Greetings From The Chair

Each spring the Department takes pleasure in recognizing its outstanding students. This year, Cy Holladay received the Herbert J. Greenberg award for Outstanding Achievement in Mathematics; Brandon Haenlein and Julie Raffety shared the Outstanding Fourth Year Student award; Clare Armstrong, Thomas Greene and Jacob Harper shared the Outstanding Third Year Student award; Anuradha Bhatia and Denis Lapitski shared the Outstanding Second Year Student award; and Holly Bau received the Outstanding First Year Student award.

Over the years we have observed that our majors are inclined to be passionately engaged in a remarkably diverse array of interests, both within mathematics and outside it. Without attempting to be comprehensive, we note that Cy and Brandon will start graduate study in mathematics this fall at DU, and that Clare is contemplating the Peace Corps. We also note that Jacob is spending the summer at an REU (Research Experience for Undergraduates) project at Iowa State, and that Anu will spend next fall abroad. Finally, we would like to point out that although there are, on average, only twelve Boettcher scholarships awarded to Colorado students each year, Holly and Tom are two of three Boettcher Scholars currently majoring in mathematics, and a fourth Boettcher math major, Tom Gieck, graduated last year.

We would like to extend our heartiest congratulations to all of our outstanding students.

A Note From Jim Hagler

During the 2004-5 academic year, Rick Ball will be on a very well deserved sabbatical, which will be based in Prague. Rick served first as co-chair of the old Mathematics and Computer Science department during the last year of its existence and has been the chair of the Mathematics Department since we became a department in autumn of 2001. His tenure as chair has coincided with important times in the life of this department and it is not exaggerating to say that our current success is due largely to Rick’s vision and style. One of his innovations that will almost certainly be permanent is that our infrequent department meetings are held over snacks at a restaurant.

More importantly, Rick has managed to balance his administrative responsibilities with an amazingly active and productive research program. He has many, many collaborators and his work spans areas involving ordered algebra and ordered structures, logic, and at least two different branches of topology. On behalf of the entire department, I’d like to wish Rick a productive mathematical and personal year in Prague. We all look forward to emails, to updates, and to his return to Denver late next summer.

(Editor’s note: Jim Hagler will be Acting Department Chair during Rick’s absence.)
Quantum Structures 2004

During July 17-22, 2004, the Mathematics Department hosted Quantum Structures 2004, the biennial meeting of the International Quantum Structures Association (IQSA). A total of 87 attendees from 16 different countries participated. The entire conference provided an excellent opportunity for a stimulating exchange of ideas among researchers from a wide variety of disciplines. The department is proud to have hosted one of the most important scientific conferences at DU in recent memory.

The IQSA, founded in the early 1990’s, currently has over 130 members in 16 countries. Members are from departments of mathematics, physics, engineering, philosophy, and neurobiology, as well as practicing computer engineers. Its purpose is study of the foundations of quantum mechanics in all its forms, including topics from mathematics, psychology, cognitive science, philosophy of science and biology.

Drs. Frank Schroeck and Stan Gudder of the DU Mathematics Department were members of the organizing committee for this year’s conference and worked very hard through the year to make this conference a success. Special thanks is owed to Paula Gudder who spent countless hours organizing the conference and ensuring the smooth running of the conference once it was underway. Other members of the Department who assisted the committee were Assistant to the Chair, Liane Beights, graduate students Dan Daly and Melissa Butler, and Prof. Jim Hagler.

DU Mathematics Department presenters at the conference were Rick Ball, who presented a paper entitled “Forbidden configurations in the spectra of MV-algebras,” Frank Schroeck who spoke on “A retrospective on quantum mechanics on phase space,” and Stan Gudder who presented “Open problems for sequential effect algebras.” Stan is the outgoing president of IQSA and a special session of the conference was held to honor him. At this session, talks were given by Philippe Martin from Switzerland, Werner Stulpe from Germany, and Mark Balas from Boulder. These distinguished researchers were either PhD students of Stan’s or came to DU to work with Stan as post-doctoral fellows. Also attending were some of Stan’s other PhD students and DU alumni Jocelyne Marbeau (PhD, 1990), Loren Haskins (PhD, 1972), Dexter Strawther (PhD, 1974), and Julia Zerbe (PhD, 1979).

The conference concluded with a panel discussion examining what had been learned at the conference and suggestions for enhancements at the next IQSA conference, to be held in Europe in 2006. This panel consisted of a mathematician, a philosopher, a physicist, and an engineer. The discussion was stimulating, lively, informative and thought provoking.

