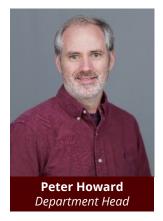


TEXAS A&M MATHEMATICS NEWS FROM THE DEPARTMENT OF MATHEMATICS

2024-2025, Issue No. 2

HEAD LINES



It has undeniably been a challenging year for academic institutions across the United States, and more challenging years likely lie ahead. Yet in the face of this, I've been deeply inspired by the dedication, hard work and talent of the students, staff and faculty in our department.

In this second edition of our newsletter, sections on faculty awards, new hires, our graduate and undergraduate programs, outreach and staff will highlight the broad range of exceptional contributions that ensure our continuing strength, even in uncertain times.

Our first event this fall, Sept. 12–13, was an Early Career Workshop in Mathematical Physics, organized by department faculty members Jake Fillman, Wencai Liu and Xin Liu, along with Tal Malinovitch, a postdoctoral researcher at Rice University, and our department's incoming postdoc Long Li, joining us from Rice. This was followed by the Texas Geometry and Topology Conference, scheduled for Nov. 8–10 and organized by Dean Baskin, Zhizhang Xie and Igor Zelenko.

Meanwhile, a steady stream of outstanding researchers visited to give colloquia and lecture series, including David Fisher (Rice University, colloquium), Ricardo H. Nochetto (University of Maryland, Ewing Lecture), Shmuel Weinberger (University of Chicago, colloquium) and Stuart White (Oxford University, Douglas Lectures).

Spring activities began, as usual, with our annual department reception at the Joint Mathematics Meetings, held Friday, Jan. 10, in Seattle. Many familiar faces were there, and some new ones too — including several undergraduates — thanks in large part to the encouragement of our new director of honors and undergraduate research, Frank Sottile.

The Texas Algebraic Geometry Symposium was held March 28–30, organized by Tricia Klein and Frank Sottile. It was followed soon afterward by CombinaTexas, organized for April 12–13 by Chun-Hung Liu, Laura Matusevich, Jacob White and Catherine Yan.

This year's Geller Lecture was delivered April 10 by Vic Reiner of the University of Minnesota, and the Foias Lecture Series took place April 15–17, given by Igor Kukavica of the University of Southern California.

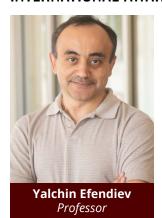
On May 16–18, our department hosted the Midwest Several Complex Variables Conference, recognizing the work of longtime faculty members Harold Boas and Emil Straube. Organized by Zhizhang Xie along with former students Samangi Munasinghe and Sonmez Sahutoglu and former postdocs Siqi Fu and Yunus Zeytunco, the conference featured a superb roster of speakers who honored Harold and Emil with a weekend of inspired talks. A highlight of the event was a banquet on Saturday evening, May 17, during which former students, postdocs and colleagues shared reflections on the enormous impact Harold and Emil have had on their work and lives.

In addition to organizing and participating in these events, our faculty and students earned numerous honors this year. Nineteen faculty members were recognized for outstanding achievements in research, teaching or both (see the section below on faculty awards for details), and 35 students received substantial awards (see the sections below on our graduate and undergraduate programs).

Finally, we welcomed 12 new faculty members this fall: four tenured or tenure-track, two academic professional tracks and six visiting assistant professors.

CONGRATULATIONS TO AWARD-WINNING FACULTY

INTERNATIONAL AWARDS



Yalchin Efendiev received a 2025 Frontiers of Science Award from the International Congress of Basic Science. This award recognizes the exceptionally high impact of his paper "Adaptive multiscale model reduction with generalized multiscale finite element methods," which appeared in Journal

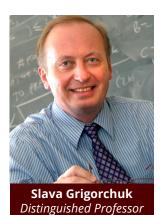
of Computational Physics in 2016. Yalchin received this award along with his collaborators Eric Chung (The Chinese University of Hong Kong) and Tom Hou (Caltech).







Sherry Gong and Guoliang Yu received a 2025 Frontiers of Science Award from the International Congress of Basic Science. This award recognizes the exceptionally high impact of their paper "The Novikov conjecture, the group of volume preserving diffeomorphisms and Hilbert-Hadamard spaces," which appeared in Geometric and Functional Analysis in 2021. Guoliang's former student Jianchao Wu (now at Fudan University) was recognized along with Sherry and Guoliang.



Slava Grigorchuk was elected as an honorary researcher of the Institute of Mathematics of the National Academy of Sciences of Ukraine.

Gilles Pisier received a 2025 Frontiers of Science Award from the International Congress of Basic Science. This award recognizes the exceptionally high impact of his paper "A non-nuclear C*-algebra with the weak expectation property and the local lifting property," which appeared in Inventiones Mathematicae in 2020.

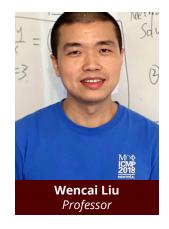




research institution."

