

# Math & Stats Notes

## DEPARTMENT OF MATHEMATICS AND STATISTICS

## HIGHLIGHTS IN THIS ISSUE

### Emmy Noether Day Success

by Amanda Laubmeier

The department hosted its 20th Emmy Noether Day on May 11, 2023. Emmy Noether Day has been organized annually in the department since 2003. This event serves hundreds of middle- and high-school students from the Lubbock community each year. It provides a supportive environment for young women to engage with mathematics.

This year was the first full, in-person Emmy Noether Day since 2019, due to COVID, and hosted more than 120 student participants from 6th through 12th grade. The students came from Monterey High School, Estacado High School, and the Talkington School for Young Women Leaders. Eight local teachers made the event possible by bringing their students to Texas Tech for a day of mathematics!

The day started with eight mathematical workshops for the students, covering a variety of fun topics; *Math is music. Sounds good?* led by Dr. Giorgio Bornia, *Modeling Spider Populations* led by graduate student Bridget Mann, *Next Up!* led by Dr. Raegan Higgins, *The Math Behind AI* led by Dr. Victoria Howle,

*Germain's Variational problems and Noether's Symmetries* led by Dr. Alvaro Pampano, *Describing the Human Brain* led by Dr. Travis Thompson, and *An Invitation to Projective Geometry* led by Dr. David Weinberg. Continued on page 6.

**Summer REU Program** Page 2

NSF funded Problems in the Life Sciences program

**New Colleagues** Page 3

Welcome to our newest department members!

**Student News** Pages 4,5

Updates from student SIAM and AWM chapters.

## SPOTLIGHTS

Congratulations to the Department of Mathematics and Statistics Graduate Program Director & Lecturer, Dr. David Cannon, who received his doctoral degree in Education.



Congratulations to Dr. Svetlozar Rachev, one of the best Mathematicians Scientists of the World! He was ranked as #386 among the Best Scientists of the World by research.com

Creative displays of students' mathematical reasoning from the math-a-thon student competition at Emmy Noether Day.



## Chair's Corner



Dr. Magdalena Toda is serving as a Program Officer at the National Science Foundation in the Division of Mathematical Sciences for the 2022- 2023 academic year. Her program responsibilities include Applied Mathematics and Research Training Groups in the Mathematical Sciences. She is taking a leave from serving as the chair of our Department of Mathematics and Statistics during this time. Dr. Alex Wang is currently serving as Interim Chair. Dr. Magdalena Toda will return as chair in Fall 2023.

## NSF funded Summer REU Program

By Angela Peace

The department hosted the 2<sup>nd</sup> year of an NSF funded summer REU program that actively engaged undergraduate students from institutes across the country in research projects using mathematical, statistical, and computational methods to solve problems in the life sciences. The program included nine undergraduates who came to TTU for eight weeks in the summer of 2022. The program introduced undergraduate students to mathematical, statistical and computational methods

that enable them to pursue independent research on current problems in the life sciences.

**“actively engaged undergraduate students from institutes across the country ...”**

This year's projects included Statistical Learning of Binding Activity Using Structural Characteristics of Protein Binding Sites led by Dr. Leif Ellingson, Demographic and Environmental Variability on Population and Disease Extinction led by Dr. Linda Allen, and Friedrichs Learning led by Dr. Chunmei Wang. More information can be found on the website:

<https://www.math.ttu.edu/undergraduate/reu2022/>.

## Tenure and Promotion



Congratulations to our newly promoted friends & colleagues!

Full Professors

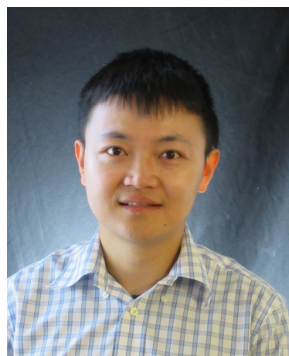
**Dr. Katharine Long**  
**Dr. Victoria Howle**  
**Dr. Raegan Higgins**