(Continued on page 3)
Don Mackison (BA-1961) got in touch with us and let us know what has been going on with him since he left DU.

“I was at DU for two years, from ’59 to ’61, and left with a BA in Math. Went to grad school at CU in Applied Math for a year, then worked for the Applied Physics Lab at Johns Hopkins University.

“Returned to Boulder to work for Ball, and then got an MS and PhD in Controls & Systems at CU, where I have been teaching since 1980.

“The best math courses I took at DU were taught by Frank White, Bob Amie, Nyle Utterback and Glenn Miller from DRI- advanced calculus, potential theory, and such.

“Two of the best grad courses I ever had were Classical Mechanics and Calculus of Variations at Johns Hopkins.

“When I started the PhD at CU I had a doctoral level education in applied math/mathematical physics, so control theory was a breeze. My advisor was Peter Dorato, who had been a classmate at Columbia of Rudy Kalman- so I majored in Kalman at a time when most people couldn’t work problems with Riccati equations.

“From 1980-1990 I taught the graduate control courses in the Electrical Engineering Department at CU, and in 1990 I started a new program in Computer Aided Control Systems Design in Aerospace Engineering, or “how to know and love your Riccati equation.”

“On my desk sits a draft of the book “Computer Aided Control Systems Design” which I really need to paste together and get off to the publisher- calculus of variations, Lagrangian mechanics, rotational mechanics, linear quadratic regulator theory, noise and random processes, and optimal estimation. This text has developed over the last 13 years of teaching this course- because there is no other appropriate text. After I finished the PhD I went to MIT to take their CACSD course, which was taught out of their papers and notes- which had been a large part of my sources when I was doing thesis work.

“In 1967 I spent a quarter at DU, and took a course in random processes from someone whose name I forget. Years later I found that gentleman was a grad school classmate and best friend of my doctoral advisor at CU, Peter Dorato. What goes around, comes around.”

We are pleased to pass on the information that Brent Hailpern (BS-1976), who is with the IBM Thomas J. Watson Research Center, was recently named a Fellow of the ACM. The announcement is at http://www.acm.org/announcements/itachievers.12-12-03.html. You can also visit Brent’s Web site and learn more at http://www.research.ibm.com/people/b/bth/.

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We would be happy to hear from more of you. Send a paragraph or two and let us know what you have been doing. Send information to: Don Oppliger, DU Math Dept., 2360 S. Gaylord, Denver, CO 80208. or email to: dopplige@du.edu

Elida Nosenzo

At the close of the Spring Quarter this year, Elida Nosenzo left the department to take a position as an actuary in New York City. Elida joined the department in 2001 and her instructional acumen, energy, and good humor have enriched the department and greatly benefited the students of DU. She will be sorely missed.

On the bright side, we are pleased to report that this opportunity will allow Elida to live in much closer proximity to her family. We offer her our heartiest congratulations on this new endeavor and best wishes in all she chooses to pursue.
Solution to last issue’s puzzler— Note that any cut passing through the center of a rectangle will divide the rectangle equally. Thus, the pizza with the missing rectangular piece can be equally divided by making a single cut that passes through the center of the original pizza and the center of the missing rectangular piece. (See the figure to the right.)

Responses to the puzzler were submitted by Orasun Brinker (MA, 1945), Jim Shannon (BA, 1957), Clark Bond (BA, 1960), Bill Brown (BA, 1965), Paul Henkart (BA, 1966), Elie Dick (PhD, 1972), Bill Scruggs (PhD, 1976) and Helen Cahill, Executive Assistant and Budget Officer for the DU Division of Natural Sciences and Mathematics. Our puzzle-guru is on vacation so hopefully we didn’t miss anybody. Thanks very much for your participation.

Petr Vojtěchovský of the Math Department and his wife Kari have written some amusing notes about their thought process in solving this problem. The paper can be read by going to the Web site, www.math.du.edu/~petr and selecting the link research, then the link trifles, and finally the .pdf file, “A problem in fair division”. You will need Adobe Reader to read this file and you can download a free copy of Adobe Reader from the Web site, http://www.adobe.com/products/acrobat/readstep2.html.

A New Puzzler— Consider a game in which 15 dots are placed in a line as represented below.

Playing alternately, two players put a cross on any vacant dot. The winner is the first player to complete 3 adjacent crosses anywhere along the line (the crosses do not all have to be made by the winning player). Can either the first or second player adopt a strategy that will guarantee a win and what is that strategy? Send answers to sbutz@math.du.edu.