



MAXIMA: News and Highlights from the Department of Mathematical Sciences

The University of Texas at El Paso

<http://www.math.utep.edu>

Fall 2007

UTEP TO HONOR (MATH) ALUMNI!

Two of this year's three Distinguished Alumni Award recipients to be honored by the University of Texas at El Paso and the UTEP Alumni Association during this year's Homecoming are graduates of our department!



*Photo courtesy
University
Communications*

Robert O'Rear (BA, Mathematical Sciences, 1964) has been active in industry and philanthropy, making history as one of the first employees of Microsoft where he served as the project leader for the company's legendary MS-DOS personal computer operating system. His involvement with the university includes delivering a Millennium Lecture four years ago.

Harriet May (BS, Mathematical Sciences, 1971) is president and chief executive officer of GECU and serves on the board of directors for the Credit Union National Association.

May has met with President George W. Bush and Mexican President Vicente Fox to discuss financial issues, received a UTEP College of Science Gold Nugget Award in 2000, and was inducted into the El Paso Commission for Women Hall of Fame in 2002.



*Photo courtesy
University
Communications*

HOMECOMING!!

Our traditional Homecoming Coffee for alumni, faculty, students and department friends is Saturday October 13, 2007, from 10-noon in Bell Hall 125. The event is free and no reservation is required. For more information, contact Mrs. Lanna Tallmon (915-747-5761, lanna@utep.edu) or visit our website at www.math.utep.edu.

From the Chair

When you read the articles in our newsletter you will see that we have plenty of reason to celebrate the accomplishments of our alumni, faculty and students. Let me add another couple of highlights.

Six years ago, with help from a university-wide NSF grant, we began to offer our Master of Arts in Teaching Mathematics graduate program to middle and high school teachers in the El Paso region in a cohort format. The program lasts two years, and participants attend all classes jointly as a cohort. Classes are conveniently scheduled to meet twice a week in the evenings. The program has been a big success and so far, more than 40 mathematics teachers have graduated with an MAT degree.

New students at UTEP often find it difficult to transition from high school to a university environment, and their first mathematics courses can be challenging for them. Under the leadership of Drs. Schwab and Marcus and with the help of a grant from the Department of Education, we have started a new program in our Calculus I courses. Two hours each week students meet with advanced undergraduates in small groups of about 15 students. The "supplemental instructors" do not only discuss homework problems, but also act as mentors to their freshman peers. Feedback from students and faculty alike has been very positive and plans are underway to extend the program to our Precalculus courses as well.

While we have not added any new faculty this year, Dr. V.K. Srinivasan has retired after 36 years of service and is now Professor Emeritus. Dr. Ralph Liguori is currently completing his last semester in phased retirement.

Let me use this opportunity to express our gratitude for your generous contributions to our scholarship funds during the last year. The well-established Gladman Fund supports our most talented undergraduate students, while the new Gregory Fund will enable us to provide financial help to graduate students in Statistics. Your continued support will be greatly appreciated by our students. We are also asking for your continuing contributions to our Excellence Fund. This fund helps us pay for student travel to conferences and other items not covered by our budget.

—*Helmut Knaust*

FACULTY SUCCESS WITH GRANTS



Drs. Miguel Argáez and Leticia Velázquez received ORSP's 2006-2007 Outstanding Performance Award for "securing extramural funding in the College of Science." Last fall, both were awarded a DOD-PET-

Mississippi Grant, Corps of Engineers Contract and an NSF Grant for 4 years. Dr. Argáez's research interests include developing interior-point methods for solving large scale linear and nonlinear programming problems with application to parameter estimation problems that arise in reservoir and earthquake models. Dr. Velázquez's expertise is in global optimization methods for solving large scale problems. More recently, Stanford University and HPTi invited Drs. Argáez and Velázquez to join the Army Research Center where they will focus on developing HPC Optimization Techniques in conjunction with Dr. Pat Teller of Computer Science. As part of this award, UTEP will be receiving a heterogeneous cluster and 15 workstations. The award covers a period of five years with an option for five additional years. Also, Argáez and Velázquez are part of an 8-member research team that just received a \$5 million NSF grant to create the Cyber-ShARE Center of Excellence for cyber-infrastructure.

Dr. Naijun Sha co-wrote a \$239,997 NSF grant entitled "Modeling and Analysis of Profiled Reliability Tests using Computation-Intensive Statistical Methods." This project is about taking the advantage of powerful computational intensive approaches to tackle some statistical inference problems existing in reliability engineering, in particular, the modeling and analysis of profiled reliability testing.

Drs. Mourat Tchoshanov and Larry Lesser recently concluded their 2005-07 "Evidence-Based Professional Development Partnership with Middle Schools to Improve Student Achievement" grant funded by the Texas Education Agency. The grant helped El Paso County middle school teachers from high-need low-SES schools improve student mathematics achievement (the mean TAKS passing rate rose 11 percentage points). The model driving the professional development workshops included teacher knowledge, pedagogical content knowledge, item analysis of TAKS data, lesson study, and connections to "big mathematical ideas." This work yielded juried papers and an invited co-plenary talk at the Dana Center Annual Math and Science Higher Education Conference. Drs. Tchoshanov and Lesser have also successfully teamed up this year on Teacher Quality grants from the Texas Higher Education Coordinating Board to empower middle school teachers to improve their content knowledge and conduct action research.

