

Indiana University Department of
Mathematics
Alumni Newsletter

Vol. 11

College of Arts & Sciences Alumni Association

Fall 2004

Weber wins grant for research on minimal surfaces

Assistant Professor **Matthias Weber**, at Indiana University since 2001, has obtained a Focused Research Group grant from the NSF to intensify his research on minimal surfaces. Such a grant is awarded to small groups of scientists to improve their abilities to collaborate on a very specific and significant project. In his case, he is working with David Hoffman (MSRI Berkeley) and Michael Wolf (Rice University, Houston) to show the existence of minimal surfaces in a class that has been quite elusive: embedded minimal surfaces with helicoidal ends of finite genus. Until very recently, only one example in this class was known, namely the helicoids. We know now that another surface in this class exists, the genus one helicoids, and the ultimate goal is to produce more of them.

The modern theory of minimal surfaces is all about trying to understand what kind of topology a minimal surface with prescribed behavior at infinity can have. This is one of the reasons why this particular problem is important: It adds a mosaic piece to a much-researched general picture. But the investigations by Hoffman, Weber, and Wolf about the genus one helicoids and the work of Traizet and Weber on helicoidal minimal surfaces of higher genus were particularly fruitful for the general theory,



Matthias Weber

because completely new methods were introduced into the subject. Teichmüller theory is used to prove results about periods of meromorphic 1-forms on Riemann surfaces under deformations of the surface, and an electrostatic interpretation of the period condition of minimal surfaces allows computing explicit limits of families of minimal surfaces.

Weber maintains an extensive Web site of minimal surface images and explanations at www.indiana.edu/~minimal/.

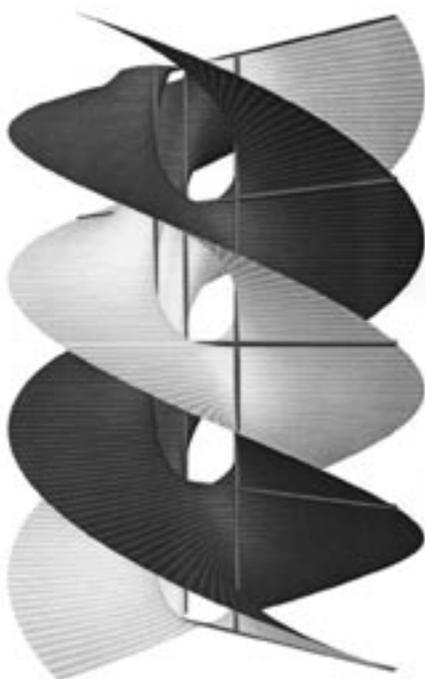


Fig. 1: A new helicoidal minimal surface from the work of Traizet and Weber

Chair's corner

Graduate enrollment increases by 20 percent

The beginning of the academic year is always an interesting and exciting time. This year we welcomed into the department 36 new graduate students, for a total of 138, and over the last two years we added seven new postdoctoral fellows, four new faculty members, and six new lecturers. We are teaching more than 9,000 students this semester, and enrollments in our graduate classes have increased by an astonishing 20 percent during the last two years.

Special congratulations are in order to our Phi Beta Kappa undergraduates; to our Women in Science Fellows; to our former PhD student Oscar Perdomo, PhD'00, who received a prestigious research award from the Colombian Academy of Sciences; to Professor Roger Temam, who was awarded the Prix Jacques-Louis Lions prize by the French Academy of Sciences; and to Professor Chuck Livingston, who received the Lester R. Ford Award from the Mathematical Association of America. I hope that you will get a chance to look at the articles about these people in the current issue. Other interesting articles describe Professor Matthias Weber's research in geometry and the undergraduate research project at Cummins Engine Corp. supervised by professors Michael Jolly and Koby Rubinstein.

We also extend our best wishes and thanks for their many years of service to our recent retirees, professors William Ziemer, Madan Puri, and Thomas Bagby.

We welcome comments from our alumni and friends. Please stop by the department when you are in town, and feel free to contact me at hoff@indiana.edu.

Department bids fond farewell to three faculty retirees

Tom Bagby

What people appreciate most about Tom Bagby is his infectious love for mathematics and his precise thinking. Because of his broad and deep command of the subject, his penetrating insight enables him to come up with stimulating questions. It is this intellectual stimulation that will linger in our memories.

Tom earned his BS in mathematics from the University of Kentucky in 1962. He entered



graduate work at Harvard, studying with Lars V. Ahlfors, one of the principal architects of the modern theory of complex analysis and among the major mathematicians of the 20th century.

Tom also had lots of mathematical contact with Fred Gehring, of the University of Michigan, who was visiting Harvard at that time. Ahlfors and Gehring both claimed Bagby as a student.

Tom received his MA in 1964 and his PhD in 1966. One aspect of his thesis concerned the electrostatic capacity of a condenser. It was known classically that the capacity of a conductor may be computed as a “transfinite diameter.” Tom showed that for a condenser, the capacity is given by what might be called a “transfinite cross ratio.” The thesis work then led him naturally to research results on the topic of rational interpolation along certain sequences of points. Over the years, these methods have been adopted by people in approximation theory and numerical analysis, and these special sequences of points have become known in the literature as “Bagby points.”

