

Mark your calendar . . .

## Mathematics Colloquia Fall 2004

Mathematics colloquium talks are Wednesdays 3:40-4:40 p.m. in Science 108. Refreshments are provided.

- Sept. 15 Introduction to colloquium and math faculty. Also, Lynda Olson, Center for Service, Work, & Learning
- Sept. 29 Dan Wolf, student, Augsburg College
- Oct. 13 Kevin Anderson, Carlson Companies
- Oct. 27 Andy Mack, Trident Capital
- Nov. 10 Steve Fredlund, Thrivent Financial
- Dec. 1 Dr. Radka Turcajova, University of St. Thomas**
- Dec. 15 Wendi Winkler, 3M Corporation

## What's inside a digital camera and Photoshop? Mathematics!

**Dr. Radka Turcajova**  
**University of St. Thomas**

Twenty years ago, digital cameras and other devices used for producing, processing and storing digital images were very costly and so their use was

limited to scientific and commercial applications. In recent years, prices have dropped while the capabilities of digital imaging hardware and software have been growing. For a few hundred dollars the consumer can buy equipment much more capable and versatile than the expensive past imaging systems. Digital cameras, camcorders, camera phones and scanners are becoming ubiquitous and making digital images part of our every day life. For a film camera, after you make an exposure its job is done. For a digital camera, it is just a beginning. The camera must next process the data into a viewable image. Mathematics is used instead of chemistry to "develop" raw images captured by a chip. In this talk, we will explore mathematics involved in the operation of a digital camera and also mathematics behind some of the most useful functions commonly available in image editors, such as *Photoshop*®.

## Puzzles & problems are going on hiatus until fall 2005.

### Inversion Contest!

Inversions are words artistically written so that when turned 180 degrees or reflected, the word reappears or a related word appears. Scott Kim's book *Inversions* was published in 1981. A gallery of some of his works can be found at

[www.scottkim.com/inversions](http://www.scottkim.com/inversions).

The MAA publication *Math Horizons* is sponsoring an inversion creation contest. You

can submit mathematical art to a mathematics magazine! Create your inversion and send it to

Dr. Jennifer Quinn  
Dept. of Mathematics  
Occidental College  
1600 Campus Road  
LA, CA 90041

or email: [jquinn@oxy.edu](mailto:jquinn@oxy.edu)  
to be received by Jan. 14, 2005.

### Google Scholar

Check out the new Google search engine for scholars at <http://scholar.google.com>

Thanks to "The Inquisitive Problem Solver" by Vaderlind, Guy, and Larson (MAA publications 2002) that provided some of the puzzles and problems this semester.

*Augarithms* is available on-line at [augsborg.edu/math/augarithms/](http://augsborg.edu/math/augarithms/). Click on the date you want to see.

### *Augarithms*

The Bi-weekly Newsletter of  
the Department of  
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2211 Riverside Avenue  
Minneapolis, MN 55454

Editors.....Su Dorée, Matt Haines  
e-mail address.....[doree@augsborg.edu](mailto:doree@augsborg.edu)  
.....[haines@augsborg.edu](mailto:haines@augsborg.edu)

## URGO Anyone?

### Summer Research Experiences

What's an URGO? It's Augsburg's office of *Undergraduate Research and Graduate Opportunity*, directed by Dixie Shafer, and housed on the first floor of Science, kitty corner to the Mathematics Department.

Interested in doing research this summer? Most experiences in mathematics and science are PAID! For more information, check out URGO's up-coming workshop:

How to Locate Summer Research Experiences

When: Thu, Dec 2, 4:00 p.m. and Wed, Dec 8, 4:00 p.m.

## Solve the Equation, Get the Job.

National Public Radio's "Morning Edition" for Sept 14, 2004 reported that Google was running a mysterious ad campaign at the Harvard Square subway stop: three banners all with the same inscrutable message: "{first 10-digit prime found in consecutive digits of e}.com" That link send viewers to a resume web site. Mathematician and popular author Keith Devlin explains: "High-tech companies in Silicon Valley and elsewhere have been using mathematical and logical puzzles since at least the 1950s in order to try and help recruit people and weed out personnel applicants. ... It's not clear that this really is an effective way of screening applicants, but it certainly does create an image of a company as being very demanding of intellectual talent." Devlin reports (from Google) that the mysterious prime is 7427466391:

$e=2.7182818284590452353602874713526624977572470$   
936999595749669676277240766303535475945713821  
78525166427427466391932003059 ...

[source: <http://www.ams.org/mathmedia/>]

## Da Plane! Da Plane!

Tattoos are back – but not here to stay since they are temporary tattoos. The Mathematical Association of America is sponsoring a tattoo contest!!! Submit your mathematics related 2x2 inch 4-colored designs to [member@maa.org](mailto:member@maa.org) by Friday, December 10, 2004. If your design is selected, you will receive 100 free tattoos and your name in the next issue of *Math Horizons*!

## Financial Planner Internships

Meet with a representative from Thrivent on Tues, Dec 14 10:00 - 3:00 p.m. in the Christensen Center Lobby. She will be recruiting for Financial Planners both for full-time careers and part-time internships. At 4:00 there will be a short information session in the Riverside Room. To attend please contact Sandy at CSWL: [tilton@augsborg.edu](mailto:tilton@augsborg.edu). Sessions are open to current students, as well as alums.

## Science/Health Care Careers Workshop

The CSWL is sponsoring a workshop titled: "What Can I Do With A Career in Science and/or Health Care" on Wed, Dec 1 from 4:45-5:45 p.m. in the Riverside Room. To pre-register, contact Sandy at CSWL: [tilton@augsborg.edu](mailto:tilton@augsborg.edu).



### Fridge Puzzles

For this and other products, check out: <http://www.tessellations.com/>

**How are you Handling Calculus?** – Join students, alumni and faculty at the Science Museum of Minnesota on December 12 at 1:00 p.m. as they explore the interactive exhibit on calculus called "Handling Calculus". For information on the exhibit, see [www.terc.edu/mathofchange/CM/home.html](http://www.terc.edu/mathofchange/CM/home.html). For information on the museum: [www.smm.org](http://www.smm.org). Contact Tracy Bibelnieks ([bibelnie@augsborg.edu](mailto:bibelnie@augsborg.edu)) for more information on the trip.