

"All the v's that's fit to print"



# Newsletter

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## Outstanding Student Awards

During "end of year awards ceremonies" in May 2001, three mathematics students were honored for academic achievement during Academic Year 2000/2001.

**Tracy Diessner** was named the Outstanding Mathematics Academic Undergraduate Student

**Nick Sanford** was named the Outstanding Mathematics Overall Undergraduate Student

**Chris Noffsinger** was named the Outstanding Graduate Student in Mathematics

Congratulations to Tracy, Nick, and Chris for jobs well done !!

## Recognition of Faculty and Staff

At the aforementioned awards ceremonies our own **Dr. Jon Epperson** was named Lecturer of the Year in the College of Engineering and Applied Sciences. Jon was recognized for his achievements in the classroom, as well as for his past sponsorship and organization of the department's COMAP competition team (see article below). From Dean Sega's comments at the ceremonies: "Jon brings a wealth of experience and knowledge to our math students from a 26-year career in the Air Force. Many of those years were spent working on missile defense systems, teaching mathematics at the Air Force Academy, and, according to Jon, drinking a lot of coffee and attending a lot of meetings. We are fortunate Dr. Epperson decided to give all of that up to spend part of his

retirement years with us." Congratulations, Jon, on recognition well-deserved!

By mandate of the University of Colorado Board of Regents, every year each CU campus must identify units on campus which are to be recognized as being 'meritorious'. We are quite proud that the **Department of Mathematics** was one of five such units at CU - Colorado Springs during AY 2000/2001.

## Around the Department

**Keith Phillips** and **Jim Daly** did a great deal of joint research with Hungarian mathematician Sandor Fridli during Academic Year 2000-2001, while Professor Fridli was visiting the UCCS math department. Professor Fridli taught a full schedule during his visit. During part of the Fall Semester 2001 Phillips is visiting the Department of Numerical Analysis at Eötvös Lorand University in Budapest, as a guest of Professor Fridli. Phillips' activities in Hungary will include working with Fridli and other mathematicians, making presentations as part of a research seminar, and teaching a "Fourier Analysis and Shape" segment of a course titled "Mathematical Transforms of Applied Mathematics." He will also visit the University of Pecs in southern Hungary.

**Bob Carlson** and **Sarbarish Chakravarty** were the recipients of a National Science Foundation grant to organize a conference at UCCS. The conference, entitled *Soliton Equations: Applications and Theory*, was held

during the weekend of August 10-12, 2001. This was an interdisciplinary conference. The conference included over three dozen participants from throughout the world, including Russia, China, Mexico, Rumania, India, and, not surprisingly, the USA. Greg Morrow assisted Professors Carlson and Chakravarty with conference organization.

Soliton equations are nonlinear partial differential equations which are exactly solvable, which is a rare phenomenon by itself. For these equations the solution process is usually very complex, involving eigenvalue problems or scattering theory, and sometimes algebraic geometry. Although the equations are special, they occur fairly frequently in the modeling of water waves and long distance fiber optic communications systems. Recently soliton equations have been used to study Bose-Einstein condensates, the novel state of matter whose creators won the 2001 Nobel prize in physics. In fact, one of the conference speakers came from the Boulder laboratory of two of the Nobel prize winners.

**K.M. Rangaswamy** was a scientific organizer and speaker at the international conference on abelian groups and modules at the University of Hawaii, Honolulu in July 2001. Ranga's talk was entitled "On the stacked bases theorem". He also spoke at the algebra conference in honor of James Reid at Wesleyan University, Connecticut in May 2001. The title of that talk was "Ultra products of Butler groups". In addition, Ranga was awarded an NSF CO-AMP grant in the amount of \$36,000 for the calendar year 2001. This is a continuation of a grant that Ranga has been involved with for many years. The primary goal of CO-AMP (The Colorado Alliance for Minority Participation) is to increase the number of underrepresented minority students in the sciences, mathematics, engineering and technology areas who successfully complete their baccalaureate degrees. This is accomplished by free tutoring, summer bridge programs, summer research opportunities, and other initiatives.

