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Math Department Newsletter, 1999

University of Dayton. Department of Mathematics

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The University of Dayton _____ **1999**
Mathematics Department
NEWSLETTER

Editor's Note: In early January, every alumna and alumnus of the mathematics department should receive a hard copy of this newsletter via the US Mail. If you did not receive your copy, please send your correct mailing address to the alumni office.

CHAIRPERSON'S MESSAGE

This will be my last newsletter as Chair, since I will be stepping down on June 30, 2000, after 12 years in the position. Paul Eloë will be my successor as Chair. I will be taking a welcomed sabbatical and then return to full-time teaching for a while. Looking back, there have been many changes over the years. When I began my first term, we were just beginning to get a few computers in the Department; this year we have been scrambling to update "old" equipment to make sure everything is Y2K compatible as we begin the Winter 2000 semester. With the rapidly changing computer technology, it has been a constant struggle to keep our equipment up to date. Even though all of our computers have now been pronounced Y2K compatible, many of them have insufficient memory for the faculty to run Lotus Notes, which is the communication software loaded into the computers that all first year students own. Of course, this problem will eventually be solved because each year we replace a certain proportion of older machines with new ones. However, I'm just as sure that newer technology problems will emerge.

The renewal of the Department due to retirements is continuing on schedule. We hired two new tenure-track faculty members for the 1999-2000 academic year: Dr. Joan Hart, who earned her degree in set theory at the University of Wisconsin in 1996 under the direction of Professor Kenneth Kunen, and Dr. Youssef Raffoul, who earned his degree in difference equations at Southern Illinois University at Carbondale in 1996 under the direction of Professor John Hooker. In addition, we hired a new Lecturer: Glen Lobo, who has a solid background in applied mathematics, and came to us with nine years of full-time teaching experience. We currently have search committees in place for two more tenure-track positions, one as a replacement for Bill Friel, who retired in April, 1999, and one for Jerry Strange, who retired in December, 1999. Our goal is to hire two new people who can strengthen the research currently going on in the areas of combinatorics and statistics.

The much anticipated renovation and establishment of a modern science center finally looks like might happen. The administration has made a financial commitment of 16 million dollars to

begin the project, which will be a new structure joining Sherman and Wohlleben Halls, from front to back. The new structure will contain the department offices of all the departments in these two buildings, most of the faculty offices, several new classroom and laboratory teaching spaces, and a shared lecture hall to be equipped with the latest multi-media technology. The target date for ground breaking for this first phase is the spring of 2001. The remaining phases will follow as funds become available. The total cost estimate for the completed project is in the neighborhood of 40 million dollars.

In planning for the next Biennial Alumni Seminar, which will occur in the spring of 2001, I would like to assemble a planning committee of alumni/ae. If you are interested in being a member of this planning committee, please let me know by e-mail (gantner@udayton.edu).

On behalf of the faculty and students of the Department of Mathematics, I wish you all a happy holiday season and a very good year in 2000.

Tom Gantner

THANKS!

We wish to acknowledge the alumni, friends and faculty who have specified that their gifts to the University of Dayton be directed to the Department of Mathematics. As we approached the Y2K problem, your generosity has provided us with matching funds to upgrade fourteen computer systems that were not Y2K compatible with the campus network. These are the systems used by the faculty to communicate with their students over the campus network and for preparing materials for classroom use, such as notes, overhead projector slides, tests, and so on. According to the University Advancement Office, the following people have made a total of \$5,175 in such designated gifts to the Department of Mathematics since December 1998:

Timothy (91) & Christine McGinnis (91) Bahmer
Mr. & Mrs. Jonathan E. Baniak (81)
Mr. & Mrs. Ronald L. Beisel (63) Alan (55) & Lydia Powers (57) Berens
Mark (94) & Tereza Buzdon (95)
Bouffard Charles (70) & Kathleen DeWald (70) Brinkman Dr. & Mrs. Paul J. Campbell (67) B.
Thomas (75) & Catherine Crabbe (75) Carr
Dr. & Mrs. Franklin D. Demana (60)
Paul & Laura Schneider (84) Elo
Susan Miller Enyart (81)
Mr. & Mrs. J. William Friel
Dr. & Mrs. Thomas E. Gantner (62)
David (78) & Sandra Komarinski (78) Gantose
Mr. & Mrs. Michael J. Hartke (66)
William & Aparna Higgins
Lawrence (67) & Sue Stephan (67) Hoffman
Dr. & Mrs. William J. Huster (78)
Mr. & Mrs. Paul S. Judd (82)
Paul W. Kollner (88)
Francis Marchiony (80) & Mary Askey (79)
Mr. & Mrs. George Morrison III (82)
Dr. & Mrs. Charles F. Mott (61)
Edward (76) & Mary Herrig (76) Mykytka
Mr. & Mrs. Timothy J. Rice (88)

Christopher J. Roesmer (81)
Dr. & Mrs. Richard G. Segers (50)
Mr. & Mrs. Randall J. Smith (77)
Thomas (72) & Patricia Sobieralski
Mr. Robert W. Springer (77)

The above total includes employee matching gifts from the following corporations and foundations:

Boeing Company
Bunge Corporation
Fidelity Invest. Charitable Fund
IBM Foundation
Independent Colleges IN Fund.
Lockheed Martin Corporation
Principal Financial Group Fund.
Towers Perrin Co.

We also express thanks to Bill Friel, who has donated his entire collection of collegiate-level mathematics journals for the Department of Mathematics library, along with a monetary donation sufficient to have the entire collection of journals bound into volumes. Finally, it should be noted that Paul Campbell continues to donate several cartons per year of new mathematics books at the graduate-research level for our departmental library.

THE KENNETH C. SCHRAUT MEMORIAL LECTURESHIP FUND

This Fund, established in Doc Schraut's memory for the purpose of sponsoring invited lectures by noted mathematicians for undergraduate students, continues to grow. At the present time we have available \$750 from the endowment which will be used next term for the inaugural lecture. It's current market value is almost \$18,000, which includes gifts made during the past year totaling \$3,300 from the following:

Abbott Laboratories Fund
Mr. & Mrs. Neil A. Bitzenhofer
Eugene Bolzan & Lois Scaife
Joseph & Joan Sander Chmiel
James B. Cutter
Richard & Leslie Kirchmer Iannarino
Timothy C. Kelaghan
Philip & Sarah O'Connell Militello
The NCR Foundation
Mr. & Mrs. Daniel J Riehle
Peter J. Schuler, M.D.
Pamela & Ronald Steinkirchner
Dr. & Mrs. C. Eugene Steuerle

Additional contributions to the Fund may be made at any time. They may be sent directly to the Department of Mathematics, or you may send them to the University Advancement Office (the account number for the Fund is 49018).

FACULTY UPDATE

Full Time Faculty

Wiebke Diestelkamp, 1998
Paul Eloë, 1980
Tom Gantner, 1966

Glen Lobo, 1999
Jack McCloskey, 1965
Harry Mushenheim, 1965

Bob Gorton, 1969
Joan Hart, 1999
Aparna Higgins, 1984
Jennifer Hontz, 1998
Muhammad Islam, 1985
John Kauflin, 1966

Youssef Raffoul, 1999
Paula Saintignon, 1983
Carroll Schleppi, 1984
Gerry Shaughnessy, 1967
Ralph Steinlage, 1966
Joe Mashburn, 1981

Part Time Faculty

Dipankar Basu, 1998
Martha Carter, 1997
Eric Cheney, 1989
Timothy Daniel, 1998
Cheryl Edelmann, 1999
Bob Finnegan, 1985
John Wulber, 1998

Don Jurick, 1991
Karen Mickel, 1992
Shirley Ober, 1977
John Pfetzing, 1997
Betty Schneider, 1989
Les Steinlage, 1969