Hosted Conferences Make History!

UTEP hosted the NSF-supported first-ever Finite Element Methods in Engineering and Science international conference on December 11 - 15, 2006. The 50 attendees spanned 4 continents and research presenters included several UTEP engineering and science faculty and graduate students. The biennial conference (which UTEP plans to host again in 2008) reflects UTEP's strong presence in the field of Computational Science, where the College of Science has pending interdisciplinary M.S. and Ph.D. programs. Information and photos are available at: (servac.math.utep.edu/femtec_2006/).

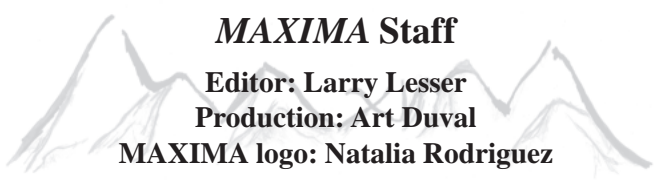
On November 18, 2006, UTEP became the first Hispanic Serving Institution ever to host **StatFest**, an annual conference aimed at encouraging undergraduate minority students to pursue careers and graduate studies in the statistical sciences. Since 2001, StatFest has been an ongoing initiative of the Committee on Minorities in Statistics (CMS) of the American Statistical Association (see <http://www.statfest.com/>). StatFest 2006 was sponsored by CMS and the UTEP Statistical Consulting Lab and was chaired by UTEP assistant professor Naijun Sha and by Spelman College professor Nagambal Shah. The event was written up in the January 2007 *Amstat News* (p.12).

The 100+ student attendees learned about the role of statistics in academia, industry, and government, graduate studies in the statistical sciences, summer internships, and undergraduate student research. The keynote speaker was Robert Santos from the Urban Institute in Washington, D.C. StatFest 2006's other presenters spanned many institutions and included UTEP faculty (Ori Rosen, Melchor Ortiz, Joan Staniswalis), UTEP graduates (Brisa Sanchez, Yolanda Muñoz), and UTEP graduate students (Bereket Weldeslassie and Charles Rogers).

Alumni Notes

Lorraine Melgoza (MAT, Mathematics, 2007) was co-author (with Dr. Larry Lesser) on an education research article published in the fall 2007 *Teaching Statistics*. This paper also won an international development grant award from the Teaching Statistics Trust.

Enrique Treviño (BS, Mathematics, 2006), pursuing a Ph.D. at Dartmouth, published his first paper: www-rohan.sdsu.edu/~vadim/apptz-updated.pdf. He also visited UTEP in September, and gave a colloquium talk.



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Alumni Data Update Form Department of Mathematical Sciences

Please return this form or visit <http://www.math.utep.edu/alumni> so we can update our records!

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Let us know what you have been up to
(to be included in the Math Department newsletter or website):

CLUB ZERO STUDENTS SUCCEED

Club Zero (UTEP's student math club) won (by unanimous vote) the \$100 first prize for the 2007 "best table" competition at the Mining for Majors/Picking Careers Fair! A prominent feature at the table was a giant scissors puzzle requiring topology to solve.

The next month, the club held its third annual campus-wide Pi Day event. The day started off with a pi-rade of pi digits, puzzles, which kept many students busy for a while. Pineapple and Bavarian cream pies were sold, as well as Pi Day tattoos. At noon, many passersby stopped to help estimate pi based on the proportion of frozen hot dogs landing on parallel tape lines on the ground (recall "Buffon Needle Problem"), obtaining 3.32.



*Jaime Ramos "frankly"
computing pi*

Jaime Ramos won the pi-digits-from-memory contest with 240 digits and Martha Fuentes won the "count the pi-stachios contest" with a guess of 740 (exact total in the jar: 782). At 1:00 was the pi(e)-eating contest. In a tight race, Sandra Escobar won the contest for eating pie made by Andrea Luevano, Azucena Zamora, and Lorena Gonzalez. The day ended with a math song sing-along at the Union Breezeway

stage, led by Dr. Larry Lesser. Everyone enjoyed the whole set, especially his Ricky Martin parody "Findin' Extrema Local." (note: Lesser's math songs recently attracted an invitation for the opening banquet of the 2008 MAA MathFest.)

In late April, the club represented UTEP well at the annual Arizona Mathematics Undergraduate Conference with talks given by the following UTEP students: Jaime Ramos, Eduardo Espinola, Martha Fuentes, Lorena Gonzalez, Martha Fuentes, Melissa Pugh, Oscar Macedo, and Angel Davalos, Laura Solorzano, Carlos Baldemar, and Antony Adair. Adair was profiled in the Spring 2007 *NOVA* for his recent accomplishments, including being the only undergraduate finalist in the Materials Research Society Scientific Movie Contest.

Dr. Khamsi Receives COS Research Award

At the May 2007 College of Science Pre-Commencement, Dr. Mohamed A. Khamsi received the College's Distinguished Achievement Award for Research. Throughout his career, Khamsi has sought practical use of the main fixed point theorems. Working with UTEP Computer Science faculty, he developed the new area "Fixed Point Theory in Logic Programming." Over the last twenty years, Dr. Khamsi has published more than 50 research papers and organized the 8th International Conference on Fixed Point Theory and its Applications held this past summer in Chiang Mai, Thailand.

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