

# Notre Dame Math Newsletter

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## Spring 2016

As we welcome the warmer months here in South Bend, we wish to reflect a bit on the past academic year. There has been a lot of good news this year for the department (detailed below) and so we have a lot to celebrate! As graduation approaches, we congratulate all of our graduates and wish them luck as they leave Notre Dame. We also want to recognize and congratulate all of our various award winners, and wish everyone a safe and productive summer.

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## Professor Claudiu Raicu named a 2016 Alfred P. Sloan Fellow

Congratulations to Claudiu Raicu, an assistant professor of mathematics, who has received an Alfred P. Sloan Research Fellowship. The Alfred P. Sloan Foundation has awarded the two-year fellowship to 126 researchers across the nation, including just 20 recipients in mathematics. In recognition of his distinguished performance and unique potential to make a substantial contribution to his field, he will receive a \$55,000 award.

Raicu, who earned his undergraduate degree at the University of Bucharest in 2007, earned a Ph.D. at the University of California, Berkeley in 2011 and conducted postdoctoral research at Princeton University before coming to Notre Dame. His research is in algebraic geometry and commutative algebra, a growing field within the Department of Mathematics. Raicu's research focuses on investigating the implications of symmetry to the structure of the solution sets of systems of polynomial equations.

The Sloan award supports researchers' ongoing education and collaboration, including trips to conferences, organizing workshops, supporting students, and hosting other scholars for research collaborations and seminar talks. Since the program started in 1955 recipients have included 43 Nobel Prize winners and 16 Fields Medalists. Chair of the Department of Mathematics Michael Gekht-

man nominated Raicu for the honor.

*Originally published by Gene Stowe and Marissa Gebhard at [science.nd.edu](http://science.nd.edu) on March 17, 2016.*

## NSF RTG grant in Geometry and Topology

The Geometry and Topology group at Notre Dame has had their proposal for an NSF Research Training Group recommended for funding by the Directorate. This grant will bring money specifically meant for funding postdoctoral researchers, funding graduate students, and funding various initiatives meant to help graduate students and undergraduates interested in pursuing careers in geometry or topology. The grant will also contribute renewed funding towards the Math For Everyone lecture series and other initiatives such as a Math Club exchange program and various undergraduate workshops.

The faculty in the geometry and topology group involved in the grant are Professors Mark Behrens, Matthew Gursky, Liviu Nicolaescu, Stephan Stolz, and Gábor Székelyhidi. Professor Arthur Lim also worked on the mentoring and teaching aspects of the grant, as well as Amanda Sereney of the Riverbend Community Math Center.

Congratulations to all who are involved!

## NSF Graduate Fellowship Awardee - Michael Perlman

Congratulations to graduate student Michael Perlman who was a 2016 recipient of a National Science Foundation Graduate Research Fellowship. The NSF-GRFP recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, mathematics, and social science disciplines who are pursuing research-based degrees. The award provides a stipend, tuition support, and research funds for three years.

Additionally, James Quigley earned an honorable mention for the NSF Graduate Fellowship. This is his second year earning this distinction.

Congratulations Michael and James!

## Professor Jeffrey Diller named new Chairman

With the end of the academic year comes the end of our current chairman, Professor Michael Gekhtman's term as chair. We welcome our incoming chairman Professor Jeffrey Diller. We thank both Michael and Jeffery for their service to the department.

## Summer Conferences at Notre Dame

This summer we will be having a number of events on campus.

- **Quivers and Bipartite Graphs** - This conference will be held May 2-6 in London at the University of Notre Dame's London Gateway.
- **Midwest Commutative Algebra and Algebraic Geometry Conference: A meeting in honor of Juan Migliore** - This conference will be held May 16-19.
- **Thematic Program on Model Theory** - This is a three week program organized by the Center for Mathematics at Notre Dame. The undergraduate summer school is June 6-10; the Graduate student and Post-doc mini-courses will be June 13-17; and the International Conference will be held June 20-24.

## Undergraduate Awards

- **Aumann Prize For First Year Students in Mathematics** - A prize given by Ms. Monika Caradonna

in honor of her father, Professor Georg Aumann. Awarded competitively to the first year honors mathematics student on the basis of recommendations made by the faculty. The 2016 prize is awarded to Danny O'Connor, congratulations Danny!

- **J & C Sophomore Mathematics Award** - Exemplary performance in Mathematics classes by a non-honors Math major sophomore Female or Minority student. The 2016 prize is awarded to Colleen Halpin, congratulations Colleen!
- **George Kolettis Awards in Mathematics** - An award established by friends of the late Professor George Kolettis, for a graduating senior who excelled in mathematics and contributed notably to the esprit de corps of the mathematics student body. The 2016 prize is awarded to Austin Rodgers, congratulations Austin!
- **Senior GE Prize for Honors Mathematics Majors** - A monetary gift from the General Electric Foundation, awarded to senior honors majors in the Department of Mathematics who, in the opinion of the members of the faculty, excelled in mathematics in their senior year. The 2016 prize winners are Austin Rodgers and Jonathan Vandenburg, congratulations Austin and Jonathan!
- **Senior GE Prize for Mathematics Majors** - A monetary gift from the General Electric Foundation, awarded to senior honors majors in the Department of Mathematics who, in the opinion of the members of the faculty, excelled in mathematics in their senior year. The 2016 prize winners are Eun Seuk Choi (Eric) and Ethan Yuxuan Chen, congratulations Eric and Ethan!

## Putnam Contest High Scorers

Every fall math students all over the country participate in the William Lowell Putnam Competition. It is widely considered to be the most prestigious university level mathematics examination in the world, and its difficulty is such that the median score is often zero or one (out of 120).

This year the top scorers at Notre Dame (we define top by getting more than 10 points) are the following students :

- **First Place:** Sean Kent
- **Second Place:** Christian Gorski and Haoqi Jin
- **Third Place:** Mauricio Segovia Pacheco, Juan Borrero, and Gregory Greif

## Graduate Student Award - Richard Sady Dissertation Award

Richard Sady (Ph.D. Mathematics, Notre Dame, 1977) was a witty, clever grad student at Notre Dame. He was very popular around here for his mordant commentary and his good humor. He wrote an excellent thesis in Geometric Topology (classifying free involutions on homotopy complex projective spaces). He was a promising mathematician. He then became an Assistant Professor at UNC Pembroke. Sadly, he suffered from a rare blood disease to which he succumbed in 1982.

While there has been a long standing prize in Sady's name for the best first year student given in the Fall Semester, this year we are excited to give the first ever Richard Sady Dissertation Prize for the best Ph.D. dissertation amongst those graduating in 2016. The Sady Dissertation Prize winner this year is Xumin Jiang for his dissertation titled "Boundary expansions for minimal graphs in the hyperbolic space". Xumin was advised by Qing Han and Karsten Grove.

Congratulations Xumin!

## Congratulations to our new Ph.D.s

The math department congratulates the following students who will graduate from the Ph.D. program this May.

- Xumin Jiang - "Boundary expansions for minimal graphs in the hyperbolic space", will be a Hill Assistant Professor at Rutgers University next year
- Jeffrey Madsen - "Equations of Rees algebras and singularities of rational plane curves", will be a Visiting Assistant Professor at Purdue University next year
- Alexander Diaz-Lopez - "Root systems for reflection systems", will be a Visiting Assistant Professor at Swathmore College next year
- Somayeh Vojdani - "On Presburger arithmetic, non-standard finite cyclic groups, and definable compactifications"
- Augusto Ritter Stoffel - "Supersymmetric field theories and orbifold cohomology", will be a Postdoc at Max Planck Institute for Mathematics next year