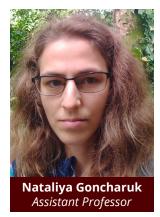
Eric Rowell was named a 2025 Royal Society Wolfson Visiting Fellow by the Royal Society, UK. These fellowships are intended to "provide an opportunity for talented international research leaders to undertake a flexible 12-month period of sabbatical leave in a UK university or

Wencai Liu was awarded a Visiting Miller Professorship by the Miller Institute for Basic Research in Science, University of California, Berkeley. Wencai will spend fall 2025 in residence at the Miller Institute.





Nataliya Goncharuk's research group, including our former colleague Zoran Sunik, was selected to participate in the 2025 Summer Collaborators Program at the IAS. Funded by a grant from the National Science Foundation, this program provides participants with



the opportunity to gather and work for two to three weeks at the IAS.



JM Landsberg was awarded a Chancellor's Fellowship to spend fall 2025 at the Simons-Laufer Mathematical Sciences Institute (SLMath) at the University of California, Berkeley. One such fellowship is awarded each year.



Matthias Maier and the other principal authors of the deal.II project (including our former colleagues Wolfgang Bangerth and Timo Heister) were awarded the 2025 SIAM/ACM Prize in Computational Science and Engineering. This prize is awarded once every two years "in recognition of

outstanding contributions to the development and use of mathematical and computational tools and methods for the solution of science and engineering problems."

Frank Sottile was elected as a fellow of the AAAS and was selected as a fellow of SIAM. Frank is also a fellow of the AMS (since 2012)



UNIVERSITY AWARDS



Jenn Whitfield was named Texas A&M Presidential Professor for Teaching Excellence. This prestigious title is awarded to two faculty members each year from across the Texas A&M campus, and recipients retain the title for the remainder of their careers at Texas A&M. Jenn joins Harold Boas, who

received this distinction in 2012.

COLLEGE AWARDS

Heather Klein was selected as a recipient of the College of Arts and Sciences
Faculty Excellence Award.
This award recognizes faculty members who have established themselves as truly exceptional in all of their professional activities.



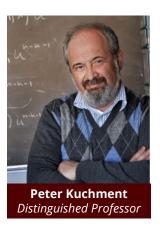


Wencai Liu was selected as a recipient of the College of Arts and Sciences Research Impact Award. This award recognizes faculty members whose research is "transforming their discipline." In addition, Wencai was appointed to the Arthur G. and Mary E. Owen Professorship

of Mathematics. Wencai joins Owen Professor JM Landsberg with this distinction.

DEPARTMENT AWARDS

Peter Kuchment was appointed to the Arthur George and Mary Emolene Owen Chair of Mathematics. Established in 1968, this endowed position is one of two chairs funded through a generous donation from the chairs' namesakes. The most recent previous chairholders were Bill Johnson and Gilles Pisier.





Shahar Mendelson was appointed to the Thomas W. Powell '62 Chair for Science. Shahar is the first holder of this prestigious chair.

Todd Schrader and **Kun Wang** were selected for Department of Mathematics outstanding service awards, and **Matthias Maier** and **John Weeks** were selected for Department of Mathematics outstanding teaching awards.









HOWDY TO NEW FACULTY

SENIOR HIRES



Tao Mei, professor, received his Ph.D. from Texas A&M University in 2006 and joined the University of Illinois, Urbana-Champaign the same year as a Doob Research Assistant Professor. In fall 2010, he was hired as an assistant professor at Wayne State University, and he was promoted to the rank

of associate professor in 2014. In 2015, Tao moved to Baylor University at the rank of associate professor, and he was promoted to the rank of professor in 2019. Tao's research is focused on harmonic analysis for operator-valued functions, especially in the noncommutative setting. He has published 30 research articles, many of which have appeared in prestigious journals, including Duke Mathematical Journal, Advances in Mathematics, Geometric and Functional Analysis and Journal of the European Mathematical Society. He has given numerous presentations on his research and is continuously supported by NSF grants since 2009. He has served as advisor for four doctoral students, including two current, and has also mentored seven undergraduate research projects and seven postdoctoral associates. He is a co-founder and the main organizer of the semiannual Brazos Analysis Seminar.

Shahar Mendelson,

professor and Thomas W. Powell '62 Chair for Science, received his Ph.D. from Technion–Israel Institute of Technology in 1998. Subsequently, he held a postdoctoral position at Hebrew University before joining Australian National University in 2000. He



moved to ETH Zürich in 2024. Shahar has taught a wide variety of courses, including calculus, analysis, probability theory, measure theory, functional analysis, operator theory, asymptotic geometric analysis and learning theory. His research is focused on statistical learning theory and related areas, and he has published 98 refereed articles, along with two books, one in 2003 and one in 2012. He has been awarded numerous grants, including four from the Australian Research Council, three from the Israel Science Foundation, one from the European Research Council and one from the German-Israeli Foundation. He is the cofounder and current managing editor for the journal Mathematical Statistics and Learning, published by the European Mathematical Society, and he was the founding director of the Mathematical Data Science Centre (MDSC) at Australian National University. In recognition of his broad accomplishments, Dr. Mendelson was elected in 2024 to the Australian Academy of Sciences.