After Harvard, Tom spent a year as a visiting member at the Institute for Advanced Study. His first academic appointment was as an assistant professor at the University of Michigan from 1967 to 1970. During Tom’s third year at Michigan, he met Bill Ziemer, who was visiting from Indiana. Influenced in part by Bill, Tom took an appointment at IU.

A theme running throughout Tom’s career is the inspiration his work has taken from his travels and collaborations. While on sabbatical leave at Rice University in spring 1981, he attended a conference at the University of Kentucky, where he met Paul Gauthier of the University of Mon-

treal. Bagby and Gauthier entered into a fruitful and long-term collaboration on a novel area of approximation theory.

Ten years after meeting Gauthier, Tom spent 1991 on sabbatical at the University of Montreal. During that time, he spoke at a conference in Leningrad. His talk stimulated the Soviet mathematician Gončhar to formulate an interesting conjecture. Tom felt that in order to attack this conjecture, he needed to incorporate tools from several complex variables. Thus he enlisted Norm Levenberg, a specialist in the area. The two solved Gončhar’s problem and have had an ongoing productive collaboration.

Tom served two stints as assistant chair in charge of the undergraduate and graduate programs of the Department of Mathematics.

Tom will surely continue with his mathematics, and we will continue to enjoy the enthusiasm and good spirit he brings to Rawles Hall.

— Eric Bedford

Madan Lal Puri

Madan Puri joined the Department of Mathematics as a full professor in 1968 and retired in 2003. During his 35 years at IU, he has played a key role in developing our

program in statistics.

Madan received his PhD from the University of California at Berkeley in 1962. He then joined the renowned Courant Institute of Mathematical Sciences at New York University, becoming an associate professor there in 1965.

Among his research accomplishments, Madan has published well over 200 papers in scholarly journals and has written several books. He was twice awarded a prestigious Alexander von Humboldt Fellowship, and he is a member of the Institute of Mathematical Statistics.



A selection of Madan’s collected works has recently been published as a three-volume set by VSP Press.

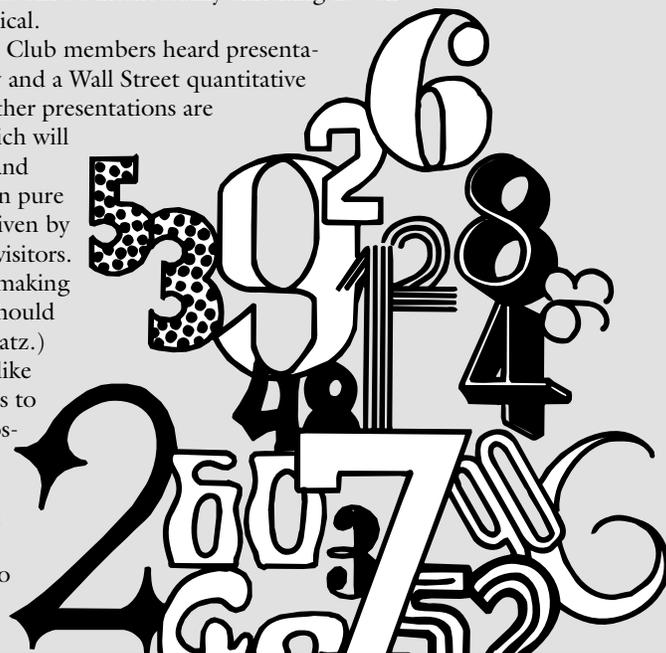
Madan has guided 16 students to the PhD in statistics, and most of them currently hold research/teaching positions at universities. He received the department’s Rothrock Teaching Award in 1991, partly in recognition of his highly effective curriculum development in both our graduate

(continued on page 3)

Math Club explores intriguing topics

Chris Connell and Nets Katz are sponsoring the Math Club. Their goal is to bring together students of varying backgrounds and interests to convince them that thinking about mathematics can be intellectually enriching as well as economically practical.

In fall 2004, Math Club members heard presentations from an actuary and a Wall Street quantitative analyst. Numerous other presentations are planned, some of which will touch on intriguing and approachable topics in pure mathematics, to be given by our own faculty and visitors. (Those interested in making such a presentation should contact Connell or Katz.) The sponsors would like the schedule of events to follow, as much as possible, the interests of the participants. For instance, unanswered questions at one meeting might lead to the topic of another.



Lab course allows students to research genes, engines

The Applied Mathematics Laboratory has been launched at Indiana University. This course, running under M490, consists of semester-long research projects from industry and around campus. Students work in teams of three. In the spirit of IU's VIGRE grant, each team is to have at least one graduate and one undergraduate student. In its maiden voyage in the spring semester of 2003, there were two projects: one on genetic mutation and one on optimal engine performance.

