



NORTHERN ILLINOIS UNIVERSITY

**Department of Mathematical Sciences**

*College of Liberal Arts and Sciences*

# **2018-19 Newsletter**

Department of Mathematical Sciences

## Chair's Corner



Hello again from the chair of the Mathematical Sciences Department. It has been an eventful year, to say the least! NIU has a new provost, the former "acting" president, Lisa Freeman, has been made president, and the [Division of Statistics](#) is now its own separate department. The list of significant changes and decisions made at the

institutional level goes on and on. In this newsletter we will concentrate on departmental activities and information, and as you will see, there is plenty to report on in that regard.

It's traditional to briefly run down some personnel changes in this column. I'm very pleased to report that we finally were able to hire an office administrator. Constance (Connie) Spohn came on board last fall and we're delighted to have someone with lots of NIU experience in that job; Connie first came to NIU

in the mid '90s. Also new in the office is Melody Winter, secretary to the assistant chair. Other new hires (instructors and tenure-track faculty) joining the department this coming fall semester are mentioned in separate articles below. While we didn't have any retirements per se, we did have three people leave for positions at other institutions. Paul Dawkins returns to his home state to teach at Texas State University. Michael McCabe is leaving for a permanent position at College of DuPage and Christopher Purdy is joining the full-time faculty at Waubensee Community College.

We have much news to report to you this year. Please read below on important events, exciting developments and various accolades earned by our students, faculty and your fellow alumni.

We work to stay in touch with all our graduates and welcome your news and views. As always, please visit our [Facebook](#) page and feel free to post information on your doings.

Jeffrey Thunder

## Department Welcomes New Faculty and Instructors

The department is pleased to welcome two new tenure-track faculty this coming academic year, both in mathematics education.

**Rachel Rupnow** received her Ph.D. in mathematics education from Virginia Polytechnic Institute and State College ("Virginia Tech") this spring. She also holds an M.S. in mathematics from Michigan Technological University and a B.S. in secondary mathematics education from Martin Luther College. She focuses on Research on Undergraduate Mathematics Education (RUME), in particular, the teaching and learning of abstract algebra.

**Ricela Feliciano-Semidei** comes to us from the University of Montana, Missoula, where she received her Ph.D. in mathematics (education emphasis) this spring. In addition, she has an M.S. in mathematics (statistics emphasis) and B.S. in mathematics (pure mathematics emphasis) from the University of Puerto Rico, Mayaguez. She also holds a secondary teacher certification from the Department of Education of Puerto Rico. Her main research interest is teaching and learning of students from under-represented minorities, and also pre-service and in-service mathematics teachers.



The department welcomes new instructors **Young Huh** and **William O'Conner** who will start this fall. O'Conner received his M.S. from the department this summer and Huh received his from Purdue University. Huh has extensive teaching experience and has also worked in the telecommunications industry (AT&T Laboratories, Lucent Technologies and Motorola). O'Conner is an Illinois native, receiving his B.S. in mathematics at Illinois Wesleyan University, and considers teaching a genuine calling: "My goal is to help students gain a better appreciation of mathematics with intuitive instruction."



## Officers of the Department

**Chair:** Professor Jeffrey Thunder

**Assistant Chair:** Professor John Wolfskill

**Director of Undergraduate Studies:** Professor Qingkai Kong

**Director of Graduate Studies:** Professor Sien Deng

**Director of the AIC:** Professor Anders Linnér

**Coordinators of Educator Licensure:** Renee Olsen and Paul Stevenson

## STEMfest 2018



For the eighth year in a row, the department manned a booth in the university's [STEMfest](#) held last October. Professors Krislock and Mincheva were in charge of a group of enthusiastic math majors who interacted with children of all ages, exposing them to the joys and utility of mathematics. Rumor has it that the chair of the department stopped by with his grandson, too. If you happen to attend this fall's event on Oct. 19, please make a point of dropping by and saying hello.

## Department Hosts Annual Math Contest



As usual, the department was proud to host a regional ICTM math contest for high school students this past February. We have hosted these contests now for 39 years straight - from the time they first started, in fact! It was a rousing success once more, with more than 400 high schoolers from 17 different regional schools coming to campus to compete in written and oral events.

Many of you perhaps participated in the contest when you were in high school, and certainly quite a few of you helped with hosting the contest during your student years at NIU. **Cindy Stecher** was one of the original ICTM organizers and the reason we've been a host all these

years. Professor **Peter Waterman** was the chair of the department committee responsible for running it for many years. Since his retirement, professor **Anders Linner** has taken on that mantle. Stecher and Waterman (and even son James, also an alumnus) still drop by to help out on contest Saturday.

