

The Math Log

Newsletter of the University of North Dakota
Mathematics Department

Two New Professors Join the Department

This fall we welcome Dr. Michael Minnotte and Dr. Doojin Hong to the Mathematics Department.

Michael Minnotte (pronounced min-NOT-ty) received his Ph.D. from Rice University in 1993. His specialty area is statistics, or more specifically, nonparametric modeling and data visualization. Mike comes with a lot of experience. He began work at Utah State University in 1992 (one year before formally receiving his Ph.D.) and continued in that position until he came here this fall. During this period Mike traveled to several different places to conduct research. He has spent summers at George Mason University, the Naval Surface Warfare Center (both of which are located in the state of Virginia), and the Australian National University, in Canberra, Australia. In fact, he spent a one-year sabbatical at the Australian National University.

Mike has published ten refereed articles and has authored a chapter of a book. He has advised several master's degree students and served on several Ph.D. committees. He has served as an associate editor for three journals: the *American Statistician*, the *Journal of Computational and Graphical Statistics*, and *Computational Statistics*. He was a co-chair of the 2003 national meeting of the "Symposium on the Interface: Computing Science and Statistics," which was held in Salt Lake City, Utah.

While growing up, Mike has lived in Detroit, Michigan, Corpus Christi, Texas, and Memphis, Tennessee. Mike and his wife Krista Lynn live in Grand Forks. Krista Lynn also has a Ph.D. and works in UND's Sociology Department. For hobbies, Mike enjoys reading and games of all kinds!

The Mathematics Department also welcomes **Doojin Hong** this fall. Doojin is originally from Seoul, South Korea. His mathematical specialty is differential geometry, and the title of his dissertation is "Spectra of higher spin operators." After earning his Ph.D. from the University of Iowa in 2004, Doojin first worked at Grinnell College in Grinnell, Iowa, and at the University of Wisconsin-Fond du Lac. Doojin then did postdoctoral work at the Eduard Čech Center in the Czech Republic and at



Michael Minnotte

Seoul National University in South Korea. Doojin has traveled to numerous places around the world to attend mathematical conferences and workshops and to visit with research collaborators. These travels have taken him to such places as Palo Alto, California, Banff, Alberta, Vienna, Austria, Lisbon, Portugal, Auckland New Zealand, and Beirut Lebanon. In 2002, he attended the Midwest Geometry Conference right here in Grand Forks!

Doojin is married to Eun Jung Youn. Eun Jung's name is difficult for Americans to pronounce, so she goes by the nickname "E.J." E.J. also has a Ph.D. in mathematics from the University of Iowa, where she specialized in topology. E.J. worked as an Assistant Professor at the University of Wisconsin-Fond du Lac before coming to Grand Forks with Doojin this fall. Doojin and E.J. live with their daughter Sarah, who is now four years old.

We welcome Doojin, Mike, and their families to UND and to Grand Forks!

New Lecturer in the Department

This fall **Kusum Sharma** has joined the Mathematics Department as a lecturer. She is originally from New Delhi, India, but is now a Canadian citizen. Her highest academic degree is a master of science in mathematics, which she earned from Delhi University in 1981. She has taught classes in New Delhi, India, Winnipeg, Manitoba, and Crookston, Minnesota. Aside from teaching, Kusum enjoys listening to music, watching movies, playing badminton, and collecting books. Welcome to the Mathematics Department!

One More Student Receives Master's Degree

Jeanna Schultz will graduate with her master's degree at the end of the current fall semester. The title of Jeanna's independent study report is "Parrondo's Paradox." She has two advisers: Dr. **Gerri Dunnigan** and Dr. **John Collings**. Congratulations Jeanna! And good luck in the future!

New GTA's

Several new graduate teaching assistants (GTA's) started work here in the Mathematics Department this fall.

Amy Borgen is from Badger, Minnesota. She earned her bachelor's degree from Bemidji State University, where she studied mathematics and grade 5-12 education. Amy enjoys distance running, volleyball, and logic puzzles.