In addition to his participation and help with the UCCS Soliton Equations conference, **Greg Morrow** spent a week at Mount Holyoke

College during Summer 2001 where he participated in the conference on The Legacy of the Inverse Scattering Transform. He delivered a paper (joint work with Sarbarish Chakravarty) on the "Statistical Analysis of Jitter due to Four Wave Interference in Wavelength Division Multiplexing". This work falls under the study of nonlinear wave propagation as applied to mathematical models of fiber optic communication systems. On the physical side Greg worked out in a Tai Chi summer camp over an extended weekend at Colorado Mountain College near Glenwood Springs with his martial arts school (based in Denver). On the community circle side Greg participated in a residential weekend Process Oriented Psychology workshop.

**Yu Zhang** spent Academic Year 2000/2001 as a Visiting Professor at the Wharton School of Business and Economics at the University of Pennsylvania (that's right, an Ivy League School!). Yu did some joint research work with Professor Mike Steele. In addition he learned some new statistical techniques by working with Professor Larry Brown; these include the so-called 'white noise model'. Yu's duties as a teacher included teaching two huge statistics classes for Wharton undergrads, and two graduate classes. He greatly enjoyed his stay in Philadelphia, especially the concerts and museums he attended with his family.

**Gene Abrams** did some joint research work with Professor P.N. Anh. Anh is a member of the Rényi Mathematical Institute of the Hungarian Academy of Sciences in Budapest. He was in Colorado Springs during November and December 2000 as a Visiting Professor at the Colorado College. Gene gave a talk regarding their joint work at the 'All-Ireland Algebra Conference', held in Belfast in May 2001.

**Ken Rebman** has announced his retirement from UCCS, effective at the end of this academic year. Ken came to UCCS in 1994 as Vice Chancellor of Academic Affairs. He joined the mathematics department on a half-time basis five years ago. His teaching duties in the math department have been his primary on-campus activities for the past two years. Ken has taught a number of courses for us, and has done much for the mathematical community outside the

classroom, including presenting colloquium talks, working with the Puzzler Committee, and helping the UCCS MAA student math club. His energy and good nature will be missed!

**Rinaldo Schinazi** is on leave this year as a Visiting Professor at the University of Marseille in France. Rinaldo is working on a project in mathematical biology with the research group there.

### **Congratulations to All 2000/2001 Graduates!**

Here is the list of the Academic Year 2000/2001 graduates from each of the department's degree programs. An impressive list, to be sure!

#### **B. A. Mathematics:**

Mary Dunlap  
Viola Lee  
Barbara Patterson  
Kristine Robinson  
Lori Stapleton  
Kriste Weatherwax  
Anne Weiner  
William Wilson  
Steven Yamiolkoski

#### **B. S. Applied Mathematics:**

Tracey Diessner  
James Horton  
Stacy Lethbridge  
Nicholaus Sanford  
Michelle Toney

#### **M. S. Applied Mathematics:**

Sara Huston  
Christopher Noffsinger

Congratulations to all the AY 2000/2001 graduates from the Department of Mathematics!

### **A Change at the Top Jim Daly Succeeds Jeremy Haefner as Department Chair**

Jim Daly has been appointed chairman of the department for Academic Year 2001/2002. Jim succeeds Jeremy Haefner, who held the position for the three prior academic years.

Haefner remarks on some of the things which affected the department during AY 2000/2001. "I am particularly pleased with many of the accomplishments of the department. First, we successfully transitioned the BA degree over from the LAS college to the EAS college, so that

now both degrees - the BS and the BA - reside in the Engineering and Applied Sciences College. Second, our explosive growth was causing strain on our one Program Assistant, Joan Stephens. We were able to reallocate funds in order to hire Steph Romero as a 1/2-time staff assistant. Steph is providing key assistance to our graduate program and is also maintaining our website. Third, I was greatly pleased to see that the Department received unit merit recognition from the campus for its many contributions. Finally, last year was the first year in our trial program for online mathematics tutoring. This innovative program brought the four mathematics departments in the CU system together in order to offer online tutoring to any student registered for a math course calculus or below." (ed note: <http://onlinetutor.cu.edu>)

### **CO-MAP Modeling Competition: another successful year for UCCS**

The International COMAP modeling competition was held over a 72 hour period in February 2001. Hundreds of teams from hundreds of universities around the world participated. For the third consecutive year UCCS fielded a team; the 2001 team consisted of Nick Sanford, Rob Turpin and Lauren Yokogawa, under the direction of Greg Morrow as faculty advisor and Tyler Lievrouw as coordinator. This year's team earned the designation Successful Participant for their efforts. Nice job!