This year we had a new twist: acting dean **Judy Ledgerwood** from the College of Liberal Arts and Sciences was on hand to address the contestants (and potential future NIU undergraduates!) at the awards ceremony held that afternoon in Carl Sandburg Auditorium. Next year perhaps we can have the provost or even president say a few words. Next year's contest will be a major milestone: 40 years!

## Applications and Involvement Component (AIC) Activities

A unique and crucial component of our Ph.D. program is the Applications and Involvement Component (AIC). Doctoral students attend a weekly seminar where they are shown “real world” applications of mathematics in other academic disciplines, government laboratories, and industry. The AIC culminates in a semester internship where our students apply their knowledge and develop new skills in applying mathematics to today’s scientific, engineering and data-intensive questions. After the internship, the student produces a written report on their experience and delivers a presentation in the AIC seminar. This last year a whopping seven graduate students completed their AIC-requirements, successfully reporting and presenting on their internships.

**Rexford Akakpo** worked with the NIU biology department on a project titled “Soil microbial chronosequence data correction.”

**Fatmah Alnaser** worked with the NIU biology department on the project “Metabolic scaling in two

species of colonial cnidarians.”

**Philippe Dovoedo** worked with the biology departments of NIU and University of Nebraska, Lincoln on the project “Protein clustering and classification.”

**Hao Shen** worked with the biology department on a project titled “Estimate pCT effect in NHA and HUVEC cells by measuring +H2AX foci.”

**Takeena Mirza** also worked with the NIU biology department (they obviously had a plethora of projects for our students recently!) on the project “Soil microbial community composition.”

**Dylan Rambow** worked at Alu-Bra Foundry Inc. on the project “Working with databases and elementary critical path analysis.”

**Brooke Randazzo** worked at InteQ on “customer “love scores” and customer segmentation.”

The above projects utilized a broad range of mathematical, statistical, and modeling applications, and also specialized software (e.g., MATLAB, R, ImagePro).

## Our Newest Ph.D.s

**Ahmed Al-Jilawi** (August 2019) wrote his dissertation, Solving the Semidefinite Programming Relaxation of Max-cut Using an Augmented Lagrangian Method, under the direction of professor Nathan Krislock.

**Jie Huang** (August, 2019) wrote his dissertation, Bivariate Cure Rate Model Using Copula Function in Presence of Censored Data and Covariates, under the direction of professor Nader Ebrahimi.

**Suvo Chatterjee** (August, 2019) wrote his dissertation, Bayesian Functional Data Analysis over Dependent Regions and its Applications for Identification of Differentially Methylated Regions, under the direction of professor Duchwan Ryu.

**Philippe Dovoedo** (August, 2019) wrote his dissertation, Heavy Tailed Distributions, under the direction of professor Alan Polansky.

## The 34th Annual NIU Math Contest

The 2019 Northern Illinois University Mathematics Contest took place on February 27th. First place, with the prize of \$150 went to **Carl Beezhold**, a freshmen Mathematical Sciences (General Mathematics) major. **Zhaoyang Qin**, a junior Mathematical Sciences (Probability and Statistics) major, placed second, and won \$100. Third place, with the prize of \$75, was won by **Ying Ji**, a junior Mathematical Science (Probability and Statistics) major. The winners were recognized at the Department of Mathematical Sciences’ Award Ceremony and Reception on April 28.

The annual Northern Illinois University Mathematics Contest has a format where freshmen and sophomores have a fair chance to compete with juniors and seniors. The underclassmen have fewer restrictions on their choice of problems to attempt. The contest is open to all full-time undergraduates at NIU. Each contestant turns in solutions to a choice of six out of 11 problems. Topics this year ranged from logic puzzles, algebra and geometry through calculus, differential equations, and linear algebra. Professors **Michael Geline**, **Gleb Sirotkin** and **Y.C. Kwong** supervised the competition.

## Math Club Wins MAA Contest



On March 29-30, three representatives of the NIU Math Club travelled to Carbondale to attend the Illinois MAA Section Meeting and compete in the undergraduate mathematics contest. The team of **Cassie Mohr**, **Kevin McNeely** and **Eli Brottman** came in first in the contest. The group also got to hear a number of presentations of undergraduate research from other students from across the state. Pictured (left to right): conference organizer Peter Andrews of Eastern Illinois University; Brottman, Mohr and McNeely. Congratulations, Math Club!