TJ Chapman is from Hibbing, Minnesota. TJ also graduated from Bemidji State University. His majors were mathematics and music. He has a degree in tuba performance. For many of the summers over the past few years, TJ has worked with his uncle on a dairy farm.

Kalyan Reddy Endapally is a native of Hyderabad, India. He did his undergraduate studies in India at the Jawaharlal Nehru Technological University, in Hyderabad, where he majored in mechanical engineering. He enjoys reading books, watching cricket, and playing tennis. He says that if he had been more wealthy, he would have become a politician!

Catherine Stitt is originally from Pleasant Hill, California. She received her bachelor's degree from Mills College, where she majored in mathematics. In her spare time, Catherine likes to swim, run, and ride her bicycle. Her favorite author is Bill Bryson.

We welcome all of you!

Michele Iiams Earns Tenure

Dr. **Michele Iiams** has been promoted to the rank of Associate Professor and has been granted tenure effective with Fall Semester 2007. Michele has served in her current tenure-track position here in the Mathematics Department since 2001, and she had previously worked as a lecturer for the department. Michele holds a Ph.D. in education from UND. Congratulations to Michele!

Tom Gilsdorf Returns From Mexico

Professor **Tom Gilsdorf** has returned from a one-year leave of absence. He spent last year at the Instituto Tecnológico Autónomo de México (the Technical Institute of Mexico) in Mexico City. Tom's leave of absence was the result of a Fulbright scholarship. (See the Fall 2006 issue of the Math Log for more information on this scholarship.)

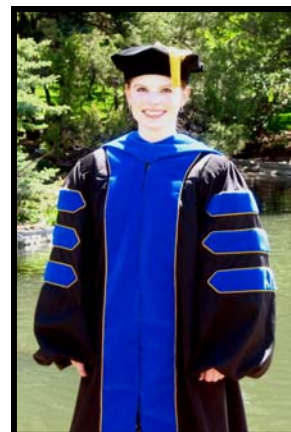
During his year in Mexico City, Tom taught calculus, linear algebra, and a course in "ethnomathematics," i.e. the mathematics of various different ethnic groups and cultures around the world. He also attended four mathematical conferences. Two of them were in Mexico City, and the others were in the towns of Villahermosa, Tabasco, and Pachuca, Hidalgo. (Tabasco and Hidalgo are states, much like the fifty states of the US.) Tom says that in the course of the four conferences, all of the presentations except for one were in Spanish, and all of his teaching was in Spanish!

Where They Are and What They Are Up To

Nathan Axvig (BS 2005) is studying for a Ph.D. in mathematics at University of Nebraska-Lincoln. He has passed his qualifying exams as well as his comprehensive exams and has started doing research in coding theory.

Melissa (Mayers) Bingham (MS 2004) lives with her husband in Ames Iowa, and is working on a Ph.D. in statistics at Iowa State University. She passed her preliminary exams in the summer of 2006 and finished her coursework last spring (spring 2007). Melissa is currently working on research in collaboration with Ames Lab, and this research will eventually become her dissertation. While at Iowa State, Melissa has also taught Intro Stats for Engineers for three semesters, for which she received an Excellence in Graduate Teaching award! She plans to graduate in the spring of 2009 and then pursue a career in academia. She says that she would love to come back and be a professor at UND someday!

Jennifer Froelich (BS 2003) is studying mathematics at the University of Iowa. She completed her comprehensive exams in August 2006 and plans to receive her Ph.D. in the summer of 2008. Jennifer has been working with her thesis adviser for approximately two years now and is doing research in representation theory. The title of her thesis is “Universal Deformation Rings Related to the Symmetric Group on Five Elements.” Jennifer was one of four graduate student organizers of The University of Iowa’s Sonia Kovalevsky Day. In addition, she has been on the Math Grads Board for two years. Jennifer says that her studies here at UND provided good preparation for graduate school, and she thanks the people here who encouraged her to undertake Ph.D. studies at the University of Iowa!