Professors Emeriti

Stanley Back, 1998
Bill Friel, 1963
Jerry Neff, 1990
Jerry Strange, 1958

Richard Peterson, 1998
Ben Rice, 1998
Joe Stander, SM, 1959

NEW FACULTY

We hired two new faculty members beginning August, 1999 to replace Professors Ben Rice and Joe Stander, who recently retired. We are seeking to hire two new faculty members for August, 2000, to replace Professor Friel, who retired in April, 1999, and Professor Strange, who retired in December, 1999. Joan Hart earned a Ph.D. in mathematics with a minor in computer science in 1996 from the University of Wisconsin--Madison. She has just completed a three year Postdoctoral Teaching and Research Fellowship at Union College in Schenectady, New York. She pursues research in set theory and its applications to topology, measure theory and functional analysis. She also studies automated reasoning and its applications to algebra. During the Fall, 1999, she visited the University of Wisconsin--Madison and in November she taught their graduate Seminar in Foundations. Please visit her website:

<http://homepages.udayton.edu/~hartjoan>. Youssef Raffoul earned a Ph.D. in mathematics from the Southern Illinois University in 1996. He is an alumnus (MTH 87, MS 89). Youssef most recently served on the faculty at Tougaloo College in Mississippi where he served as Chair of the Department of Mathematics. He studies the qualitative properties of solutions of functional equations; he is expected to help support our efforts with the MS program in applied mathematics. There was an omission in last year's Newsletter that we correct here. (Actually, the correction was made to the electronic Newsletter.) Youssef was another alumnus who spoke in Paul Elloe's Special Session on Boundary Value Problems in Louisville, KY. Glen Lobo joined the Department of Mathematics in August, 1999 as a lecturer. Prior to joining our department, he served as an assistant professor of mathematics at Ferris State University in Michigan. Glen is married to Wiebke Diestelkamp.

NEW SECRETARY

Carol Carver resigned as secretary following five years of wonderful service. Carol's husband, Ron, accepted a new position and they relocated to Cincinnati. We anticipate that they will finally relocate in northern Kentucky so that they will be closer to their boat which lives in southern Kentucky. Vicki Seals has joined us as our new secretary. Vicki, her husband Allen,

and their three children, Sarah (10), Kevin (7) and Emily (3), live in Beavercreek. Sarah and Kevin attend the St. Helens School.

FACULTY ACTIVITIES

Paul Eloe continues to study differential equations and enjoys his collaborations with the MS candidates. He is organizing a Special Session of the American Mathematical Society in Differential Inequalities and Applications the upcoming meeting at the University of Notre Dame in April, 2000. He looks forward to seeing Jeffrey Diller (MTH 88) at the same meeting. Jeff is organizing a Special Session in Several Complex Variables. Paul has agreed to chair the Department of Mathematics and anticipates assuming those duties beginning July 1, 2000. Muhammad Islam's recent publication efforts include:

Refracting system for annular Gaussian-to-Bessel beam transformation, *Appl. Opt.*, 37 (1998), 649-652.

Two element refracting system for annular Gaussian-to-Bessel transformation, *Appl. Opt.*, 37 (1998), 4206-4209.

Monotone methods and fourth order Lidstone boundary value problems with impulse effects, *Comm. Appl. Anal.* 5 (2000), to appear.