## Department Hosts Fulbright Scholars



position at Chungnam National University in Korea. He was awarded his Fulbright scholarship to work with Distinguished Emeritus Teaching Professor **John Beachy** on ring theory (universal localization) and module theory (the subcategory determined by a module).

While at NIU, Medina gave a colloquium talk and gave weekly seminar talks on the book “Lectures on Algebraic Quantum Groups” by Brown and Goodearl. In April the department enjoyed a weeklong visit of two of his fellow Fulbright colleagues, Lizbeth Sandoval-Miranda of Universidad Autónoma Metropolitana and Angel Zaldivar-Corichi of Universidad de Guadalajara. They each gave a seminar talk, and collaborated on several research projects.

This academic year the department hosted Fulbright research visitor, Mauricio Medina. He received his doctorate from Universidad Nacional Autonoma Mexico in Mexico City in 2016, and then had a postdoctoral

The department would like to thank professor Medina for an enjoyable and productive visit. We wish him well in his future academic career. Pictured, from left to right: Medina, Zaldivar-Corichi and Sandoval-Miranda.

# 2019 Mathematical Sciences Awards

The 41st annual Award ceremony was held April 28, 2019, in the Barsema Alumni and Visitors Center Pollock Ballroom. At the reception, Department Chair professor Jeff Thunder and professor Paul Dawkins presented the following awards and scholarships.

## Incoming Freshman Scholarship

Andrew Farnsworth Benjamin Jenkins  
Katie Kochendorfer Kaitlin Siener  
Brandon Thomposon

## Clarence Ethel Hardgrove Scholarship

Brandon Ahne Carl Beezhold  
Eli Brottman Jackie Chavez  
Jordan Lung Laura Ndialeloc  
Bianca Spalla

## Joseph C. and Marion E. Huber Memorial Scholarship

Kyle Seebach Bianca Spalla

## Michael J. Krowka Scholarship

Kathryn Ekwall

## Gail Masters Gallagher Memorial Scholarship

Caroline Magnuson Alyssa Mohr  
Isabel Stone Matthew Swed

## Tatsuji and Mami Kambayashi Memorial Scholarship

Kristie Kaminski Emma Wille

## Dale G. Jungst Memorial Scholarship

Pamela Hollingshead Clayton Morrison  
Jonathan Regnery

## Chaitan and Sarita Gupta Scholarship

Patsy Alvarez

## Dorothy and Glenn Erickson Scholarship

Allyson Hansen Isabel Stone

## Norma K. Stelford Memorial Scholarship

Zachariah Dick Michael Hollander  
Cassandra Mohr Sean Smart  
Siyu Tao Guangting Zhou

## Carol J. Feltz Scholarship

Andrea Jackson-Sagredo

## Peter Nicholls Graduate Scholarship

Scott Rexford

## Allstate Actuarial Scholarship

Kimberly Simms

## NIU Math Contest

Carl Beezhold, first place Zhaoyang Qin, second place  
Ying Ji, third place

## M.M. Wheeler Scholarship

Patsy Alvarez Allyson Hansen  
Caroline Magnuson Clayton Morrison  
McKayla Snedeker Isabel Stone

# Mathematical Sciences Awards (continued)

## M.M. Wheeler Teaching Award

Rebekah Gale Kyle Henning  
Megan Martinez Krystal Santaniello  
Sean Smart Evelyn Sorto  
Ian Sugrue Lucia Torres  
Evelyn Youel

## Donald R. Ostberg Award

Brook Randazzo Matthew Swed

## Certificate of Teaching Excellence

Jared Brady Amanda Muteteke

## Outstanding Graduate Student Award

Jared Brady Philippe Dovoedo  
Kacy Kane Jacob Pratscher  
Torin Quinlivan Scott Rexford  
Thomas Ventimiglia

## Honorable Mention Undergraduates

Ryan Habben Andrea Jackson-Sagredo  
Ryan Johnson Kevin Kang  
Ryan Lewis Kevin McNeely  
Lucia Torres Evelyn Youel

## Honorable Mention Graduates

Allison Abels Anthony Bartman  
Yu-Fang Heather Flynn  
David Garrison Brock Hutchinson  
Amanda Muteteke Justin Neely  
Peter Sassman Nan Shen

## Certificate of Merit Undergraduates

Killian Anderson Kathryn Ekwall  
Cody Ferencz Thomas Franczak  
Chun Gao Christian Gregg  
Alexandra Hill Taz Kuster  
Wenhao Tang

