"All the ν's that's fit to print"

UCCS
Department of Mathematics

Newsletter

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Department of Mathematics, University of Colorado, Colorado Springs CO 80933-7150
(719)262-3311 mathinfo@math.uccs.edu http://mathweb.uccs.edu

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Outstanding Student Awards

Four mathematics students were honored for academic achievement during 1996/97.

Monte Lunacek was named the *Outstanding undergraduate student in mathematics.*

Trae Holcomb was named the *Outstanding graduate student in mathematics.*

Carolyn Gray (B.S. Applied Mathematics) achieved the *highest grade point average among 1996/97 graduates of the College of Engineering and Applied Science.*

Carol Gruenschlager (B.A. Mathematics) achieved the *highest grade point average among 1996/97 graduates of the College of Letters, Arts, and Sciences*.

Congratulations to Monte, Trae, Carolyn, and Carol for jobs well done !!

Outstanding Instructor

The *1996/97 Outstanding Honorarium Instructor* award was presented **to Dave Malmquist**. Dave taught two sections of our College Algebra course (Math 104). Dave also served as a member of the committee which, in conjunction with area high school mathematics teachers, helped revise the curriculum and delivery methods for this course. To top off a great year, Dave also earned his Master of Basic Science degree (math emphasis) in Fall '96.

Outstanding Staff Member

Each year the College of Engineering and Applied Science gives *the Outstanding Staff Award*. The 1996/97 award went to Joanie Stephens, our *secretary extraordinaire* in the Department of Mathematics. Congratulations to Joanie on an award richly deserved!

Sandra Hilt Announces Retirement

Dr. **Sandra Hilt** has retired from her position as Adjunct Associate Professor in the Department of Mathematics. Sandra was a faculty member in the department for over *twenty-five years*! In addition to teaching four courses per year at all levels from freshman to graduate, Sandy served the department in various capacities, including curriculum committees, MAA club advisor, course coordinator, and course developer. She will be sorely missed !! An interview with Sandy appears at the end of this Newsletter.

Sabbatical assignments

K.M. Rangaswamy was extremely busy working and travelling during his sabbatical assignment. A number of projects were completed during: a sponsored lecture tour of

South Africa (Summer '96), a faculty exchange program at the University of Connecticut (Fall '96), a Visiting Professorship at Baylor University (Spring '97), a fellowship at the University of Padova (Italy) (June / July '97), and an invited lectureship at St. Petersburg (Russia) (July '97).

Keith Phillips spent the Academic Year 1996/97 on sabbatical assignment in Boulder. He finished research projects with James Daly in the area of Harmonic Analysis on Vilenkin Groups, resulting in three publications. He also continued working with his Ph.D. student Arturo Dimalanta in the area of wavelets and computer vision. This effort resulted in a joint presentation and paper on pattern recognition using wavelets and Fourier series.

Yu Zhang was on sabbatical assignment during Fall 1996. Yu was invited to spend the month of October in Japan, doing research with the group of probabilists at the University of Kobe. He then was granted a prestigious Lady Davis fellowship, which allowed him the time and travel funds to do research at the Technion University in Haifa, Israel during the months of November and December. A number of publications (as well as a number of frequent flier miles!) resulted from these collaborations.

We welcome Ranga, Keith, and Yu back to the department this year. They have each resumed their full-time teaching, research, and service duties with renewed energy!

Shirts and Hats

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 $18.98, Caps are $12.00. Caps are one-size-fits-all; specify shirt size S, M, L, or XL. Send a check (payable to *Embroidered Expressions*) to the above mailing address, attention Joanie Stephens.

Paint job in Hilbert's Place

The Mathematics Learning Center (EAS 140), a.k.a. "Hilbert's Place", received a long-overdue facelift during Spring 1997. **April Pierce** (a Graduate Teaching Fellow in our department) spent most of spring break painting various mathematical tidbits on the walls. Between the integral formulas, the number systems, the graphs of special functions, and the countenance of David Hilbert himself, the MLC is truly an inspiring place to do mathematics!

