

DEPARTMENT OF MATHEMATICS NEWSLETTER

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NEW UNDERGRADUATE PROGRAM

The Dept of Mathematics is very pleased to announce the start of a new undergraduate research program FEScUE (Flexible and Extendable Scientific Undergraduate Experience) that is funded by the National Science Foundation to prepare a new generation of biologists and mathematicians. FEScUE provides team-based research experiences for undergraduates in mathematics and biology and involves students and faculty in multiple academic departments at Colorado State. Students will become fully integrated into research with teams of faculty, graduate students and fellow undergraduates in the

FEScUE program and will be involved in at least two summers of mentored research.

The initial research areas are disease dynamics, plant defenses and gene structure and function. The first FEScUE seminar is running this semester to prepare students for research activities in summer 2008. We are also actively recruiting students from Colorado High Schools in particular and from freshman already on campus for next year's cohort.



More information can be found at:

[www.fescue.colostate.edu](http://www.fescue.colostate.edu)

DEPARTMENT HIRES  
NEW STAFF MEMBER



Sheri Hofeling

The Dept of Mathematics has recently hired a new staff member. Sheri Hofeling has joined the department as our new Accounting Tech III. Sheri is a reinstate in the Colorado state system bringing 15 years of work experience at FRCC in Fort Collins. Sheri is married and has 4 grown children. She enjoys entertaining her grandchildren on weekends. Currently, Sheri is continuing her studies on campus in pursuit of her accounting degree.

SPECIAL RECOGNITION

CONGRATULATIONS  
2007 GRADUATES

SPRING 2007

MS - 1

*Undergrad Majors - 36*

*Undergrad Minors - 35*

SUMMER 2007

MS - 4

*Undergrad Majors - 0*

*Undergrad Minors - 0*

FALL 2007

MS - 3

*Undergrad Majors - 23*

*Undergrad Minors - 15*

WAGS '07 FALL EDITION AT CSU



Co-host: Justin Sawon



Co-host: Chris Peterson

The Western Algebraic Geometry Seminar (WAGS) is a biannual conference hosted by a consortium of universities on a rotational basis.

This fall CSU hosted WAGS for the second time on campus, bringing over fifty participants to Fort Collins during the weekend of October 20-21, 2007. The mathematics department was

very pleased to be able to hold such a high quality meeting at CSU.

The seven speakers were chosen to represent a wide variety of topics within algebraic geometry (moduli of vector bundles and curves, commutative rings, algebraic differential equations, connections to mathematical physics) and also represented a range of levels of seniority (postdoc to full professor).

In addition to our CSU students, more than twenty graduate students from outside Colorado were able to attend thanks to the generous support of the Yates

Chair, the Department of Mathematics, and the College of Natural Sciences. The attendance of ten postdocs was also supported by an NSF grant held by Aaron Bertram, from WAGS participating institute the University of Utah. Hopefully, the large level of participation by graduate students and young mathematicians will help convince the NSF to make a commitment to fund WAGS for the next five years; a grant proposal is pending. The organizers were also grateful for the hospitality of Rick Miranda, host of the conference party at his home in Fort Collins.

**DR. LIEBLER ON SABBATICAL FALL 2007**

Robert Liebler

Department Professor Robert Liebler has returned from a Fall 2007 sabbatical. He thanks his hosts Professors Bernhard Schmidt at Nanyang University, Singapore; Cheryl Praeger at U. Western Australia in Perth, Australia and William Kantor at U. Oregon in Eugene, Oregon for their generous support and fruitful collaborations.

Dr. Liebler was quite taken by the warm welcome of many new acquaintances he met along the way, especially those at the A(ustralian) Mathematical Society's annual

meeting at LaTrobe University in Melbourne.

Having survived four ankle surgeries in as many years, Dr. Liebler returns fit and full of even more research projects.

Below are a couple of trip photos:



The Nanyang University Library in Singapore



Dr. Liebler's new acquaintance greet

**2008 ARNE MAGNUS LECTURE SERIES**

Desmond J. Higham

The Magnus Lecture Series was held January 22-24, 2008. This year's guest was Dr. Desmond J. Higham of the University of Strathclyde in Glasgow, Scotland. The following were titles of his talks for the campus community, Network Science: Joining the dots; Spectral algorithms for Biological Networks; and Stochastic Differential Equations with Switches.

