

# Mathematics Alumni Newsletter



Winter 2008

**Meet Our New Faculty** We have welcomed six new colleagues during the last year, three assistant professors and three lecturers. All are terrific individuals and teachers and we have already benefited immeasurably from their presence.

Our new assistant professors, self-profiled in this issue, are Nick Galatos, Natasha Dobrinen, and Frédéric Latrémolière. Each brings to DU a strong, well established research program and the possibility for considerable mathematical collaboration. In the summer 2008 issue of the newsletter, we'll profile our new lecturers, Allegra Reiber, Annette Locke, and Ray Curran.

*Jim Hagler*



**Nick Galatos** joined the department last September. His research interests lie in the areas of Algebraic Logic and Universal Algebra. In his work he applies algebraic methods to solve problems in logic and vice versa. He recently coauthored a book on the subject, where residuated lattices are shown to be the algebraic models of substructural logics. After obtaining his B.S. in 1998 from Aristotle University in Greece, Nick continued his studies at Vanderbilt University where he earned his M.S. in 2000 and his PhD in 2003. He worked as a postdoctoral researcher during 2003-2004 and as an Assistant Professor during 2005-2007 at the Japan Advanced Institute for Science and Technology. He spent the academic year 2004-2005 as an Assistant Professor back at Vanderbilt University. Nick, with Natasha Dobrinen and Rick Ball, will be organizing a conference in logic this summer. BLAST 2008 will be held at DU this year and will hopefully be part of a series of meetings that will rotate among neighboring states. Nick and his wife Smarula recently had a son, Chris, with whom they enjoy spending a lot of their time. They all enjoy Denver and the greater mountain area of the US.



**Natasha Dobrinen** grew up in the heart of San Francisco. From the time of high school graduation until 2007, her passion for mathematics has been leading her on an eastward journey of 15 years. Starting from San Francisco, she moved roughly 20 miles east to attend Berkeley. It was at Berkeley that she fully realized her love for abstract mathematics while taking Charles Pugh's Honors Real Analysis course. It was

only years later that she found out this course was truly Set Theory in disguise. After earning a BA at Berkeley, she moved half-way around the country to the fair land of butter and lakes, where the state bird is the mosquito, Minnesota, where she discovered her love for Boolean algebras, that perfect combination of set theory, analysis, and topology, and earned a PhD under the supervision of Karel Prikrý. Starting with her thesis work, embeddings of and games on Boolean algebras form some of the long-term themes in Natasha's research. Next came her first post-doc, at Penn State. There, with mentor Steve Simpson, she helped open up a new field in recursion theory using ideas from Set Theory and Measurable Boolean Algebras. After that, the eastward move was a trans-Atlantic one, with the plane touching down in Vienna. There she worked with Sy Friedman at the aptly named Kurt Gödel Research Center for Mathematical Logic, a research group located at the University of Vienna and housed in the Josephinum, an old historical building isomorphic to Schloss Schoenbrunn (the summer palace). The cafe situation in Vienna was very conducive to proving equiconsistency theorems involving large cardinals and developing addictions to second hand nicotine *und café mit schlag*. It was in Vienna where she finally felt validated in writing long complex sentences with several modifying clauses. Her present and final destination of Denver marks the happy end of this odyssey, although not of her travels.

Mathematics is just one aspect of Natasha's life. Her first language was actually classical music. She learned a bit of piano at the age of two, and by four had also started violin lessons. Her true instrument, though, is the flute - and she is currently looking for people with whom to play chamber music. She also enjoys swimming and other sports and being a part of a church community.



**Frédéric Latrémolière** joined the faculty as an assistant professor in September 2007. He received his PhD in Mathematics from the University of California, Berkeley in May 2004 under the supervision of M. Rieffel. His current academic interests are in the realm of functional analysis and, more specifically,  $C^*$ -algebras. His work includes papers on metric noncommutative geometry, action of finite groups on  $C^*$ -algebras, and examples of  $C^*$ -crossed products for discrete dynamical systems.

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## John Greene Hall (1958 To The Present)

As we mentioned in the previous newsletter, 2008 marks the fiftieth anniversary of John Greene Hall. Perhaps those of us who spend a lot of time here have a biased perspective, but we're pretty fond of the place. So, we thought it would be nice to look at some events in the life of the building. You can find more pictures by visiting the math Web site at [www.math.du.edu](http://www.math.du.edu), clicking on Departmental Life, and then Newsletter.