Rachael Welder

Sofokli Garo (MEd 2005) is working on a Ph.D. in education right here at UND. He has finished his coursework and is working on his dissertation. In his dissertation, he is analyzing and comparing educational practices in the U.S. with those of native country, Albania. Specifically, he is comparing educational practices and student achievement at the Algebra I level. Sofokli has traveled to Albania to conduct some of the research associated with his dissertation. He has also gathered data from schools in Grand Forks, East Grand Forks, and Thompson, North Dakota. Sofokli currently works as a GTA (graduate teaching assistant) here at UND. He is hoping to graduate in May of 2008. After graduation, he plans either to teach mathematics or to obtain a position in an education department at a college or university.

Rachael Welder (MS 2003) earned a Ph.D. in Mathematics with a specialization in Mathematics Education from Montana State University in May of 2007. She has joined the faculty of the City University of New York, Hunter College, as a tenure-track Assistant Professor in both the Department of Mathematics and Statistics and the Department of Curriculum and Teaching. Rachael lives in New York City, with her husband Sean and their two cats.

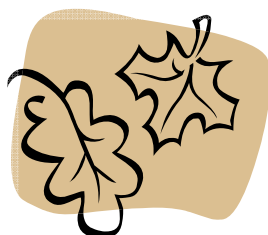
Carl Olimb (MS 2004) is working on a Ph.D. in mathematics at Montana State University. He passed his comprehensive exams in analysis, topology, and dynamics last year and is currently doing research in algebraic topology, specifically, tiling spaces. Like many graduate students, Carl is also teaching. This semester he is teaching multivariable calculus, and he finds this activity to be an enriching experience. On a personal note, Carl got married last year. Carl and his wife live in Bozeman, Montana, with their two dogs. He expects to graduate from Montana State within the next year or two. Carl says he feels a great depth of gratitude for the mathematical preparation he received here at UND!

Robbie Wieler (MS 2001) is currently living in Milwaukee, Wisconsin, and has a job teaching at a community college there. The University of Wisconsin at Madison is not far away. Robbie plans to take further courses at UW-Madison and transfer them to the Ph.D. program at the University of Iowa.

We would like to thank our alumni for the news that they have provided! If you have things to report about your own activities, please let us know! Even if you are not a Ph.D. student or the CEO of a major corporation, we still would like to hear from you!

Special UND Programs Helps Middle School Teachers

UND Mathematics faculty members Dr. **Michele Iiams** and Dr. **Ryan Zerr**, together with faculty members from several other UND departments, are currently working on a special outreach program for middle school and high school teachers. The program is entitled “Science, Mathematics, and Engineering for Teachers” and is funded by a three-year \$1.5 million grant from the North Dakota Department of Public Instruction. The program allows current high school and middle school teachers in North Dakota to take UND courses and thereby improve their teaching effectiveness. One of the goals of the program is to respond to the No Child Left Behind Act, a law recently passed by the U.S. Congress which is intended to im-



prove education in the United States.

The participants in the program may study in one of several areas. These areas include Biology, Chemistry, or Physics for High School Teachers, Middle School Science, or Middle School Mathematics. Michele and Ryan are involved with the Middle School Mathematics portion of the program. Participants in the Mathematics program may earn a certificate from UND by taking fifteen hours of coursework over a three-year period.

The program began in the summer of 2007. During the summer, Michele and Ryan taught a two-week course on “Algebra and Geometry for Middle School Teachers.” The purpose of the course was for students to study the “content area,” i.e. mathematics itself as opposed to teaching pedagogy. Ryan says that the algebra portion of the course focused on problem solving activities. Students earned three credits for the Algebra and Geometry course as a whole. The plan is to offer similar three-credit courses on Probability and Statistics for Middle School in the summer of 2008 and Calculus Concepts in the summer of 2009.

These summer courses are offered on the UND campus. During the academic year following each summer course, the Mathematics Department will offer a two-credit course entitled “Practicum in Middle School Mathematics.” This course will be taught on-line via the Internet and so-called “streaming audio-visual” technology. What this means is that instead of coming to the UND campus, each student will stay in his or her hometown and view the teacher and the other students on a computer screen. A telecommunications system will enable the students and the teacher to converse.

