

**DR. SIMON TAVENER RESIGNS
AS DEPARTMENT CHAIR
IN MATHEMATICS**

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SPECIAL RECOGNITION

**2009-2010
Outstanding
Professor in
Graduate
Instruction**

Renzo Cavaliere

**2009-2010
Outstanding
Graduate
Teaching
Assistants**

Shawn Farnell



Dr. Simon Tavener will step down as chair of the Department of Mathematics effective May 15, 2011. He will remain as a faculty member in the department. An internal search for the next department chair, coordinated by Interim Dean Janice Nerger, is currently in progress.

Dr. Tavener began his tenure as department chair on January 1, 2003. The period since then has seen a considerable change in the composition of the department.

Twelve new faculty have joined the department since 2003. Annual expenditures on external research awards have increased from \$250K in FY2003 to \$1.1M in FY2010. The numbers of BS, MS and PhD degrees awarded in 2003-04 were 34, 7 and 3 respectively and these have increased to 39, 7 and 8 in 2009-10. (BS degrees awarded peaked at 49 in 2005-06 and 10 PhDs were awarded 2007-08). In 2003-04, an average of four graduate students were supported as GRAs each semester and in 2009-10 that number was 9.5. The total number of credit hours taught annually by the department has remained the largest in the College of Natural Sciences, (exceeding those taught by Chemistry and Psychology by over 15%) and increased by 600 between 2003-04 and 2009-10 or by about 2%. It must also be recognized that these increases have occurred over a period in which 22 faculty members left the department resulting in a significant overall decrease in faculty size.

**SPECIAL RECOGNITION
TO BRYAN ELDER**



Dr. Tavener and the Department of Mathematics would like to sincerely thank Bryan Elder for his exceptional efforts over the past year to coordinate the renovations in the Weber Building. We greatly appreciate the abilities Bryan displayed to resolve a myriad of scheduling and construction issues in order to meet our critical deadlines.

2009-10 NEW FACES IN THE DEPARTMENT OF MATHEMATIC



A recent 2010 PhD graduate in mathematics from Colorado State, Rodney James is a postdoctoral fellow with Provost Rick Miranda. Rodney is also a course instructor for MATH 133 and MATH 141. His current research is in linear systems on graphs.



Michael Presho is a new postdoctoral fellow for Donald Estep. A 2010 UWYO PhD graduate in Mathematics, Michael's research is related to the broad topic of flow through porous media. His PhD advisor at UWYO was Professor Victor Ginting, a familiar face in our department.



Brendan Sheehan received his PhD degree from CU Boulder under the advisement of Professor Tom Manteuffel in 2007. He was an assistant adjunct professor at UCLA from July 2007 until May of 2010. Currently, he is a postdoctoral fellow for Donald Estep. Brendan's research is in numerical pde's including descretization methods and solvers for the resulting linear systems.



Mary Pilgrim is a recent graduate earning an interdisciplinary PhD in education and mathematics from Colorado State. Her advisor was Professor Paul Kennedy. As a full-time instructor in the department this academic year, Mary is currently teaching MATH 141, MATH 130, and MATH 160.



Haniya Kakakhail is a temporary instructor in the mathematics department for the fall semester of 2010. She is currently teaching MATH 360 and MATH 369. In 1988, Haniya received her PhD in Mathematics from Colorado State. Her PhD advisor was Emeritus Professor Frank DeMeyer.

NEWLY AWARDED DEPT GRANTS (JULY 1, 2010-PRESENT)

| Primary PI | Co-PI | Sponsor | Title | Amount |
|--------------------|--|--|---|-------------|
| Charles Anderson | Michael Kirby | NSF National Science Foundation | Geometric Pattern Analysis and Mental Design for a Brain-Computer Interface | \$15,590 |
| Daniel Bates | None | NSF—GEO Geosciences | CMG Collaborative Research: Magnetic Viscosity and Thermoremanent Magnetization in Interacting Single-domain Ferromagnets | \$145,350 |
| Donald Estep | None | DOE US Department of Energy | Enabling Predictive Simulation and UQ of Complex Multiphysics PDE Systems by the Development of Goal-Oriented ... | \$102,338 |
| Donald Estep | None | DOE US Department of Energy | Framework Application for Core-Edge Transport Simulations (FACETS) | \$90,000 |
| Michael Kirby | None | NSF National Science Foundation | ATD: Mathematical Algorithms for Characterizing Spectral Signatures | \$130,389 |
| Michael Kirby | Chris Peterson | DOD-NGA National Geospatial Intelligence | Optimizing Detection, Characterization, and Classification of Features and Anomalies in Signals | \$118,472 |
| Donna Cooner-Gines | Cerissa Stevenson Janice Nerger Thomas Siller Paul Kennedy | NSF-EHR Education and Human Resources | CSU Noyce Scholarships | \$1,200,000 |
| F. Jay Breidt | Mark van der Woerd Donald Estep Karolin Luger Jennifer Mueller Michelle Strout James Bieman | HHS-NIH National Institute of General Medical Science | The Inverse Problem for Estimation of Structure of Biological Macromolecules from Small-Angle X-Ray Scattering Data | \$280,816 |

2010 MATH DAY COMPETITION SET

Dr. Dan Bates is organizing this year's competition and has incorporated some minor changes to the scheduled agenda. Dr. Bates is also writing the exam questions for both the PROBE and team competitions. Christie Franklin and Bryan Elder will again provide their much-appreciated expertise on the logistical side of the planning. This year's competition is scheduled for November 4, 2010.

