

TILLA WEINSTEIN, Rutgers University, died on January 22, 2002. She was a member of the Society for 24 years.