During the practicum course, each student will work on a research project which will involve assessing how well middle school students learn mathematics and finding ways to improve student learning. Although a student may work on three separate research projects over the course of the three-year program, it is possible that each project may build upon the project from the preceding year.

The Science, Mathematics, and Engineering for Teachers program is funded by the grant from the Department of Public Instruction. The grant covers tuition, room, and board for all participating students. Early in the spring semester of 2008, the program will be accepting applications from North Dakota teachers interested in participating in the program during the following summer. If you yourself happen to be a teacher in North Dakota, you are encouraged to apply! You may do so even if you have not participated up until now. Further information is available on the Web at

<http://www.scenmat.und.edu/>

We are grateful to Michele and Ryan for their contribution to the outreach mission of the Mathematics Department! We are also grateful to UND Mathematics faculty member Dr. **Cheryl Halcrow** for her involvement in the drafting of the original proposal that led to the \$1.5 million grant from the Department of Public Instruction!

Faculty Footnotes

Bruce Dearden is on leave of absence for the 2007-2008 academic year. He is conducting mathematical research at Arizona State University.

Thomas P. Branson and **Doojin Hong** have published the article “Translation to Bundle Operators” in the journal *Symmetry, Integrability and Geometry: Methods and Applications*.

Michele Iiams has published the article “Our Voyage with Knowing and Teaching Elementary Mathematics” in the journal *Teaching Children Mathematics*.

Larry Peterson has compiled and edited the article “Future directions of research in geometry: A summary of the panel discussion at the 2007 Midwest Geometry Conference.” This article has appeared in the journal *Symmetry, Integrability and Geometry: Methods and Applications* (the same journal as Doojin Hong’s article).

The Pseudo-Sum

by Larry Peterson



As usual, things continue to change here in the Mathematics Department and around the UND campus! Perhaps you have heard that **Charles Kupchella**, the current president of the University of North Dakota, has announced his plans to retire at the end of the current academic year. Kupchella has served as president since Fall Semester 1999. A committee is currently searching for a new president and has narrowed the list of applicants down to five people. If things go according to plan, each of these five candidates will have a formal interview here on the UND campus in January of 2008. Interestingly enough, one of the five people on the short list has ties to the UND Mathematics Department! **Bruce Smith** graduated from UND in 1970 with a bachelor of science in mathematics and education and is currently the dean of UND’s John D. Odegard School of Aerospace Sciences. While a student, Smith also played football for UND.

And while we are on the topic of sports, I would also like to note that UND will soon be moving to Division I athletics! For many years, collegiate athletic teams in the US have been grouped into several divisions. Division I is the highest division, which includes most of the larger schools. For many years, UND's hockey program has belonged to Division I. The Sioux hockey team has played against such teams as Minnesota, Wisconsin, Colorado College, Alaska Anchorage, and others. Up until now, UND teams in other sports have competed at the Division II level. The process of moving these other UND athletic programs to Division I is likely to take a few years. In any case, UND sports fans will soon see some new teams coming to Grand Forks. UND will gain more of a reputation as a big school, and this may affect the University in ways that extend beyond athletics itself!

Another way in which UND is changing involves the buildings on the campus. In the last couple of issues of this *Math Log* newsletter, I have mentioned a new automobile parking ramp. The ramp itself is now open, but workers are still finishing the pedestrian bridge, or "skywalk," connecting the parking ramp to a tower on the other side of Columbia Road. Over the course of the past summer, the contractor assembled the frame for the skywalk in the parking lot across from the ramp. Then one day crews hoisted the frame into place above Columbia Road. Since then, workers have been installing the exterior of the skywalk.

On cold winter days, we will be able to go across Columbia Road via the indoor skywalk, through an indoor hallway within the parking ramp itself, down an elevator, and through tunnels and hallways to the Memorial Union and several other buildings, including Abbott Hall, which is next door to Witmer Hall, the home of the Mathematics Department.