Donut Daze

A new tradition has begun in the College of Engineering and Applied Sciences**: 'Donut Daze'.** Each Monday morning the hour from 9:00 to 10:00 has been set aside for an informal gathering of students and faculty over donuts and drinks (juice, coffee, tea). The gathering happens in the first floor lobby of the EAS building. The response has been quite positive! Students have a chance to chat with other students and with faculty about issues ranging from **C**alculus **R**eform to **C**olorado **R**ockies. Stop by and start the week off with us!

Grants

In addition to the numerous grants already held by members of the math department, two new National Science Foundation grants were awarded during the past year:

Rinaldo Schinazi: "Interacting Particle Systems in Biology", June 1996 through May 1999.

Yu Zhang: "Percolative Models", July 1997 through July 2000.

In an era of extremely tight funding from NSF, it speaks volumes about the quality of the research work of Schinazi and Zhang that they were able to write successful grant proposals. Congratulations Rinaldo and Yu!

Ed Pegg in Print

Ed Pegg (B.A. Mathematics 1994, M.S. Applied Mathematics 1997) is now a widely acclaimed mathematical scholar! Ed discovered an answer to the 'old' problem of finding a 'tractable' sequence of 1000 consecutive composite numbers. (Of course, the sequence

1001! + 2, 1001! + 3, ..., 1001! + 1001

fits this bill, but these numbers are enormous.) A paragraph announcing this result appeared in the March 1997 issue of *the American Mathematical Monthly*. In addition, Ed has had five crosswords accepted by the *New York Times*, and is working on building a website that will incorporate some of the results of his M.S. Applied Mathematics thesis on fair dice.

High School Talks

Gene Abrams had a great time travelling to various area high schools in the months of February and March. The purpose of such visits was to meet with students and expose them to various aspects of mathematics that most of them did not know existed. The presentation included, among other things, information about 'Courses Beyond Calculus', Wiles' proof of the Fermat Conjecture, the FBI's use of wavelets to store fingerprints on computer, and NASA's use of codes and cryptography to send information from deep space. A fabulous prize (a CU-Springs water bottle) was awarded to any student who knew why there is no Nobel Prize for mathematics. (Do you know? The answer appears at the bottom of page 4 of this Newsletter). High schools visited included Liberty, Doherty, Woodland Park, Coronado, Palmer, and Mitchell.

Any high school math teachers who would like to have Gene come and give a presentation should call him at 262-3311 or email abrams@math.uccs.edu .

S.O.M.O.N.A.R.

The 1997 *Symposium On Modules Over Nonunital Associative Rings* was held at the UCCS campus June 1 – 3, 1997. This three-day gathering attracted mathematicians from throughout the world; they came to Colorado Springs to share ideas and solve problems in this branch of modern algebra. Participants from Hungary, Spain, China, and the United States stayed in the new Housing Village facilities (in fact, this was the first non-student group to live in the dorms!). Information about this conference, as well as a bibliography regarding publications on this topic, are available at

http://mathweb.uccs.edu/mathhtml/faculty/haefner/womonar/womonar.html

In addition, an electronic photo album was generated by one of the participants, Frank Anderson of the University of Oregon. These highly entertaining pictures can be seen at

http://darkwing.uoregon.edu/~anderson/album/album.html

Congratulations to All 1996/97 Graduates!

Here is the list of the 1996/97 graduates in each of our four degree programs. We have recently been in contact with most of these individuals in order to determine just what sorts of careers they are pursuing and jobs they are holding. An impressive list, to be sure!

("u.t.c." denotes *unable to contact*.)

B. A. Mathematics:

Brenda DiRosa	living / working in Denver
Seiji Minobe	living / working in Japan
Leslie Walz	u.t.c.
Suzanne Ekeler	student teacher, Liberty HS
Carol Gruenschlaeger	pursuing teaching career
Victoria Joseph	u.t.c.
Cynthia Martinez	Teacher Ed. Program at UCCS
Valerie Romero	u.t.c.
Jennifer Schmidt	u.t.c.
Angela Templin	substitute teacher in elem. school

B.S. Applied Mathematics:

Carolyn Gray	analyst, *Decision Science Apps.*
Kyle Van Buskirk	software systems analyst, *MCI*
Paul Thompson	u.t.c.

