Endowed Chair Talk

Don’t miss Jack Goldfeather’s Endowed Chair Talk on Thursday, April 21 at 4:30 PM in the Gould Library Athenaeum. Goldfeather, who is the William H. Laird Professor of Mathematics, Computer Science, and the Liberal Arts, will be speaking on “The Mathematician’s Canvas: My Journey in Computer Graphics Research.” The talk is sponsored by the Mathematics Department and the Dean of the College, and will be for a general audience. As if you needed a reason to go, math majors can receive required talk credit for attending.

We so excited

Tired of Rebecca Black? Us too, we would prefer to watch cool math videos on YouTube. (Although we do confess to a strange fondness for the Dylan version of Friday.) The faculty have chosen some of their favorite math videos and we will screen them over lunch on Tuesday, April 19 in CMC 206 from 12:00 to 1:00 PM. The department will provide pizza, so come join us! (If you’ve got a suggestion for an awesome math video to add to our playlist, send it to jarmel@carleton.edu).

Problem-Solving in the Spring?

From 4:30 to 6:00 PM each Wednesday throughout the spring, students like you who are interested in problem-solving gather in CMC 328 to work on problems that have been posed in journals like Mathematics Magazine, Math Horizons, the College Mathematics Journal, and the American Mathematical Monthly. Many of the solutions we have submitted over the years have been acknowledged in these journals, and the most recent issue of Math Magazine even contains our complete solution to problem 1842, which concerns constructing certain lines through a family of hexagons. This is a somewhat rare honor, since these journals receive many solutions to each problem, but print only one. Check out our work (in problem-solving circles we go by our nom de plume, CMC 328), and please join us sometime if you’re interested in trying out some cool problems!

Congratulations, Fellowship Winners!

The Mathematics Department is pleased to announce that three of our recent majors, Julia Fisher ’07, Kiva Oken ’11, and Danny Wells ’11 were awarded the prestigious NSF Graduate Research Fellowship this year. Julia is currently studying psycholinguistics at the University of Arizona. Kiva will start a program in environmental probability and statistics in the fall, though she has yet to decide between schools. Danny is in an applied math program at Northwestern, using network models to study cancerous cells. Graduating seniors and those early in their graduate work are eligible to apply. More information can be found through www.nsfgrfp.org or by contacting your friendly neighborhood math professor! Congratulations also to Michael Knudson ’12! He will be spending next year in Norway on a Fulbright Fellowship. See www.cies.org/about_fulb.htm for more information.
I started grad school at the University of Colorado at Boulder eight weeks after graduating from Carleton. I was at CU for six years, earning my M.A. and Ph.D. in mathematics. After a six month hiatus back in the Twin Cities with my family, I moved to Silicon Valley and began work as a software developer at SAP, where I have been employed for almost 11 years.

I’m a Director of Product Management in the Product Design Group, which is part of the On-Demand application organization at SAP. I work in an interdisciplinary team with designers, engineers, and product managers to help the On-Demand organization embrace the mindset, methods, and approach necessary to define, build, and deliver products that redefine enterprise software and delight our customers.

The most useful skill that I learned through the study of mathematics is the ability to analyze and solve very large and complex problems. Bringing an analytic mindset is valuable to solving many problems in enterprise software. It is also very helpful to apply the right side of the brain to generate innovative and creative solutions to these types of problems. Being able to bring both the analytic and creative approaches to solving problems has been a key to my success.

Loren Woo (’93) is Director of Product Management at SAP. For his full profile, visit https://apps.carleton.edu/curricular/math/ggnews/.

**PROBLEMS OF THE WEEK**

1. a) Find all (real) solutions to the equation
   \[ \sqrt{1 + \sqrt{x}} = \sqrt[3]{1 + \sqrt{x}}. \]
   b) Find all solutions to
   \[ m\sqrt{1 + \sqrt{x}} = n\sqrt{1 + \sqrt{x}}, \]
   where \( x \geq 0 \) and \( m, n \) are positive integers.

2. Find all integers \( n > 1 \) with the property that if the sequence of factorials
   \[ 1! = 1, 2! = 2, 3! = 6, 24, 120, 720, 5040, \ldots \]
   is taken modulo \( n \), then each of the possible remainders \( 0, 1, 2, \ldots, n - 1 \) will appear in the sequence. (The remainders could appear in any order.) Make sure to show why the integers \( n \) you found are the only ones.

   The first problem posed April 1 has been dealt with by a “troika” of solvers working together, specifically Ben Strasser, Abram Jopp, and Justin Troyka. A representative from this group is welcome to stop by CMC 217 to claim a B.B.O.P. item, but I’m not sure that there are any such items that will divide well into three equal pieces. As for last week’s problems, John Snyder in Oconomowoc continued his impressive use of Mathematica, finding the correct answer for the first problem. (There was a serious but incorrect attempt on the second problem.) More solutions for those problems would certainly be welcome (if you’re not into using Mathematica, don’t worry, they can be done without technology), along with solutions for the new problems above.

   - Mark Krusemeyer