A few weeks ago I went over to the ramp to take a look. The inside of the ramp was brightly lit and was painted white. There were colorful signs to guide people around. The elevator areas still had the smell of fresh paint! The elevators themselves were very modern, and they had large glass windows! If you get a chance to visit the UND campus, you should try them out yourself! You can look through the window and see outside the building as you go up!

Another construction project that has only recently become a news story is the construction of a new residence for the president of the University of North Dakota. For many years the UND president has lived in a modern house on the west side of the English Coulee across from the main part of the UND campus. This house will be demolished in order to make way for the new president's house. The University hopes to complete construction of the new president's home in time for the arrival of the next president in the fall of 2008.

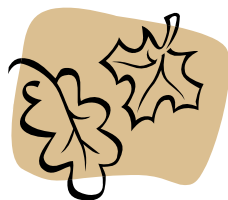
You may remember a much older building on University Avenue with white columns and a darker brick



President Kupchella's old house
(to be demolished)

exterior. This building was the home of the UND president many years ago (long before I came here!) This older president's home is now known as the J. Lloyd Stone Alumni Center and currently houses the offices of the UND Alumni Association. This older building will remain intact!

If you do not live near Grand Forks, I hope that at some point you get a chance to come here and see the latest changes to the University and the campus. Stop by the office here in Witmer Hall if you get a chance! We are usually quite busy, but we always have time to say hello and exchange a few words. And if you cannot visit us, please send us mail! We would like to know about your activities! In any case, whether we hear from you or not, good luck with everything you are doing!



DEPARTMENT FACULTY AND STAFF FOR 2007-08

- Anthony Bevelacqua.....Associate Professor
- Donna Boe Word Processing Operator
- Gwennie Byron..... Senior Lecturer & Math Learning Center Director
- John CollingsAssociate Professor
- Bruce Dearden (on leave)..... Professor
- Gerri Dunnigan Associate Professor & Associate Chair
- Stuart Farm Senior Lecturer
- Thomas Gilsdorf Professor
- Cheryl Halcrow..... Assistant Professor
- Doojin Hong Assistant Professor
- Joel Iiams Associate Professor
- Michele Iiams Associate Professor
- Mohammad Khavanin Associate Professor
- Jerry Metzger Professor
- Richard Millsbaugh Professor & Chair
- Michael Minnotte Associate Professor
- David MorstadSenior Lecturer & Math Computer Lab Director
- Lawrence Peterson.....Associate Professor
- Mary Rerick Senior Lecturer
- Thomas Richards Assistant Professor
- Kusum Sharma..... Lecturer
- Jessica Snyder..... Senior Lecturer
- Lona Spicer Administrative Secretary
- Shuzo Takahashi Assistant Professor
- Ryan Zerr Assistant Professor



The J. Lloyd Stone Alumni Center

The building on the left is Gamble Hall. *Neither* of these two buildings will be torn down in the foreseeable future!

You may view this photo in color on the Web! All you need is a color monitor, an Internet connection, and a PDF file viewer! Go to

<http://www.und.nodak.edu/dept/math/math10g>

THANK YOU !!

The following persons are responsible for monetary gifts to the UND Alumni Association specifically designated for the improvement of the Department of Mathematics:

Dr. Howard A. Bird
Marlys and Rodney Kjellberg
John H. Gissel
Kathryn M. Waxler
William J. Lardy
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Dorothy J. Johnson
Stuart R. Farm
Jason L. Aakhus

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Dr. Gail S. Nelson
Dr. Ernest N. Gullerud

Ronald C. and Ann C. Bzoch Memorial Scholarship

Maryanne and Russ Romero

Your generosity is gratefully acknowledged and sincerely appreciated!

Your teachers and friends are wondering what you are doing! Help us to satisfy their curiosity. (Photos are also welcome!)

NAME (Include previous if changed.): _____

CURRENT ADDRESS: _____

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DEGREE AND YEAR RECEIVED: _____

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Use additional sheets if necessary. You can also send us news items and comments by e-mail! Just send a message to

udmath@und.nodak.edu

Be sure to say that the information is for the Math Log!



Let
us
hear
from
you