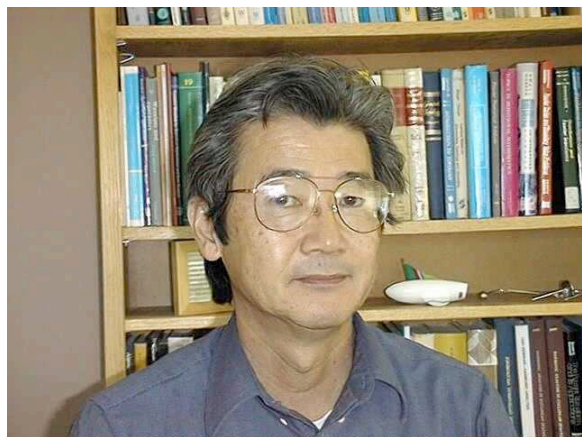
### **Math Learning Center**

The Math Learning Center, under the directorship of **Shannon Schumann**, is still going strong, and still growing. Last year, the staff of 12 undergraduate and graduate tutors served over 21,000 student "hits" in the form of requests for individualized tutoring, help with lab software, and supplementary instruction and workshop attendance. Students who visit the Center as little as three times in a semester tend to have higher math course grades, even when their SAT's and placement scores are lower!

New for this year is an experimental online tutoring program. Spearheaded by UCCS, this CU-system-wide program provides one on one tutoring to all CU students via the web. Tutors

use an electronic graphics tablet, which makes communicating mathematics as easy as writing, and students being tutored can access the whiteboard as well as share mathematical application software on the tutor's computer at a distance. Tutoring is scheduled nightly from 6pm until 10pm or sometimes midnight and on the weekends. Take a tour! You can find information online at <http://onlinetutor.cu.edu>, or drop by the Math Learning Center in EAS room 129.

### **Newsletter Profile: Dr. Clem Ota**



Professor Clem Ota has led a varied and interesting life, both inside and outside academia. Clem joins the UCCS department of mathematics as a visiting professor during Academic Year 2001/2002.

Clem was raised in California, but he is a Colorado native. He was born in a Japanese internment camp in the Arkansas River valley, near the small town of Granada. He graduated from UC Berkeley in 1964 and then spent three years in the army at Fort Bliss in El Paso, Texas. Upon his release from the military, he enrolled in the Ph.D. program in mathematics at New Mexico State University (just 40 miles up the road from Ft. Bliss). This began his long stay in New Mexico.

He received his Ph. D. in 1976 under the direction of our own Professor Keith Phillips. While still a graduate student he spent 3 summers as a student intern at the Los Alamos National Laboratories, where he met many

famous mathematicians, including Stanislaus Ulam and Giancarlo Rota. He parlayed his applied experience and mathematical training into a sequence of positions with the Electrical Engineering Department at the University of New Mexico in Albuquerque, where until 1981 he worked on engineering problems using computer modeling and taught courses in probability and industrial engineering. After a few years out of academia he worked as an electrical engineer for various contractors at White Sands Missile Range in southern New Mexico doing field testing and modeling of missiles. During this time he moonlighted in another position, in which he helped develop an "eddy current" detector that is still being used on jet fans to detect metal fatigue and cracks. This was his first foray into signal processing.

Before coming to us for the year, he had been working on a project at the Physical Science Laboratory at New Mexico State University to use chaos theory to analyze time series data.

If you are on campus, please stop by Professor Ota's office (EAS 282). Clem would be glad to share with you some more of his interesting experiences.

### **Shirts and Hats**

Yet another reminder that the UCCS Department of Mathematics logo has been incorporated in handsome golf shirts and caps! (The logo appears in the masthead of this Newsletter). The shirts and caps are black; the logo is in the school colors (blue and gold). To order: Shirts are \$19.85, Caps are \$16.00. Caps are one-size-fits-all; specify shirt size S, M, L, XL.