The gene project came out of work by IU professors **Mike Lynch** in biology and **Elizabeth Housworth** in mathematics. It consisted of solving a certain partial differential equation in order to determine the probability of one gene type taking over a population. This PDE approach is an alternative to direct simulation of a random process. Two numerical techniques were applied to solve the PDE. Students Xiaohong Che and Saied Yasamin used a finite element package, and George Mohler developed a finite difference code. The project considered the case of three gene types that lead to a PDE in a triangle (see figure 1). It has laid the groundwork for the study of populations with more gene types. In particular, the finite difference code can be generalized to reasonably solve the case of four types where the PDE would be in a tetrahedron. The faculty mentors for this project were Elizabeth Housworth and **Mike Jolly**.

The engine project was carried out in conjunction with Dan Oren, an engineer, and Mike Sharp, a statistician, both in the

research and development group at Cummins Inc., one of the leading manufacturers of truck engines, located in Columbus, Ind. There are six control variables that determine engine operation (e.g., timing and pressure, to name two). The premise is that under a given running condition (specified by speed and torque) there is an optimal choice of the six control variables that minimize fuel consumption while meeting the constraints of government emissions standards. Laboratory tests are taken to gather

data at a number of different settings of the control variables at different running conditions. These tests are costly, so the number is severely limited. The project consisted of exploring various methods of interpolation to approximate optimal variable settings at arbitrary conditions. The students working on the project were Matt Brunsman, Max Fontus, and Yun-Hui Kim, with faculty mentoring provided by Mike Jolly and **Koby Rubinstein**.

— Mike Jolly

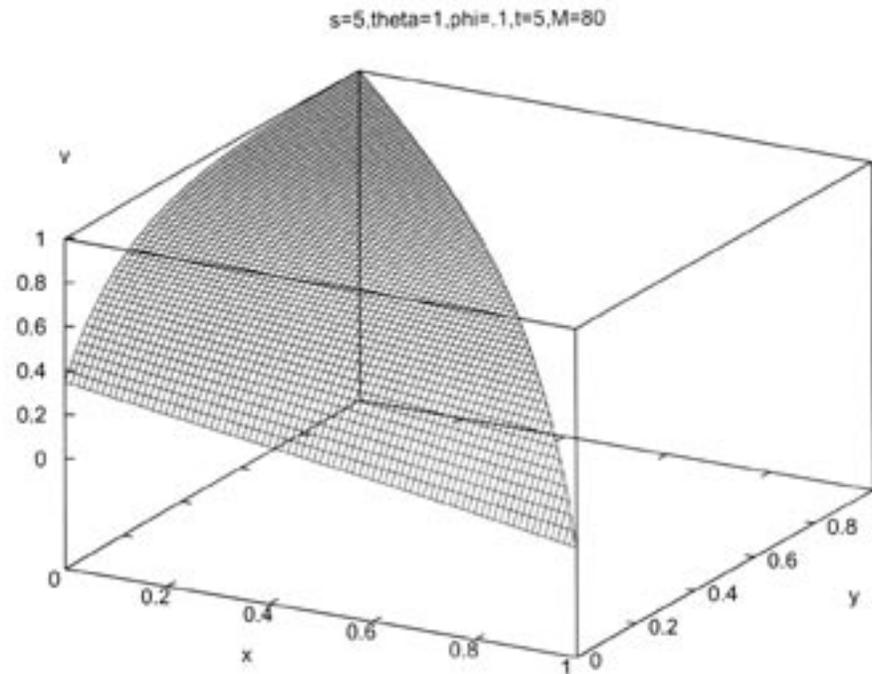


Fig. 1: Solution to a PDE connected to the gene project

Faculty retirees

(continued from page 2)

and undergraduate programs in statistics.

In 2004, Madan became the College of Arts and Sciences' first Distinguished Research Scholar. This award recognizes his remarkable career as a research statistician.

Madan has retired in Bloomington and spends his time visiting his children and their families in New York and Chicago. In addition to their other successes, his children are graduates of Indiana University and Harvard but still remain true Hoosiers. We wish our friend and colleague a great future and look forward to spending more time with him. His presence will be missed around the department.

— *Grahame Bennett and Victor Goodman*

William P. Ziemer

On the occasion of the retirement of Professor William Ziemer, our department

salutes a truly great colleague. A recipient of the College of Arts and Sciences Alumni Association's Distinguished Faculty Award in 1996, Bill has in every sense defined the ideal faculty member. His career and deportment are exemplary and comprise a goal to be emulated.

Bill enjoys an international research reputation. He is an expert in geometric measure theory, an area developed by world-renowned mathematician Herbert Federer at Brown University. Bill's thesis adviser at Brown was Wendell Fleming, another world-class mathematician who in joint work with Federer produced a number of truly fundamental results at this same time. Bill was instrumental in introducing the use of this subject into the area of partial differential equations. Indeed, Bill made great progress in, for example, the study of regularity theory for what we call "elliptic," "parabolic," and more general "variational" problems. Now, a tremendous number of papers in partial differential

equations in disparate areas employ the use of geometric measure theory as an essential tool. He is routinely consulted from around the world on technical issues in which he is an acknowledged master.