Associate Professors

**Dr. Wei Guo**  
**Dr. Wenjing Zhang**  
**Dr. Hung Tran**

Senior Lecturer

**Ludmilla Volchenkov**

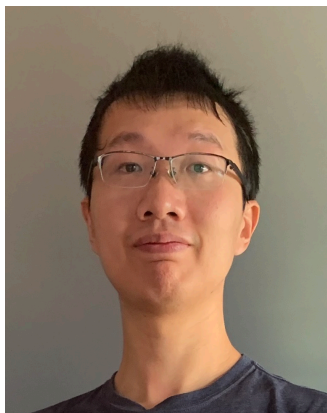




# Welcoming New Colleagues



**Suddhasattwa Das**  
Assistant Professor



**Juntao Huang**  
Assistant Professor



**Laura Juarez**  
Instructor



**Hongwei Mei**  
Assistant Professor



**Isabell Martinez Server**  
Lecturer



**Rosa Testini**  
Senior Business Assistant



**Georgia Thompson**  
Instructor



**Travis Thompson**  
Assistant Professor



**Ignacio Tomas**  
Assistant Professor



**Aaron Tyrrell**  
Lecturer/Researcher



**Yifan Wang**  
Assistant Professor



# SIAM News

By President GM Fahad Mostafa

The SIAM TTU chapter is a student-led organization that has been actively working to promote mathematics and statistics at Texas Tech University. Through various events and activities, the chapter has helped to create a supportive community of researchers and students who are passionate about the field. One of the most significant events organized by the chapter in the 2022-2023 academic year was the SIAM colloquium, where Dr. Nicola Garofalo from Italy presented his research. This provided a valuable opportunity for students to learn from experts in the field and stay up-to-date with the latest research.

Apart from the SIAM colloquium, the chapter also organized 7 monthly meetings this academic year that provided an informal platform for students to share their research ideas and network with other students and faculty members.

The meetings served as a hub for students to collaborate and work on research projects together. Additionally, the chapter hosted a Graduate Student Research Day, where students presented their research projects and received feedback from peers and faculty members. The event was a great opportunity for students to showcase their work, gain valuable insights, and improve their presentation skills.

The SIAM TTU chapter also recognizes the contributions of outstanding teachers and researchers through the SIAM Graduate

Teaching Award, the SIAM Graduate Student Scholarship, and the SIAM Professor of the Year Award. These awards are given to graduate students and faculty members who have made a significant impact in the field of mathematics and statistics through their research and teaching. The awards help to motivate and inspire faculty members to continue their outstanding work, thereby benefiting the entire community.

To foster a sense of community and belonging among members, the chapter also hosted various social events throughout the year. These include a Thanksgiving lunch and a picnic, which provides an opportunity for members to come together, socialize, and have fun. By organizing these events, the chapter helps to create a supportive and welcoming environment that encourages students to pursue their academic and research goals.

Overall, the SIAM TTU chapter has played a significant role in promoting excellence through its various activities, the chapter has helped to create a vibrant

community of students and faculty members who are passionate about the field. The chapter's efforts have not only benefited the current generation of students but also set a strong foundation for future students to build upon. By continuing to organize such events and activities, the SIAM TTU chapter will undoubtedly play a crucial role in shaping the future of mathematics and statistics at Texas Tech University. Finally, we SIAM officers want to thank SIAM advisor Dr. Yamazaki Kazuo and SIAM members who made the 2022-23 academic year successful.

## SIAM OFFICERS



President  
GM Fahad Mostafa



Vice President  
Jannatul Ferdous Ema



Secretary  
Boluwatife Awoyemi



Treasurer  
Rahnuma Islam



Event Coordinator  
Kalana Munasinghe

**SIAM**  
Society for Industrial and  
Applied Mathematics



Faculty and staff enjoying SIAM's annual Thanksgiving feast.



# AWM Red Raider News

By President Aman Rani

As we continue to navigate the challenges of the past year, the Association for

Women in Mathematics (AWM) has remained committed to supporting and advancing women in mathematics. We are proud to have organized several successful events and initiatives that have brought us closer together and helped us build a stronger and more inclusive community.

One of our key initiatives has been the mentoring program, where we matched 13 mentees (undergrad/grad students with math/stat major) with mentors (senior graduate students/faculty members). The goal of the program was to provide guidance and support to undergraduate and graduate students who

were navigating their academic and professional paths. We believe that mentorship is a crucial component of success in mathematics, and we are proud to have been able to offer this opportunity to our members.

In addition to our mentoring program, we organized a career path panel discussion that featured Texas Tech University (TTU) mathematics and statistics alumni. This event provided an opportunity for current undergraduate and graduate students to learn about the various career paths available to them after graduation. We were

grateful to have our successful alumni share their experiences and insights, and we believe that this discussion was immensely beneficial for all who attended.

Along with these events, we participated in the Family STEM Night where we brought an activity for K-12 kids to enjoy. We were thrilled to be a part of this program and to contribute to its success. It was a wonderful opportunity to introduce young people to the joys of math and inspire the next generation of mathematicians. Also, in collaboration with Society for Industrial and Applied Mathematics (SIAM), we organized professor talks in their research areas to share their knowledge and insights with the mathematics and statistics students.

We are excited to announce that AWM won the 'Best Example of Teamwork' award this year from Tech and was also nominated for 'The Most Improved Student Organization of the

Year.' These nominations are a testament to our commitment to promoting diversity and inclusion in mathematics, and we are grateful for the recognition. We will continue to work hard and strive for excellence in all that we do.