Uniform asymptotic stability in linear Volterra integrodifferential equations with application to delay systems, *Dynam. Systems Appls.*, to appear. Islam gave a one-hour lecture on boundary value problems with impulse at the Ninth International Colloquium on Differential Equations in Plovdiv, Bulgaria, in August, 1998 and he delivered a one-hour lecture on teaching undergraduate mathematics with computer technology at the Mathematics Seminar at North South University, Dhaka, Bangladesh, December, 1998. He intends to assume the position of Director of the Graduate Program beginning July 1, 2000. Joe Mashburn spent his sabbatical during the Fall, 1998 at Miami University. He worked with Zoltan Balogh and Dennis Burke; he also worked with Gary Gruenhagen who was visiting from Auburn University. Two papers will appear, based on these collaborations. "On the decomposition of order-separable posets of countable width into chains" will appear in the journal *Order*. "OIF spaces" will appear in the journal *Questions and Answers in General Topology*. Joe presented a talk on "OIF spaces" at the Spring Topology Conference that took place in March, 1999 at the University of Utah. Ralph Steinlage continues to study fuzzy mathematics and its applications. In August, 1999, he delivered two papers, "Eigenvector approach for analyzing human perception using a fuzzy mathematical model" and "A survey of the development of compactness concepts in fuzzy topology" at the eighth International Fuzzy Systems Association World Congress in Taipei, Taiwan. He also organized and chaired the session "A Special Day to Commemorate the 30th Anniversary of Fuzzy Topology" at the same meeting.

PROMOTION

Aparna Higgins and Muhammad Islam were each promoted to the full rank of Professor during the Fall term, 1999. Each application has been approved through the Dean's level. The official approval will be sought at the January 2000 meeting of the Board of Trustees. Congratulations are in order.

RETIREMENTS

Bill Friel retired from full time service to the University of Dayton in May, 1999. He plans to remain active in the mathematics community. He will continue to teach one class per term; in the spring, 1999, he was elected to a 4-year term as Secretary/Treasurer of the Ohio Section of

the Mathematics Association of America; he continues to be the webmaster for the departmental web page. Jerry Strange retired from full time service in December, 1999.

PROFESSORS EMERITI

Stan Back, Dick Peterson, Ben Rice and Brother Joe Stander all still live in the Dayton area and can be found attending some of the departmental social functions. They manage to fill their retirement hours with "golden buckeye" activities such as traveling, golfing, grand parenting, etc. Ben continues to teach, usually during the Fall term when we need him most.

UNDERGRADUATE ACTIVITIES

Kristin Blenk gave a talk entitled "Practical optimization techniques for Cession strategies in automobile insurance" at Miami University's 25th Annual Pi Mu Epsilon Student Conference, in September, 1998. Geoffrey Dietz gave a talk on "Quantum projective three spaces which embed wieghted quantum planes " at the same meeting. Kristin Blenk, Matt Carroll, Geoffrey Dietz, Timothy Denehy, Stephen Hartke, Katherine Hesketh, Rachel Kenney, Jennifer Mifflin, Ryan Reinhart, Julie Wenning and Bryan Woerner participated in the Putnam Mathematical Competition in December, 1998. There were 2581 contestants from 419 institutions. Our team's rank was 118 and Stephen Hartke was ranked in the top 500. Kristin Blenk presented a poster, same title as her Miami talk, at the Joint meetings of the AMS-MAA in San Antonio in January, 1999. Geoffrey Deitz and Stephen Hartke each spoke in AMS sessions at the San Antonio meetings. Geoffrey's title was the same as his Miami talk and Stephen talked on "Binary De Bruijn cycles under different equivalence relations." Each presentation was the result of the respective student's efforts at a Summer REU program. The team of Kristin Blenk, Matt Carroll and Geoffrey Dietz won the ranking of Meritorious in the 1999 Mathematical Contest in Modeling. (Note that this same team won the same ranking in 1998). They developed a mathematical model to decide what number to post on a "maximum capacity " sign as being the "lawful capacity." Solutions were to discuss criteria other than public safety criteria. A Meritorious ranking placed this team in the top 20% of 478 teams representing 229 institutions from 9 countries. In March, the MAA Student Chapter and PME hosted the fourth annual High School Mathematics Contest. (Last year's Newsletter erroneously announced the second competition; it was, in fact the third competition.) 41 teams from seven different schools participated. Geoffrey Dietz participated in an REU program at the University of Tennessee, Knoxville (UTK), during the Summer, 1999. Geoffrey worked with Professor Dobbs and a joint paper has been submitted for publication. Recent graduate, Andrew Hetzel, also worked with Professor Dobbs; Andrew is currently in his second year as a graduate student at UTK. Stephen Hartke produced two papers for publication during his undergraduate studies at the University of Dayton. Stephen's paper, co-authored with Aparna Higgins, "Maximum degree growth of the iterated line graph," has appeared in the Electronic Journal of Combinatorics, 6 (1999), #R28. See http://www.combinatorics.org/Volume_6/v6i1toc.html. This paper is the result of work related to his Honor's Thesis. A second paper, "Binary De Bruijn cycles under different equivalence relations," has been accepted for publication in Discrete Mathematics. This work is the result of Stephan's efforts at an REU program during the Summer, 1998. Stephen Hartke received many awards and honors during his final year of undergraduate studies at the University of Dayton. He won the Senior of the Year award, He won an NSF Graduate Fellowship Award, and he won one of Sigma Xi's Undergraduate Research Awards. Robert Phipps won the Sophomore of the Year award.