The crowd gathers for the ribbon-cutting and dedication of John Greene Hall in 1958. (Notice that it's only two stories.)



Lots of speech-making must have taken place. The speaker here is Robert Selig, then-President of the Board of Trustees.

Cutting the ribbon. The person in the center of the group of three men in the foreground is Chester Alter, chancellor from 1953 to 1966.



## John Greene Hall (1958 To The Present)



John Greene Hall as it appeared in 1958. The old cars seen here tend to validate the time frame of the photo.

An architect's rendering of the design for John Greene Hall with the added third story.



John Greene Hall with the third story under construction and, on the right, John Greene Hall as it looks today.



We don't have the hallmark copper roof like the new buildings on campus, but we're proud of our ability to adapt in John Greene Hall and to keep our classrooms as updated as possible with the technology required for today's educational needs.



## Math Puzzler

**Last month we had two puzzlers. The first read ...**

### **Bill and Ted's Excellent Race**

Bill and Ted race each other in a 100 yard dash. Bill wins by 10 yards. They decide to race again, but to make things fair, Bill starts 10 yards behind Ted.

If they both run exactly the same speed as before, who wins the race?

**Solution:** Bill will win again. In the first race Bill ran 100 yards in the time it took Ted to run 90. Therefore in the second race, once Ted has run 90 yards they will both be side by side. Since Bill runs faster, he will take less time to run the last 10 yards than Ted and will therefore win.

We had several successful solvers of this puzzler: Bill Clayton (BA, 1969), Jim Fogleman (former Dean of NSM), Marci Potter Jasek (BA, 1973), and Mary Krimmel (MA, 1970).

### **The second puzzler involved seating arrangements as follows ...**

Suppose that five people are randomly assigned seats in a room which has 15 chairs. Determine the probability that no two people are seated next to each other if:

- a) the chairs are arranged in a row or, b) the chairs are arranged in a circle

**Solution:** The answers are provided below, however, the details of the solutions are a bit more lengthy than usual so we are not reproducing them here. You can find them by going to the math department Web site at [www.math.du.edu](http://www.math.du.edu), clicking on Departmental Life, and then Newsletter. No solutions were submitted for this second puzzler.

Part a) - The probability that no two people are seated next to each other is  $2/13$ , or about 15.4%.

Part b) - The probability that no two people are seated next to each other is  $18/143$ , or about 12.6%.

And now, for our next puzzler — an **easy** problem to be solved **in less than 3 minutes** without a calculator! ... What is the greatest whole number that must be a factor of the sum of any four consecutive positive odd numbers?

Solvers of this puzzler should provide a proof.

Send your solutions to Sharon Bütz - [sbutz@math.du.edu](mailto:sbutz@math.du.edu)

This is an example of an easy problem a student might solve at a MATHCOUNTS® competition. Students in 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> grades compete as both individuals and in teams. (For more information, and harder problems, see [www.mathcounts.org](http://www.mathcounts.org).) Our department hosts the Denver Metro competition every year and the state competition every other year. This year, the national competition will be held in Denver May 8-11! We would love to form a cadre of volunteers affiliated with DU for a variety of jobs. If you are interested in volunteering or just receiving MATHCOUNTS® information, please contact [sbutz@du.edu](mailto:sbutz@du.edu) to be on an e-mail list. Note that the final individual competition is free and open to the public.

### **Meet Our New Faculty** (Continued from page 1)

Prior to earning his PhD, Frédéric was a student in pure mathematics at the University of Paris VI (Pierre et Marie Curie) where he obtained a Master-equivalent degree. He was also a student at the Ecole Nationale de la Statistique et de l'Administration Economique (ENSAE) in Paris, a Grande Ecole specializing in statistics and economics and obtained a dual Master-equivalent degree in these two majors. Frédéric then joined the PhD in Statistics program at Berkeley, where his successful completion of the qualifying exams gave him a Master in Statistics from Berkeley. He then changed his interests to pure mathematics and was accepted to the PhD in Mathematics program. In addition to mathematics, statistics, and economics, Frédéric was educated in physics and computer science.

After obtaining his PhD, Frédéric was a postdoctoral fellow at the University of Toronto until 2006 when he became a visiting assistant professor at the University of Cincinnati for one academic year and then a visiting scholar at Berkeley for two months over the summer of 2007. Frédéric's hobbies are astronomy and computer programming, as well as holding long conversations about pretty nearly any subject that crosses his mind at the moment.