Because of Bill's strong influence, our department has thrived and prospered. He is a role model for all faculty and a voice of wisdom. In his retirement, we expect little to change. He is currently writing yet another book on senior-level analysis with Jiri Dadok. We hope that he will continue to teach certain courses. Without doubt, he will always be found in late afternoons on the squash courts. Surely, he and Suzanne will spend more time visiting their three children, Bill in California, Laura in Montana, and Sarah in West Lafayette, Ind., and enjoying their grandchildren.

The Department of Mathematics at Indiana University will not be the same without him.

— *John Brothers and Robert Glassey*

Faculty notes

Four new faculty join department in past two years

Assistant Professor **Christopher Connell** received his PhD in mathematics in 1999 from the University of Michigan. He was a National Science Foundation postdoctoral fellow at the University of Illinois at Chicago and has held a prestigious Dickson postdoctoral position at the University of Chicago. His work



involves the study of the interconnections between the geometry and topology of objects called “manifolds,” particularly those which have negative curvature, and applications to dynamics and

ergodic theory. Among his hobbies he lists “computational and algorithmic aspects of mathematics.” Connell joined the department in fall 2003.

Assistant Professor **Benjamin Morris** received his PhD in statistics in 2000 from the University of California at Berkeley and was a National Science Foundation postdoctoral fellow at Berkeley. He achieved real success early in his career by solving a longstanding open problem on what is called the “mixing time” for certain

Markov processes. More generally, his work involves questions about discrete probability, randomized algorithms, and related applications in computer science on the feasibility of algorithms. Morris joined the department in fall 2003.

Associate Professor **Nets Katz** received his PhD in mathematics in 1990 from the University of Pennsylvania and has held postdoctoral positions at the University of California at Berkeley, the University of Edinburgh, and Yale University, and faculty positions at the University of Illinois at Chicago and Washington University. His research interests include harmonic analysis, combinatorics, and mathematical fluid mechanics. He and his collaborators currently hold the world’s record for the

best-known example relating to the famous “Erdos hypergraph problem.” Katz joined us in fall 2004.

Associate Professor **Patricia Hersh** received her PhD in mathematics from MIT in 1999 and has held postdoctoral positions at the University of Washington and the University of Michigan. Her research interests include topological and algebraic combinatorics and interactions between combinatorics and other areas of mathematics. She has to her credit the best-known results on a very hard problem posed 25 years ago: to understand combinatorially certain aspects of the homology representations of the symmetric group on rank-selected posets of the partition lattice. Hersh joins us in spring 2005.

Chuck Livingston receives Ford Award

Professor **Chuck Livingston** received the Lester R. Ford Award for excellence in mathematical exposition at the 2004 annual meeting of the Mathematics Association of America. This award is presented to recognize outstanding articles that appear in *American Mathematical Monthly*, the leading journal for mathematical exposition. Livingston’s article, “Enhanced Linking Numbers,” describes mathematical techniques that can be used to study the ways in which two loops of rope can be linked together. The paper can be viewed at php.indiana.edu/~livingst/enhanced.pdf.



Jolly and Thompson receive Rothrock Faculty Teaching Awards

The Rothrock Faculty Teaching Award was created and endowed in 1990 by Mary Estelle Rothrock and David A. Rothrock Jr., in memory of Dean David A. Rothrock, a distinguished member of the faculty from 1892 to 1937. To encourage excellence in the teaching of mathematics, this faculty award is given for outstanding teaching at all levels, from service courses through thesis mentoring.

Mike Jolly received the 2003 Rothrock Faculty Teaching Award. Jolly has contributed in many ways,

including teaching large classes, developing new courses that link mathematics to industry, and working with some of our best undergraduates by organizing and leading the Math Club. In this math club role,



he went the “extra mile” and drove to New York City with a group of undergraduates to see the play *Proof*. He agreed to do even



Maynard Thompson, who received the Rothrock Faculty Teaching Award in 2004, with Bob and Joan Everitt. Joan is the granddaughter of Dean David A. Rothrock.

more by serving as the director of undergraduate studies for three years.

Maynard Thompson received the 2004 award. Thompson has contributed in many ways for many years, including teaching large classes; developing new courses for prospective teachers and new courses that

link mathematics to applications; and working with many NSF programs, such as our REU program, and our current partnership program with nine school districts. He has also served on many PhD committees, including several in mathematics education and fields such as psychology and biology.

Roger Temam receives inaugural Lions Prize

Roger Temam received the first Jacques-Louis Lions prize awarded by the French Academy of Sciences. The Jacques-Louis Lions prize was established in 2003 to recognize its recipient for a large body of significant work in applied mathematics. The research must have been performed in or in conjunction with a French institution and in an area in which Jacques-Louis Lions contributed: partial differential equations, control theory, numerical analysis, scientific computation, and applications.



Temam, professor of mathematics at IU and professor at the Universite Paris-Sud, has been a pioneer in introducing new techniques for understanding nonlinear phenomena arising in science and engineering and has developed important new methods in scientific computation.