GRADUATE ACTIVITIES

Sola Majekodunmi obtained a Master of Science degree in applied mathematics. Sola, under the supervision of Jack McCloskey, performed "An analysis of survey on how project managers attempt to influence their team members" for her mathematics clinic project. Edwin Swann

obtained a Master of Science degree in applied mathematics. Edwin, under the supervision of Paul Eloë, performed "A finite difference approach to a boundary value problem with a removable singularity" for his mathematics clinic project. Boon Yi Soon has not yet graduated, but he did complete his mathematics clinic requirement. Boon Yi, under the supervision of Paul Eloë, studied "The fast Fourier transform method and ill-conditioned matrices" for his mathematics clinic project. A joint paper, which includes co-author David Kammler of Southern Illinois University, has been accepted for publication in the journal, Applied Mathematics and Computation.

ALUMNI ACTIVITIES

A portion of the following information was obtained from the UD Quarterly.

Patrick Luby (MTH 50) received an honorary recognition award from the College of Agricultural and Life Sciences at the University of Wisconsin-Madison. This is the highest honor bestowed by the college.

Thomas Grilliot (MTH 63) lives in West Milton, OH.

David Schweickart (MTH 64) and his wife, Patrocínio, live in Chicago where he is a professor of philosophy at Loyola University. His book *Against Capitalism* was recently translated into Spanish under the title *Mas alla del Capitalism*.

Joseph McGrath (MTH 68) is an applications engineer for Silicon Graphics in Los Alamos, NM, where he is working on an accelerated scientific computing initiative. He and his wife, Susan, have three children.

Gene Steuerle (MTH 68) was highlighted in the UD Quarterly, Spring 1999, V 8, No 3. He is lead of author of the recent book, *The Government We Deserve*. He is currently a senior fellow at the Urban Institute. He has served in the Department of the Treasury under four presidents, was the principal organizer and designer of the study that led to the Tax Reform Act of 1986, and he has served as deputy assistant secretary for tax analysis.

Gregory Campbell (MTH 70) Of the Center for Devices and Radiological Health, Food and Drug Administration, is offering a short course on "Fuzzy Sets and Statistics, With Application to Biomedicine" at this year's winter joint mathematics meetings in Washington, D.C.

Linda Persinger (MTH 70) married Dennis Carpenter Nov. 22, 1997. The couple lives in Dayton where Linda is a computer specialist at Wright-Patterson Air Force Base. Linda has a grandson, Ryan (6/29/94.)

Glen Grimme (CPS, MTH 71) lives in Raleigh, NC and has two children, Alison and Jason. He is a marketing analyst for data warehousing, data mining and data analysis for the SAS Institute in Research Triangle Park.

William Novak (MTH 74) is a director of business resources at Eastman Kodak Co. William lives with his wife, Anne, in Agoura Hills, CA.