M.S. Applied Mathematics:

Steve Narvet	engineer, *Lockheed Martin*
Dan Ruehle	Math teacher, *Sand Creek HS*
Chuck Tobin	engineer, *Kaman Instrumentation*
Kevin Westburg	u.t.c.
Pam Crum	Math teacher, *Ftn. Valley School*

Master of Basic Science, Math Emphasis:

David Malmquist	Math teacher, *Liberty HS*
Kristine Bradley	Math teacher, *Cheyenne Mtn JHS*

The Math Club

The Student Chapter of the Mathematical Association of America (a.k.a. The Math Club!) is alive and well. The officers for 1997/98 are President **Matt Berdine**, Vice President **Sandra Shappell**, and Treasurer **Will Wilson**. The faculty sponsor is **Ken Rebman**. The club has already met twice this semester, and has sponsored one of the Donut Daze mornings. The next club meeting is October 21, 12:15 – 1:30 in EAS 239. Professor **Neil Eklund** of Centre College (Kentucky) will speak: "How Calculators Calculate". Pizza and pop will be served. Everyone (members and non-members) is welcome.

New Server

The math department has a new World Wide Web server. The machine, dubbed **mathweb**, will now handle all of our internet services. The previous server, piglet, was a shared resource not strictly dedicated to providing web support. The new server will allow the math department to greatly expand their on-line services. Such services will include interactive forms for receiving input and requests, a larger repository of course-related materials, an electronic distribution system for course assignments, and support for two courses which will be offered "live" over the internet (see the next article).

Distance Ed courses Spring '98

The Department of Mathematics will offer two courses during Spring semester 1998 'at a distance'. Specifically, Calculus for Business and Economics (Math 112-003; MW 4:30 – 5:45pm) and Differential Equations (Math 340 – 002; TuTh 4:30 – 5:45pm) will be taught via the Internet. There will be no formal classroom for either of these sections. Rather, students will log in from a remote site (which could be in a CU – Springs campus computer lab, a terminal in Shanghai, or anywhere in between) and participate electronically. The presentation will be made from the instructor's office**. Jeremy Haefner** will be teaching Math 112, and **Gene Abrams** will be teaching Math 340. This is still very much a 'work-in-progress', but promises to provide good insights into both the pedagogical as well as administrative / technological issues which are inherent in a distance learning program.

CCHE Conference Grant

The UCCS Department of Mathematics, in conjunction with the UCCS School of Education, Pikes Peak Community College, and Pikes Peak region secondary mathematics teachers, have been awarded a CCHE Conference Grant. The conference, titled "How the Mathematics Skills Students Acquire in High School Align With the Competencies They Need in College", will happen February 11, 1998, on the UCCS campus. Any secondary mathematics teachers who are interested in participating should contact the math department prior to December 1. (A limited number of substitute teacher stipends are available.)

Mathematics Monthly Puzzler

The math department is glad to continue its sponsorship of the Mathematics Monthly Puzzler contest. This contest is open to all currently-enrolled UCCS undergraduate students. Students of all mathematical ability levels and backgrounds are encouraged to try their hand at the Puzzler. Written solutions to the Puzzler should be deposited in the Puzzler Box in Hilbert's Place (EAS 140). A $20 Gift Certificate to the UCCS Bookstore is awarded to the student who submits the most creative, complete, and/or interesting solution. In addition, a special prize will be awarded to the student who submits the best overall solutions to all of the semester's Puzzlers. For your amusement, here are the two most recent Monthly Puzzlers:

(1) This *odd* little problem shouldn't be too difficult, *even* if you haven't studied number theory. Prove that there are no three integers a, b, and c that satisfy the equation:

$$a^2 + b^2 + c^2 = abc - 1 .$$

(This was due September 26. The winner was **Patricia Simon**. Nice work, Patricia!).