## Certificate of Merit Graduates

Ahmed Al-Jilawi Kakoli Bhuyan  
Stephen Brooks Eric Johnson  
William Mackelfresh William O'Conner  
Paramahansa Pramanik Dylan Rambow  
Hao Shen Zhexuan Yang  
Qijing Yu

## Dean's Award

Kyle Henning (Math) Michael Hollander (Stats)

## Director's Award

Wenhao Tang (Stats)

## Chair's Award

Cassandra Mohr



# Abel Prize News

The Abel Prize was established in 2002 by the Niels Henrik Abel Memorial Fund to recognize “contributions of extraordinary depth and influence in the mathematical sciences.” (Abel is the name behind the term “abelian,” which you may remember from your abstract algebra class.) Unlike the Fields Medal which has an (unwritten) rule of being awarded only to those under the age of 40, the Abel Prize is more analogous to the Nobel

Prize. This year’s award is especially noteworthy in that was awarded to a woman mathematician for the first time: **Karen Uhlenbeck**. Her award cites “her pioneering achievements in geometric partial differential equations, gauge theory and integrable systems, and for the fundamental impact of her work on analysis, geometry and mathematical physics.”

# More News

The department is pleased to announce that professor **Yunier Bello-Cruz** has been promoted to associate professor with tenure, effective this August. Yunier came to the department in 2016 from the Federal University of Goias in Brazil. He received his Ph.D. from IMPA in Brazil and had a post-doctoral position at UBC in Canada. Professor Bello-Cruz is an expert in convex analysis and optimization and enjoys a worldwide reputation. This university promotion is a testament to his scholarship and promise for the future. Congratulations, Yunier!

Professor **Bello-Cruz** has had lots of good news this year. In addition to his successful tenure case, he also is a principal investigator on a three year research grant from the National Science Foundation. Competition for these individual research grants is intense. Receiving this grant is a real accomplishment!

He isn’t the only one with grant funding news. Professor **Mary Shafer** is a principal investigator on a \$1.6 million Northern Illinois STEM Ready (NISR) grant from the Illinois State Board of Education. Under the grant, dozens of primary and secondary educators from “high-need LEAs” will receive training in the instruction of mathematics. This grant

and training also involves Distinguished Emeritus Teaching Professor **Harvey Blau** and Emeritus Professor **Richard Blecksmith**, in addition to two of our mathematics education graduate students, **Peter Sassman** and **Kevin Shryock**.

Distinguished Emeritus Research Professor **Anton Zettl** has written a book, “Ordinary Differential Operators,” with coauthor A. Wang which is to be published by the American Mathematical Society.

**William Speer**, B.S. 1968, is the latest recipient of the Lifetime Achievement Award from the National Council of Teachers of Mathematics (NCTM). The prize citation states that Speer “has spent most of his life working to improve mathematics education,” including such work as being a member of the 1991 writing team that created the NCTM’s Professional Standards for Teaching Mathematics.

**James Waterman**, B.S. 2016, was the winner of the Early Career Poster Prize awarded at the Resonances of Complex Dynamics Workshop in Edinburgh last July.

**Rita Patel**, Ph.D. 2013 won the Early Career Teaching award from the Illinois Section of the Mathematical Association of America. She received her award at the ISMAA meeting this last March in Carbondale.

# 25th Anniversary Alumni

Congratulations on the 25th anniversary of the class of 1994. Here is a listing of the class and their current hometowns. If you can update any information, we would appreciate your help.

**Mrs. Kaisone Rush**  
Naperville, IL  
**Mr. Jiangang Zhou**  
Palatine, IL  
**Ms. Alma A. Contreras**  
McHenry, IL

**Professor Falatsi D. Molefe**  
Naperville, IL  
**Mr. Alvin O. Cruz**  
Arlington Heights, IL  
**Mr. Udayasir Senevirathne**  
DeKalb, IL

**Ms. Denise Shaughnessy**  
Cumming, GA  
**Ms. Alisa A. Schueneman**  
Columbus, OH  
**Mrs. Ann M. Brady**  
Saint Charles, IL