Joseph Severs (MTH 76) and his wife, Debra Gantt, announce the birth of John (8/5/98) who joins Michelle (12/8/95) at home in Suffern NY. Joseph is a senior biostatistician at WyethLederle Vaccines and Pediatrics.

John Brogan (MTH 81) is on a tenure track as an assistant professor of religion at Northwestern College in Orange City, IA. He earned a doctorate in May 1997 from Duke University, with Phi Beta Kappa honors, in the field of New Testament and Christian origins. He and his wife, Kathy, have two children.

Paul Judd (MTH 82) continues to live and work in Des Moines with his wife, Linda, and four daughters. Paul has recently been teaching as adjunct faculty for Drake University (of the football Pioneer Conference). Admittedly a Drake fan, he continues to root for the University of Dayton when those two schools annually meet to determine the conference champion.

George Morrison III (MTA 82) was named head of Towers Perrin's Cincinnati health and welfare practice. He has had more than fifteen years of experience in designing and pricing employee benefits programs. He is a fellow of the Society of Actuaries.

Mary Reffner Skalicky (MTH 85) and Robert Skalicky (MEE) live in Farmington, NY with their two children. They have "moved to New York to escape the warm weather of the South."

Jeffrey Diller (MTH 88) currently holds a tenure track position in the Department of Mathematics at the University of Notre Dame.

Tom Bohman (MTH 91) Completed his post doctoral experience and has taken a tenure track position at Carnegie Mellon.

Chikako Mese (MTH/PHY 91) completed a three year post doc at the University of Southern California. She currently holds a tenure track position at Connecticut College. We look forward to seeing her at this year's winter meetings in Washington D.C.

Craig Murin (MTH 91) and his wife, Lisa, announce the birth of Matthew John. Craig has changed jobs and now teaches mathematics at Manasquan High School in New Jersey. He also coaches swimming and golf.

Cheryl Prenger Edelmann (MTH 92) and husband, David (ELE 93) announce the birth of Anthony, 2/3/99. Cheryl now teaches statistics for us as an adjunct faculty member.

Elizabeth Paulus Brown (MTH 93) and Michael Brown (EDE) live in Milwaukee where Elizabeth teaches mathematics at Thomas More High School and Michael is principal at St. Philip Neri School.

Kristine Fromm (MTH 93) married Michael Wills on August 9, 1997. They live in VA where Kristine is an analyst for Systems Planning and Analysis. Kristine earned here doctorate from Northwestern University in 1998.

Kristen Toft Lampe (MTH 93) earned her doctorate in mathematics from Washington University in St. Louis. She and her husband, Peter, obtained tenure track positions in the Department of Mathematics and Computer Science at the University of Wisconsin-Whitewater.

Stephen Goodman (MTH 95) and spouse, Loren Metivier (MUT) live in Black wood, NJ. Stephen teaches at St. Joseph's Preparatory School.

Janet McKelvey (MS 96) has recently been promoted and now works as an Operations Research Analyst for the Department of Defense. She continues to live in Columbus and recently we enjoyed her impromptu visit to the UD campus.

RECENT GRADUATES

Kristin Blenk entered a Ph.D. program in statistics at the Ohio State University. Kristin has received a two year fellowship; the fellowship automatically converts to an assistantship after two years. Stephen Hartke entered a Ph.D. program at Rutgers; he is supported by an NSF Graduate Fellowship. Elizabeth Lockard teaches mathematics at Fairmont High School in Kettering. Rachael Kenney is continuing her study at the University of Dayton for a fifth year. She is enrolled in the graduate program here and is also seeking certification to teach at the secondary level. She will student teach during the Winter term; she is employed as a Graduate Assistant during the Fall and Summer terms. Julie Wenning entered a Ph.D. program in operations research at Washington University. She received a fellowship for her first term; the fellowship converts automatically to an assistantship.