AWM believes in building a sense of community within the department. We have organized pizza socials for people to socialize, share ideas and have fun. After a long semester, we are excited to host a picnic with SIAM on May 10, this event is a great opportunity for everyone to connect with each other in a relaxed and informal setting while enjoying some great food and activities. We look forward to seeing everyone there and wishes everyone a safe and enjoyable summer!



## AWM OFFICERS



President  
Aman Rani



Vice President  
Radhika Rao



Secretary  
Mohammadi Ain



Treasurer  
Rahnuma Islam



# Differential Geometry and Integrable Systems Symposium

By Dr. Alvaro Pampano

The Department of Mathematics and Statistics hosted the XIX Red Raider Minisymposium: "Differential Geometry and Integrable Systems" from April 20 to April 23, 2023. This event consisted of talks from



outstanding Invited Plenary and Early-Career Speakers and included a poster session. The speakers: Francesco Bullo, Donatella Danielli, Ailana Fraser, Matthew Gursky, Dan Knopf, Rob Kusner, Rafael Lopez, Gaetano Napoli, Franz Pedit, Wayne Rossman, and the early-career invitees: Xialong Li and Jonathan Zhu, were well recognized experts from the US as well as all over the world in the fields of Differential Geometry, Geometric Analysis, Integrable Systems, and Applications. Their amazing talks covered many of sub-topics within these fields and helped to improve our understanding of recent significant developments. Special mention is deserved for the organized excursion to explore the Geometry and Topology of the Carlsbad Caverns National Park. The visit as a group to such an iconic and geometrically rich natural landscape allowed informal discussions among participants which fostered mutual understanding and laid out foundations for future research. The conference was complemented by the SIAM Colloquium delivered by Nicola Garofalo and by the Bilingual Colloquium of Rafael Lopez. In combination with these two events, the minisymposium was also accessible to graduate students. From here we would like to thank the organizing committee (Hung Tran and Alvaro Pampano) and the support of the National Science Foundation (NSF-2301994), Dr. Magdalena Toda, Dr. Jay Conover and Dr. Bijoy Ghosh. Thanks to them this minisymposium was possible and a success.

## RECOGNIZING OUR SUCCESSES

## Emmy Noether Day Success

Continued from Page 1

The students also participated in a collaborative problem-solving competition led by Dr. Angela Peace, which included computing the number of balls inside an octahedron. They also attended a



Career Panel at 2023 Emmy Noether Day.

career panel led by Isabell Martinez Server that highlighted experiences of women in STEM. Career Panelists included Dr. Lisa Limeri, assistant professor in Biology Education, Motivation and Psychometrics, Dr. Maria Onyango, assistant professor in the Department of Biological Sciences, Dr. Christy Rogers, assistant professor of Human Development and Family Studies, and Dr. Jessica Spott, Director of STEM CORE. The day also included a workshop for teachers led by Dr. Jerry Dwyer.



Graduate student volunteers setting up for the collaborative problem-solving Math-a-thon competition.

The event was a success thanks to volunteer efforts from more than forty faculty, staff, and students, both from Mathematics and across campus.



Dr. Lars Christensen joined the editorial board of Communications in Algebra as an associate editor.

Dr. Eugenio Aulis received a 2023 TTU Outstanding Researcher Award.



Dr. Tyrrell is a Texas Tech outstanding instructor along with 9 others in 2023 Professing Excellence.

Dr. Raegan Higgins received the 2022 AWM Presidential Recognition Award as co-founder of Mathematically Gifted and Black and was appointed as Assistant Vice Provost for Faculty Success.





# Graduate Degree Recipients

## May 2022

**Ph.D.** Fang Chen

**M.S. Math** Prathibha Ambegoda  
Yunting Gao  
James Staff  
Nusrat Tabassum  
Amy Thee

**M.S. Stat** Tony Perez  
Sima Siami-Namini

## August 2022

**Ph.D.** Gayani Balasuriya  
Jiexi Dai  
Sachith Dassanayaka  
Ruwani Rasanjali Herath  
Yuan Hu  
Thilini Jayasinghe  
Nadeesha Jayaweera  
Jonathon Loftin  
Zhuanzhuan Ma  
Nicholas Moore  
Stephen Pena  
Rohana Vithanage

## December 2022

**M.S. Math** Md Mahmudul Bari Hridoy

**M.S. Stat** Naima Alam  
Ram D. Joshi  
Md Saiful Islam Saif

**M.S. Math** Danae Burton  
Mohammad Mahabubur Rahman

**M.S. Stat** Sajal Chakroborty  
GM Fahad Mostafa  
Himali Seneviratne





## Math&Stats notes

Mathematics and Statistics  
Broadway and Boston  
Lubbock, TX 79409-1042

The success of the Department is largely possible due to the generous support of many donors. *Thank you!* For more information about giving to Mathematics and Statistics visit <http://www.math.ttu.edu/Other/giving.shtml>.

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