He and coworkers Jacques-Louis Lions and Shouhong Wang have authored a series of significant papers that lay the foundation for the mathematical analysis of the study of the primitive equations for coupled ocean and atmospheric flow.

Seven postdocs added in 2003–04

In 2003, we accepted four new postdoctoral fellows funded by the National Science Foundation VIGRE grant: **Pisheng Ding**, PhD from Courant Institute, topology; **Suzanne Hruska**, PhD from Cornell University, dynamical systems in several complex variables; **Robert Huff**, PhD from Rice University, geometry; and **Eric Rowell**, PhD from University of California at San Diego, algebra.

In addition, we have three new Zorn postdoctoral fellows: **Benjamin Texier**, PhD from University of Bordeaux, applied mathematics; **Lewis Bowen**, PhD from University of Texas at Austin, geometry; and **Thomas Klein**, PhD from University of Augsburg, statistics. Texier arrived in 2003; Bowen and Klein arrived in 2004.

Read more about our faculty. Visit us on the Web at
www.indiana.edu/~math.



Faculty honored

- 2003 IU Trustees' Award for Excellence in Teaching: **James F. Davis**, **Darrell E. Haile**, and **Christopher M. Judge**
- 2004 IU Trustees' Award for Excellence in Teaching: **S. Thomas Bagby** and **Daniel P. Maki**
- 2004 IU President's Award for Distinguished Teaching: **Daniel P. Maki**



James F. Davis

Darrell E. Haile



Christopher M. Judge

Daniel P. Maki

Student notes

Graduate awards 2003

- **2003 Robert E. Weber Memorial Award:** David Christopher Meyer and Du Xuan Pham
- **2003 James P. Williams Memorial Award:** Adam Timar, Jiun-Chau Wang, and Muyu Zhang
- **2003 William B. Wilcox Mathematics Award:** Alexander Klimovitch Basyrov, Kyounghee Kim, Jiexiang Li, and Florentina Tone
- **2003 Vertical Integration of Research and Education in the Mathematical Sciences (VIGRE):** Shawn Michael Alspaugh, Chantel Spring Cleghorn, Kevin Faryl Foster, Wesley Shane Daughtery, Tobias James Hagge, David Christopher Meyer, Joshua Steven Riddell, Noah Salvaterra, Cornelia Anna Van Cott, Adam Gilbert Weyhaupt, and Eric Nathan Wilson
- **2003 Eberhard E. Hopf Fellowship in Applied Mathematics:** Wael Abu-Shamala and Mohammad Reza Raofi
- **2003 Glenn Schober Memorial Travel Awards:** Saleh Aliyari, Stefano Borgo, Brad Allen Emmons, Bo-Hae Im,

Taehee Im Yesem Kurt, Seunghwan Lee, John Gareth Mersch, Lei Qian, Ignacio Viglizzo, and Su-Chi Wen

- **2003 Hazel King Thompson Fellowship:** Serdar Altok
- **2004 Women in Science Graduate Fellowship:** Ying Ding and Jingjing Lu
- **2003 Rothrock Teaching Awards for Associate Instructors:** Saleh Aliyari, Jennifer Theresa Betcher, Nathan Carlson Carter, Justin Gash, Kyounghee Kim, Yesem Kurt, Lester De Guzman Mercado, Brian Milleville, Joan Montesano, Jason Todd Shaw, James Edward Slaven, and Christopher James Wilson

Graduate awards 2004

- **2004 Robert E. Weber Memorial Award:** Bongsuk Kwon
- **2004 James P. Williams Memorial Award:** Seongho Cho and Jonathan Thomas Yazinski
- **2004 William B. Wilcox Mathematics Award:** Benjamin Himpel and Chun-Hsiung Hsia
- **2004 Joseph & Frances Morgan**

Swain Fellowship: Lei Qian

- **2004 Vertical Integration of Research and Education in the Mathematical Sciences (VIGRE):** Shawn Michael Alspaugh, Jonathan C. Boggess, Lee D. Cox, Kimberly K. Dorn, Kevin Faryl Foster, Tobias James Hagge, Prudence T. Heck, Jiho Kim, Jason W. Lingle-Martin, Justin D. Mazur, David Christopher Meyer, Lisa M. O'Rourke, Noah Salvaterra, Cornelia Anna Van Cott, Adam Gilbert Weyhaupt, Christopher J. Wilson, Eric Nathan Wilson, and Jonathan T. Yazinski
- **2004 Glenn Schober Memorial Travel Awards:** Saleh Aliyari, Banu Baydil, Serban T. Belinschi, Nathan C. Carter, Min Chung, Andrew Ellett, Wentao Gu, Bo-Hae Im, Yun-Su Kim, and Soyeon Lee
- **2004 Hazel King Thompson Fellowship:** Serdar Altok and Zaichao Du
- **2004 Cognitive Science Outstanding Dissertation Award:** Maricarmen Martinez (mathematics, cognitive science)
- **2004 Rothrock Teaching Awards for Associate Instructors:** Shawn Michael