*This lecture series is given annually in honor of Dr. Arne Magnus, our friend and colleague for 25 years. These lectures would not be possible without the support from alumni and friends of the Mathematics Department.*

**2007 PhD MATHEMATICS GRADUATES AT COLORADO STATE UNIVERSITY****Spring 2007 PhD Graduates**

Graduate	Adviser	Thesis Title	After Graduation
Bader Alshamary	Anton Betten	Two Topics in Combinatorial Optimization: The Domino Portrait Problem and the Maximum Clique Problem	Professor, Kuwait University
Stefan Cruceanu	Eugene Allgower Simon Tavener	Numerical Solutions of Nonlinear Systems Derived From Semi-linear Elliptic Equations	Not Available

**Summer 2007 PhD Graduates**

Graduate	Adviser	Thesis Title	After Graduation
Abdullah Al-Azemi	Anton Betten	Classification Algorithms For Graphs, Digraphs, And Linear Spaces	Professor, Kuwait University
Diane Davis	Holger Kley	Toward a type Bn geometric Littlewood-Richardson rule	Assistant Professor, Metropolitan State University, Denver
Jeremy Muskat	Rachel Pries	Algebraic Curves over Finite Fields	Professor, Western State College, Gunnison
Pamela Peters	Jeanne Dufлот	Gaussian Maps for Double Covers of Smooth Toric Surfaces	Assistant Professor, University of Wisconsin, Platteville
Tim Wildey	Don Estep Simon Tavener	A Posteriori Analysis of Operator Decomposition on Interface Problems	ICES PostDoc, University of Texas, Austin

**Fall 2007 PhD Graduates**

Graduate	Adviser	Thesis Title	After Graduation
Fatemeh Emdad	Michael Kirby	Signal Fraction Analysis for Subspace processing of high dimensional data	Not Available
Ethan Murphy	Jennifer Mueller	2-D D-bar conductivity reconstructions on non-circular domains	Worcester Polytechnic Institute - Research Assistant Professor

## DEPARTMENT GRADUATE RESEARCH PROJECT

Dr. Patrick Burns  
Faculty AffiliateJosh Ladd  
PhD Grad Student

Dr. Patrick J. Burns, Vice President for Information Technology, and Joshua Ladd, Dept of Mathematics PhD student, are pleased to announce that the National Energy Research Scientific Computing Center (NERSC), which is supported by the Office of Science of the U.S. Department of Energy, has awarded them a second allocation of 10,000 hours of supercomputing time to continue studies of Data Processing Characteristics of National Animal Identification System (NAIS) Datasets. The allocation award provides unrestricted access to the state of

the art in supercomputing architectures including Seaborg, a 6,080 processor IBM SP and the newly commissioned Franklin, a 19,320 processor Cray XT4. Josh has been designing and testing a variety of large-scale shared memory (openMP), distributed memory (MPI), and hybrid openMP/MPI parallel algorithms on the Seaborg system in support of his PhD research which concerns the design, implementation and analysis of a large-scale disease traceability simulation. Josh is also using the Franklin system to study the performance and scaling of a novel initialization scheme for a portable, parallel random number generator.

## DEPARTMENT CHAIR APPOINTS GRAD AND UNDERGRAD DIRECTORS

The Dept of Mathematics Chair, Simon Tavener, recently appointed directors for the graduate and undergraduate programs.



Jeanne Dufлот

Jeanne Dufлот has taken over the reins for the graduate program. As director her duties include overseeing the graduate curriculum and program, chairing the graduate committee, and the admission and recruitment of graduate students. Jeanne has been with the department since 1982.



Gerhard Dangelmayr

Gerhard Dangelmayr recently accepted the position of undergraduate director. His duties include overseeing the undergraduate curriculum, chairing the undergraduate committee, and the recruitment of mathematics majors. Gerhard joined the department in 1995.

## FACULTY, GRADUTES AND UNDERGRADUATE STUDENTS PARTICIPATE IN SAN DIEGO AMS/MAA JOINT MEETING

Faculty, graduate and undergraduate students from the Department of Mathematics participated in the January National Joint Mathematics Meeting of the AMS/MAA held in San Diego. Senior undergraduate student Jennifer Jones, presented her work in a poster session for undergraduate students. During this event, 10% of posters submitted were recognized out of approximately 180 posters submitted by over 200 students and teams of students. Jennifer's poster received recognition and was related to the mathematical modeling of political affiliation.

Jennifer's poster originated from research she conducted the previous summer with three other students at the Applied Mathematical Science Summer Institute between California Polytechnic University-Pomona and Loyola Marymount University. Their model showed how individuals become politically affected by the individuals they interact with by using a system of ordinary differential equations to represent the movement of individuals through varying political interests.

Department of Mathematics faculty attending included Anton Betten,

Gerhard Danglemayr, Richard Darst, and Jim Thomas. Graduate student Soley Jonsdottir also attended.

With partial support from the department, a number of undergraduate students who are members of the department Math Club were also able to attend the San Diego conference. The faculty Math Club sponsor is Justin Sawon. Those attending included Derrick Blea, Andreea Erculescu, Kyle Furtner, Christin Herrera, Beihong Huo, Steven Issaacs, Jennifer Jones, Jon Killngsworth, Patrick McArdle, Richard Meyer, Sara Slagle, and Nichole Zimmerman.

Beihong Huo, Andreea Erculescu, and Sara Slagle  
undergraduate participants in San Diego AMS/MAADepartment of Mathematics Undergraduate students  
participate in San Diego AMS/MAA Joint Meeting