# 25th Anniversary Alumni (continued)

**Mr. Thomas G. Warren**  
Tinley Park, IL  
**Professor Steven J. Kifowit**  
Oswego, IL  
**Mr. Daniel P. Foster**  
Fulton, IL  
**Mr. Daniel J. Hawkins**  
Round Lake, IL  
**Ms. Ishita Majumdar**  
Fremont, CA  
**Professor Karthik Devarajan**  
Glenside, PA  
**Ms. Luanne Coble**  
Depue, IL  
**Mrs. Leann Harbaugh**  
Saint Charles, IL  
**Mr. Scot J. Schlinger**  
Oswego, IL  
**Professor Wenge Hao**  
Plano, TX  
**Ms. Jennifer J. Anderson**  
New Lenox, IL  
**Mr. Daniel S. Bohn**  
Rockton, IL  
**Mr. Dave Black**  
Austin, TX  
**Mr. Kevin R. Walz**  
Phoenix, AZ  
**Mr. Daniel A. Gahan**  
Chicago, IL  
**Ms. Stacy L. Ambrozich**  
Oak Park, IL  
**Ms. Lauren S. Fern**  
Stevensville, MT  
**Ms. Felicia B. Posner**  
Des Plaines, IL  
**Mr. James J. Pardun**  
Lake Zurich, IL  
**Mr. Jeffry J. Duckworth**  
Sugar Grove, IL  
**Mr. Chad G. Johnson**  
Rockford, IL  
**Mrs. Stephanie A. Pederson**  
Chicago, IL  
**Mr. Matthew A. Harman**  
Algonquin, IL  
**Mrs. Martha M. Wenzel**  
Schaumburg, IL  
**Mr. Qiping Shen**  
Lake Mary, FL

**Ms. Ela Patel**  
Laguna Hills, CA  
**Mr. Roger J. Steffen**  
San Mateo, CA  
**Mr. Philip L. Hallstrom**  
Phoenix, AZ  
**Ms. Miriam C. Kim**  
Libertyville, IL  
**Mrs. Jinghua Chen**  
Buffalo Grove, IL  
**Mrs. Kathryn Chavez**  
Hamden, CT  
**Ms. Koren M. Figura**  
Waverly, IA  
**Mrs. Jennifer M. Pruyn**  
Huntley, IL  
**Mr. William T. Viitala**  
Lombard, IL  
**Mrs. Eden E. Carpenter**  
Kenosha, WI  
**Mr. John D. Pyle**  
Hanover, NH  
**Professor John P. Boardman**  
Franklin, IN  
**Mr. Dale A. Pijut**  
Lake Zurich, IL  
**Mrs. Jennifer E. Rabig**  
Plainfield, IL  
**Professor Samar Choudhary**  
Cary, NC  
**Mr. Alex J. Vanwinkle**  
Peoria Heights, IL  
**Mrs. Julie M. Ladwig**  
Mascoutah, IL  
**Ms. Sharon Stewart**  
Geneva, IL  
**Professor Sheryl L. Wills**  
Platteville, WI  
**Mrs. Christine M. Browne**  
Dixon, IL  
**Mr. Mark A. Bussone**  
Antioch, IL  
**Mr. Gregory R. Held**  
Hinsdale, IL  
**Mrs. Carol A. Dyslin**  
Tinley Park, IL  
**Mrs. Tammy L. Daugherty**  
Plainfield, IL  
**Mr. H. Keith Dunnigan**  
Collinsville, IL

**Ms. Julie A. Matz**  
Lockport, IL  
**Mrs. Laurie J. DeHerrera**  
Colorado Springs, CO  
**Professor Elaine S. Rosenbloom**  
Chicago, IL  
**Ms. April E. Risko**  
Phoenix, AZ  
**Mrs. Lora DeWall**  
Poplar Grove, IL  
**Mr. Gregg D. Kosieniak**  
Woodridge, IL  
**Mr. Gregg F. Locher**  
Grayslake, IL  
**Ms. Cindy E. Burch**  
Plano, TX  
**Ms. Kyra A. Rider**  
Sycamore, IL  
**Mr. David G. Burner**  
Elgin, IL  
**Mr. Jeffrey H. Carnes**  
Crystal Lake, IL  
**Mr. John R. Yetter**  
Fishers, IN  
**Professor Craig A. Campbell**  
Winslow, IL  
**Ms. Carrie L. Donnell**  
La Salle, IL  
**Ms. Lori L. Orczykowski**  
Aurora, IL  
**Mr. Hoi H. Jeong**  
Northvale, NJ  
**Professor Haskiz Cinemre**  
Bayburt, Turkey  
**Mr. Matthew J. Hayat**  
Atlanta, GA  
**Mr. Daniel R. Hollowell**  
Bourbonnais, IL  
**Mrs. Lindsey D. Buckle**  
Prescott Valley, AZ  
**Ms. Netti Herawati**  
Bandar Lampung, Indonesia  
**Professor Svetlana V. Butler**  
Santa Barbara, CA  
**Professor Ayrin T. Molefe**  
Naperville, IL  
**Mrs. Gina S. Kahl**  
Naperville, IL



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