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Graduate awards

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Alspaugh, Jean Rene Cupidon, Wesley Shane Daughtry, Rebecca Ann Ellies, Jung Miao Kuo, Kathryn Louise Leed, Rob William O'Connell, Michael Eugene Penn, Du Xuan Pham, Lori Elizabeth Romano, Ignacio Viglizzo, Jiun-Chau Wang, and Adam Gilbert Weyhaupt

Undergraduate awards 2003

• **Undergraduate Intern Awards:** Matthew John Brunzman, Matthew William Glusac, Carrie Anne Reading, and Salome Reeves

• **Outstanding freshmen:** Marc Hildebrandt Conrad (*Cora B. Hennel Memorial Scholarship*); Robert Michael Gradeless (*Rainard Benton Robbins Prize*); Amy L. Hoffman (*Cora B. Hennel Memorial Schol-*

arship); Benjamin Arthur Schwab (*Cora B. Hennel Memorial Scholarship*); and Chong Yan (*Cora B. Hennel Memorial Scholarship*)

• **Outstanding sophomores:** Benjamin David Barone (*Ruth E. Gilliatt Scholarship*); Michael Matthew Blandford (*Rainard Benton Robbins Prize*); Erica Amy Isaacson (*Cora B. Hennel Memorial Scholarship*); Daniel Alexander Khokar (*Cora B. Hennel Memorial Scholarship*); and Marcus Raymond Messmer (*Cora B. Hennel Memorial Scholarship*)

• **Outstanding juniors:** Katrina M. Cordova (*Thelma Abell Prize*); Suzanne Renee Doering (*Ruth E. Gilliatt Scholarship*); Kathleen Anne Ligler (*Thelma Abell Prize*); Jerry Keith Neal (*Marie S. Wilcox Scholarship*); John Gottfried Poppeliers (*Marie S. Wilcox Scholarship*); Salome Reeves (*Trula Sidwell Hardy Scholarship*); Mariano Martin Riccio (*Marie S. Wilcox Scholarship*); and Anne Elizabeth Williams (*Thelma Abell Prize*)

• **Outstanding seniors:** Anna Marie

Dittmer (*Marie S. Wilcox Scholarship*); George Owen Mohler (*Marie S. Wilcox Scholarship*); Elizabeth Preston Morris (*Marie S. Wilcox Scholarship*); Megan Marie Sulok (*Marie S. Wilcox Scholarship*); and Adam R. Terwilliger (*Thelma Abell Prize*)

Undergraduate awards 2004

• **Undergraduate Intern Awards:** John Michael Keele and Dustin William Lannan

• **Outstanding freshmen:** Aaron Daniel Cantrell (*Marie S. Wilcox Scholarship*); Stephanie Ann Lampe (*Marie S. Wilcox Scholarship*); James Edward Lewis (*Rainard Benton Robbins Prize and Marie S. Wilcox Scholarship*); and Michael Alexander Williams (*Marie S. Wilcox Scholarship*)

• **Outstanding sophomores:** Elizabeth Ann Adams (*Marie S. Wilcox Scholarship*); Krista Kathleen Bredenkamp (*Trula Sidwell Hardy Scholarship*); Joshua Michael Grayson (*Marie S. Wilcox Scholarship*); Jennifer Marie Vollrath (*Thelma Abell Prize*); and Kirk David Webber (*Thelma Abell Prize*)

• **Outstanding juniors:** Benjamin David Barone (*Marie S. Wilcox Scholarship*); Erica Amy Isaacson (*Ruth E. Gilliatt Scholarship*); and Marcus Raymond Messmer (*Marie S. Wilcox Scholarship*)

• **Outstanding seniors:** John Dionisios Aliprantis (*Cora B. Hennel Memorial Scholarship*); Daniel J. Budreau (*Cora B. Hennel Memorial Scholarship*); Suzanne Renee Doering (*Thelma Abell Prize and Ciprian Foias Prize*); David Matthew Freeman (*Cora B. Hennel Memorial Scholarship*); Brandy Jean Guntel (*Marie S. Wilcox Scholarship*); Luke Steven Myers (*Cora B. Hennel Memorial Scholarship*); and John Gottfried Poppeliers (*Cora B. Hennel Memorial Scholarship*)

Suzanne Doering, being congratulated by Mike Jolly on her 2004 awards, attended the spring awards ceremony clad in an evening gown and gloves constructed of duct tape, which earned her the moniker "Duct Tape Girl" in the Department of Mathematics.



About our awards

The Robert E. Weber Memorial Award is given annually to graduate students in mathematics whose performance on their Tier I Exams is judged best by the Graduate Policy Committee. The memorial fund was established in 1980 by the family and friends of Robert E. Weber, who received a PhD in mathematics from IU in 1972.

The James P. Williams Memorial Award is given each year to outstanding graduate students in recognition of their performance during the first year of their graduate studies. The memorial fund was established by the family and friends of Jim Williams, a professor in our department from 1966 until his untimely death in 1983. Apart from his mathematical achievements, Williams is especially remembered for his interest in the graduate program.