Thanks to the expertise of Jim Cox and Lois Samer, the registration process can now be completed electronically by all schools electing to participate. The electronic registration will streamline the process needed to create name tags and school code information automatically, which in turn will label each individual PROBE exam booklet. Additions and changes to a school's registration is also a simple process, eliminating unnecessary paper trails.

This year's agenda includes the new form of the PROBE written examination, introduced last year, which cut both the examination time and the grading time in half. The new structure of this exam includes fewer challenging proofs while still providing enough material to determine Colorado State student scholarship awards.

The PROBE exam will be followed by a lecture for the students, as happened last year. This will be a short mathematical presentation aimed at sparking students' interests in mathematics and based on one of the PROBE proofs. It will also provide material for one or more team competition questions, so student participants are encouraged to attend and listen for details.

The last event of the day is the team competition for both small and large schools. This popular college bowl-type double elimination tournament is the highlight of the day, bringing out the competitive nature of all participants. This part of the agenda will not be changed from previous years, other than again being lengthened a bit to provide a little extra time between matches in the early rounds.

The Math Day website can be found at <http://www.math.colostate.edu/mathday/index2010.shtml>

2010 ISTeC HIGH SCHOOL DAYS PLANNED

The University hosted the annual ISTeC (Information Science and Technology) High School Day on Friday, September 24th in the Lory Student Center from 1:00-4:00pm. The Department of Mathematics again presented the "Serious Fun with Math" show, popular with student participants across the state of Colorado. This year's organizing team included Iuliana Oprea, Patrick Shipman, and Dan Bates.

2010-11 VISITORS TO DEPT OF MATHEMATICS



Faculty in the Department of Mathematics are hosting three visiting faculty for the 2010-2011 academic year. Dr. Rachel Pries is hosting Dr. Amy Ksir from the United States Naval Academy in Annapolis, Maryland. Amy grew up in Laramie, Wyoming and was Rachel's office mate in graduate school at the University of Pennsylvania. Together they will work on research in algebraic geometry.

Dr. Anton Betten is hosting two visitors this academic year. Dr. Eun Ju Cheon is starting her second year as a visitor from the Republic of Korea. Her research is related to linear codes and finite geometry.

Dr. Yu-Mi Seo has a two-year invitation to conduct research related to the wedge product in discrete mathematics. Dr. Seo is from Konkuk University in Seoul, Korea.

MATHEMATICS DEPARTMENT WELCOMES NEW GRADUATE CLASS

The Department of Mathematics Graduate Committee has selected this year's new graduate class. Nine students were selected from a pool of 92 applicants, Mike Mikucki was admitted SP10:



Robert Arn
BS, Milikin University



Benjamin Cooper
BS, Metropolitan State College of Denver



Melody Dodd
BS, Black Hills State University



Christina Herrera
BS, Colorado State University



Anne HO
BS, Regis University



David Hopkins
BS, Colorado State University



Elizabeth Lane-Harvard
MS, South Dakota State Uni



Timothy Marrinan
BA, Whitman College



Michael Mikucki
BS, Colorado State University



Melissa Swager
BS, Emporia State Uni

DEPARTMENT HOSTS CONFERENCES ON CAMPUS

The Department of Mathematics hosted four conferences this summer and fall on campus. The first two conferences were continued in honor of the late Emeritus Professor Daniel Rudolph.

Math Circles 2010 was held July 5-9, 2010 for area students entering 8th and 9th grades in the fall. Organizers included Michael Kirby with assistance from a number of graduate students, particularly Lori Zeigelmeier and Elly Smith. This event was offered in collaboration with the Poudre School District gifted and talented program, with math instructor Martha Cranor.

The 3rd Annual Dynamics Seminar was held August 2-6, 2010 in Pingree Park. Professor Nic Ormes was the primary organizer of this event. With the continued interest from colleagues of Daniel Rudolph, the department hopes to continue this annual summer conference at Pingree Park. Participants look forward to attending each year.

A workshop on Coding Theory and Geometry was hosted by the Department of Mathematics August 5-6, 2010. Co-organized were Anton Betten and his visitor from Korea, Dr. Eun-Ju Cheon. A total of 14 talks were given by the 20 participants, included amongst whom were faculty (including one from Electrical Engineering), postgraduate students, former students, former postdocs, current visitors, and academics from as far away as Japan, South Korea and Kuwait. The busy program included a conference dinner at Pho Duy Vietnamese Restaurant and a barbecue at City Park at the end of the workshop. The conference was well received.

A NSF sponsored workshop was held at Lory Student Center September 13-17, 2010, hosted by the Department of Mathematics and the Department of Chemical and Biological Engineering. The title of the workshop was Mathematical Modeling and Computer Simulations for Soft Materials. The main goal of this interdisciplinary workshop was to bring together scientists from different fields and disciplines relevant to soft matter physics, in order to identify new challenges and opportunities for the theory, modeling and simulation of soft materials, and to investigate the growing and promising role of applied and computational mathematics in meeting those challenges. The conference included 11 invited speakers, as well as a number of contributed talks, and an evening poster session reception. The conference was attended by over 50 participants. Organizers for this event were Juliana Oprea, James Liu, Simon Tavener, and David Wang. Enjoy a few photos from the poster session, following the day trip to Rocky Mountain National Park.