(2) (Current, due on Halloween, October 31) Three loudspeakers are set up at the corners of an equilateral triangle. One speaker is playing four times as loud as the other two. Sound level obeys the inverse square law. That is, the sound level a person will hear is inversely proportional to the square of the listener's distance from the speaker. Where should a person stand so that the sound from each speaker is heard at the same level?

Previous Puzzler questions, along with their solutions, can be found by visiting the department's web site: http://mathweb.uccs.edu.

Answer to question posed in the 'High School Visits' article … There is no Nobel prize in mathematics because Dr. Nobel found out that his wife was having an extra-marital affair with a mathematician (Mittag-Leffler), which incensed him to the point of explicitly writing mathematicians out of the Nobel prize fund. (Imagine how incensed he must have been at his wife …)

An Interview with Sandra Hilt

Dr. Sandra Hilt

Interviewer: **Nancy Baggs**, Senior Instructor, Department of Mathematics (and longtime friend and office-mate of Sandy.)

Q. **When and how did you decide you would have a career in math?**

A. I suppose it was the summer before I entered Emory University (Georgia) as a freshman. I had intended to major in Spanish, but was browsing through the Emory catalog and suddenly decided to major in math. It was a flaky process. I'm sure I had no idea what most of the course titles meant. All I knew was that I was good at algebra and trig! But it turned out to be a fortunate decision from my point of view. I've continued to love math all these years.

Q.**What was it like being in graduate school?**

A. Being a graduate student at the University of North Carolina was a happy, happy way to spend five years. Chapel Hill was heaven. The faculty were great, and there was a helpful, not overly competitive atmosphere among the graduate students. Several of my present closest friendships go back to that time.

But that was a different era (1960 - 1965). There were no women on the regular faculty in the math department at Carolina. The common wisdom was that the math department would never hire a woman. We accepted that. This was before the days of women's lib. Several of the shining stars among the grad students were women; and I never saw any indication that women were discriminated against as students.

Q. How did you happen to come to UCCS, and when was this?

A. I was job-hunting in 1972. My husband was very happy in his position teaching physics at Colorado College, and we both liked Colorado Springs. When I was offered a part-time adjunct position in the UCCS math department, I took it. I never dreamed it would be a 25-year relationship!

Q. How has UCCS changed over the years?

A. Well, of course, the physical campus has grown. In 1972 there were only Dwire Hall **plus** the old sanitorium buildings: Main Hall, Cragmor Hall, and South Hall --- the old nurses' quarters, which burned down several years ago. The grounds were pretty much bare, red dirt.

And the math department was smaller then: only two full-timers and three of us part-timers, I believe, plus several honorarium instructors. But the spirit of collegiality has remained the same over the years.

Q. **Do you have any special anecdotes or special things that you remember from your days here at UCCS?**

A. Nothing comes to mind at the moment. It has just been a pleasant place to interact with students and colleagues. Of course, all teachers have funny little stories about students' answers on tests($\sqrt{x} = 4 \Rightarrow x = \sqrt{4} = 2$, which one obtains by moving the $\sqrt{}$ to the other side of the equation), but those probably seem more hilarious when one is bleary-eyed from grading more prosaic answers --- both right and wrong.

Q. Tell us about your hobbies and your travels.

A. I went to San Francisco last December, to London on the UCCS Theatreworks tour last January, to Florida in March, to Alaska in June, and to Santa Fe in August. So it has been a heavier than normal travel year for me. And I'll go on the Theatreworks London tour again this coming January.

I love music and theatre, and attend a lot of performances wherever I am. I still enjoy reading articles on mathematics and attending math talks. I took a couple of music courses last fall. And I am continuing my piano lessons, which I resumed four years ago after a 39-year hiatus. I hate to classify piano as a "hobby," since that seems to trivialize something which is my joy and my passion these days. I'd rather call it an “avocation”.

Q. What plans do you have for the future?

A. Well, all the advice columns say that one should never retire without having a carefully thought-out plan for what will follow. But I'm afraid I am reveling in not having a plan! I am staying busier than I need to be just enjoying the wonderful things that keep popping up. I suppose after the excitement of all this freedom begins to die down I'll feel the need to come up with a plan, in which case I will.