The William B. Wilcox Mathematics Award fund was established in 1994 by Marie S. Wilcox to acknowledge husband William B. Wilcox's inestimable help and support to her endeavors as a mathematics teacher, lecturer, and author. Awards are given to outstanding graduate students in the

Department of Mathematics.

Alternating between the Department of Mathematics and the Department of Astronomy, the Joseph and Frances Morgan Swain Fellowship was funded in memory of Joseph Swain by his widow. Swain was a key figure in the early development of the IU Department of Mathematics.

The VIGRE fellowships, funded by the National Science Foundation, are aimed at new graduate students who show excellent promise for a productive career in mathematical research.

The Eberhard Hopf Fellowship in Applied Mathematics goes to one or two outstanding students working in the area of applied or computational mathematics. The fellowship is named for one of the best-known analysts ever to hold a position in our department.

The Glenn Schober Memorial Travel Awards are given to advanced PhD students in the Department of Mathematics. Recipients are selected by the chair and the director of graduate studies. These awards are made possible by a fund established in memory of Professor Glenn Edward Schober, who joined the IU faculty in 1966 and remained a prominent member of the faculty

until his death in 1991.

The Hazel King Thompson Fellowship is used to recruit outstanding students in mathematics. This award was made possible by Ruth E. Thompson, BA'38 (home economics), daughter of Hazel Thompson, BA'09, MSEd'49.

The Cognitive Science Outstanding Dissertation Award is granted every year by the IU Cognitive Science Fellowship Committee.

The Women in Science Graduate Fellowship program, jointly administered by the College of Arts and Sciences, the Office of Women's Affairs, and the University Graduate School, represents an effort by IU to increase the number of women in science and mathematics.

The Rothrock awards are given in memory of Dean David A. Rothrock, a member of the IU Department of Mathematics for 46 years. Everett Antrim established this scholarship in 1956 through a gift to the IU Foundation. The awards are given in recognition of excellence in the teaching of mathematics. The recipients are chosen by the Rothrock Fellowship Committee.

The Undergraduate Intern Award was established (continued on page 7)

Alumni notebook

Before 1970

Wilfred E. Rawl, BA'52, is 75 and retired and lives in Egg Harbor Township, N.J.

Michael D. Gunther, BA'69, has retired after 29 years as a statistician for IBM. A resident of Montgomery Village, Md., he travels extensively in Europe and Asia and is the owner and operator of an educational Web site, www.art-and-archaeology.com, dedicated to art history. He can be reached at mdg@art-and-archaeology.com.

1970s

Alan P. Blackwell, BA'70, and his wife, Kathleen E. Blackwell, BA'69, MS'78, live in Waxhaw, N.C. Alan works at TransAmerica Reinsurance and can be reached at ablackwell1@carolina.rr.com.

William G. Stanford III, BA'74, is an associate professor of economics at the University of Illinois at Chicago. He lives in Evanston, Ill.

Robert F. Olin, PhD'75, dean of the College of Arts and Sciences at the University of Alabama, received the 2002 Virginia B. Smith Innovative Leadership Award.

Frank J. Deveau, BA'76, JD'80, a partner/director with Sommer Barnard Ackerson, was elected to the firm's executive committee. He lives in Indianapolis.

Gregory A. Durbin, BA'78, is the new lead operations technical analyst for the

University Computing Services at Ball State University. He lives in Indianapolis.

Ben C. Mitchell, BA'78, owns his own consulting firm, Midwest Technologies. He lives in Mountain View, Calif.

1980s

John W. Marshall, BA'80, a retired Navy commander who now works for Federal Express as a pilot, lives in Mooresville, N.C.

Paul Smolensky, MS'77, PhD'81, a professor and former chair of the department of cognitive science in the Krieger School of Arts and Sciences at Johns Hopkins University, has won the fifth annual David E. Rumelhart Prize, a prestigious international award that recognizes individuals or teams making significant contributions to the formal analysis of human cognition. As the youngest scientist ever given this honor, Smolensky will receive a \$100,000 prize and deliver the award lecture at the 27th annual meeting of the Cognitive Society in Stresa, Italy, in July 2005. He lives in Lutherville, Md.

David J. Sack, MA'83, a professor of mathematics at Lincoln Land Community College in Springfield, Ill., recently had an article, "Responsibility in the Classroom," published in *Innovation Abstracts*, the weekly newsletter of the National Institute for Staff and Organizational Development. He lives in Illiopolis, Ill.

Jan A. Combs, BS'80, MS'84, BA'84, writes, "I was assigned to the 745th Forward Surgical Team during the first part of Operation Iraqi Freedom. We were with the 3rd Infantry Division as it drove on to Baghdad. During that time, our unit was awarded the Presidential Unit Citation and the Combat Medical Badge — an award given to those rendering medical care while under direct fire. I also received a Bronze Star and will be returning soon enough for OIF-3." Combs can be reached at jan_combs_md@prodigy.net.

Bill R. Padgett Jr., BA'84, and his wife, Amy Padgett, BA'86, live in Olney, Ill., with their two children, William, 10, and Abigail, 7. Bill is an OB-GYN.

Donald B. Patton, BA'88, has been promoted to manager of analysis and reporting for the Walt Disney World Compensation Department. Patton also plays percussion with the Community of Faith United Methodist Church praise band in Davenport, Fla., and volunteers weekly with Horses for Riders with Disabilities. Patton lives in Clermont, Fla., and can be reached at ChristianDrummer@cfl.rr.com.

Carol L. Rayos, C BusF'88, BA'90, married Miguel Rayos in June 2002. She is in her fifth year of teaching and lives in Los Angeles.

Craig R. Sheerin, BA'89, writes, "After eight years as a software engineer in business, I completed my MMS degree at Yale University School of Medicine and practice as a physician assistant in emergency medicine." He and his wife, Julia J. Sheerin, BS'90, live in Traverse City, Mich.

Melanie A. Ebdon-Nielsen, BA'89, of San Jose, Calif., works for IBM on an MES project in Silicon Valley.

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Alumnus honored by Colombian Academy

Oscar Mario Perdomo, PhD'00, was awarded the Premio Academia de Ciencias del Tercer Mundo by the Colombian Academy of Exact, Physical, and Natural Sciences. This is an annual award made to outstanding Colombian scientists. Perdomo is a faculty member at the Universidad del Valle.

About our awards

(continued from page 6)

in 1997 by professors Daniel Maki, Maynard Thompson, and William Wheeler to recognize and reward outstanding department service by undergraduates assisting the Finite Mathematics course.

The Thelma Abell Prize was established in 1996 to reward undergraduate or graduate students who intend to teach at the high-school level, have high scholastic merit, and demonstrate financial need.

The Ciprian Foias Prize was established in 1995 by Paul and Miriam Biss to thank Professor Foias and the Department of Mathematics for their generosity and talent in guiding the mathematical education of their son, Daniel Biss. The prize is given to an outstanding undergraduate math major.

The Ruth E. Gilliatt Memorial Scholarship was established in 1987 by Harold, Donald, Paul, and

David Gilliatt as a memorial to their sister, whose outstanding achievements reflect her hard work and dedication to education. The Gilliatt Scholarship is awarded to a student in mathematics who has performed at the highest level in a rigorous curriculum.

The Trula Sidwell Hardy Scholarship Fund was established in 1993 by Trula Sidwell Hardy, a 1924 graduate with a BA in mathematics. This fund was created to support the students in the Department of Mathematics.

The Cora B. Hennel Memorial Scholarship was established in 1958 by Cecilia Hennel Hendricks as a memorial to her sister. In 1912, Cora Hennel received the first PhD awarded in mathematics at Indiana University. Throughout her 42-year career at Indiana, Professor Hennel was known for her love of learning, excellent teaching, and commitment to being an adviser and friend to students. Hennel Scholarships are awarded to students who have demonstrated high ability in mathematics.

The Rainard Benton Robbins Prize in Mathematics was established in 1951 by Helen S. Robbins in memory of her husband. He received his AB and AM degrees in mathematics from Indiana (1909, 1910) and his PhD from Harvard (1914). Following his years at Yale and Michigan, he was with the New York Insurance Department. In 1931, he joined the Teachers Insurance and Annuity Association, where he served as secretary and vice president until 1948. The Robbins Prize is given to a student who shows promise in the study of mathematics.

The Marie S. Wilcox Scholarship was established in 1981 by Marie S. Wilcox. After graduating from Indiana University, Wilcox distinguished herself as a teacher, lecturer, and author. For many years, she also directed IU's Summer Institute for Teachers of Mathematics. The Wilcox Scholarship was established to recognize students who demonstrate a deep understanding and appreciation of mathematics and who maintain a record of high academic achievement.

Alumni notebook

(continued from page 7)

1990s

Stacy E. Maugans, BA'92, BM'92, DM'00, a noted saxophonist and scholar, was named assistant dean of Valparaiso University's College of Arts and Sciences in July 2004.

Tracy L. McEuen, BA'92, has moved back to her hometown of Evansville, Ind., and is now a brand manager for Mead Johnson Nutritionals.

John P. Saxon, MA'92, returned to the United States after spending five years in Japan. He now works for LSI Logic in Colorado Springs, Colo.

Charity McCoy Zink, BA'94, MS'95, writes, "I do neuroscience research at Eli Lilly & Co. I had a baby boy named Carter Daniel Zink in March 2002."

2000s

Jill (Roszkowski) O'Brien, BA'01, married Morgan Joseph O'Brien III in July 2004 in Covington, Ky. Jill and Joseph, who are both first lieutenants in the U.S. Air Force, are stationed at Wright-Patterson Air Force Base in Ohio, where she is an acquisitions officer for the Aeronautical Systems Center and he is a public affairs officer for the Air Force Research Laboratory. She can be reached at jill.roszkowski@wpafb.af.mil.

Mathematics

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Mathematics Alumni: What's new with you?

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