JUNIOR HIRES



Justin Lacini, assistant professor, received his Ph.D. in 2020 from the University of California, San Diego, and has subsequently held postdoctoral positions at the University of Kansas and Princeton University. His research interests include higher dimensional birational geometry, the minimal

model program, syzygies and linear series, algebraic geometry in positive characteristic, and analytic methods in algebraic geometry.

Xiaochuan "Brooks" Tang, instructional assistant professor, received his Ph.D. in 2018 from the University of California, Davis, in engineering—applied science. Following graduation, he took a position as a research associate, and later postdoctoral researcher, at Colorado State University, where he worked on dislocation mobility of



BCC materials and thermodynamic stability of high-entropy ceramics.



Adrian van Kan, assistant professor, received his Ph.D. in 2021 from ENS Paris in physics and joined the Department of Physics at the University of California, Berkeley, that fall as a postdoctoral researcher. His research interests are centered around fluid dynamics, especially in the

geophysical setting, where he combines computational and theoretical approaches to study such things as turbulent flows in planetary atmospheres and oceans, rotating convection in planetary and stellar interiors, and flows in porous media.

Oscar Zatarain-Vera.

instructional assistant professor, received his Ph.D. in 2021 from Kent State University, and has subsequently served as a visiting assistant professor at the College of Saint Benedict and Saint John's University and Centre College. Oscar's research interests include operator



theory, probability and machine learning. He will join Hugo Olvera and Rashad Erukulangara as the third math faculty member at the Higher Education Center at McAllen (HECM).

WELCOME, NEW VISITING ASSISTANT PROFESSORS



Giacomo Ferraro received his Ph.D. in 2024 from Università La Sapienza, Roma, under the guidance of thesis advisor Federico Pellarin. His research is in the general area of number theory, with emphasis on the theories of Drinfeld modules and Anderson modules. His research mentor at Texas A&M is Matt Papanikolas.

Audrey Fovelle received her Ph.D. in 2023 from Université de Franche-Comté, Besançon, France, under the guidance of thesis advisor Gilles Lancien. Her research focuses on the asymptotic geometry of Banach spaces and normattaining operators. Her research mentor at Texas A&M is Flo Baudier.





Trevor Karn received his Ph.D. in 2025 from the University of Minnesota, under the guidance of thesis advisor Vic Reiner. His research interests include algebraic combinatorics, applied topology and geometry, and mathematical software. His research mentor at Texas A&M is Galen Dorpalen-Barry.

Youngho Kim received his Ph.D. in 2025 from Indiana University, under the guidance of thesis advisor Nam Q. Le. His research is in the area of partial differential equations, especially Monge-Ampère type equations. His research mentor at Texas A&M is Binh Tran.



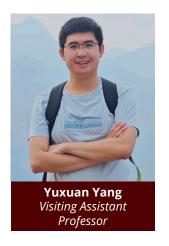


Professor

Long Li received his Ph.D. in 2022 from Nanjing University, under the guidance of thesis advisor Yiqian Wang, and since then has been a postdoctoral researcher at Rice University working with David Damanik. His research interests include spectral theory, ergodic theory and integrable systems. His

research mentor at Texas A&M is Jake Fillman.

Yuxuan Yang received his Ph.D. in 2025 from Peking University, under the guidance of thesis advisor Yi Lin. His research focuses on geometric and quantum topology, with an emphasis on quantum invariants of hyperbolic 3-manifolds. His research mentor at Texas A&M is Tian Yang.



FAREWELL TO RETIRING FACULTY



Emil Straube received his Ph.D. in 1983 from ETH Zürich and following postdoctoral positions at the University of North Carolina (1983–1984), Indiana University (1984–1986), and the University of Pittsburgh (1986–1987), joined our department in 1987. To date, he's published 50 research

papers and mentored seven doctoral students (one who graduated this August), along with 12 postdocs. Included among his numerous awards, honors and prizes are the Stefan Bergman Prize (awarded in 1995, joint with Harold Boas), a Texas A&M Association of Former Students Distinguished Achievement Award in Research (in 1998), and a senior research fellowship at the Erwin Schrödinger International Institute for Mathematical Physics in Vienna (in 2005). In 2006, he was an invited speaker at the ICM in Madrid, and in 2013 he was selected as a fellow of the American Mathematical Society.

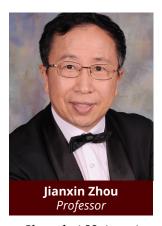
In 2011, Emil took on the role of department head, steering our department through the next eight years, time that included a 10 percent budget cut just before he started (in 2011), the onset of the 25-by-25 initiative to increase undergraduate enrollment in the College of Engineering (which started in 2013), and the challenging period during which Meigan Aronson served as dean of the College of Science (2015-2018). Despite these obstacles, it's clear that these were good years for us. We made outstanding hires throughout this period, including Guoliang Yu in 2012, Edriss Titi in 2014, and numerous promising junior and early-career faculty members throughout. We raised our count of doctoral students from 102 to 120, and we substantially increased the emphasis among our undergraduate majors on research. In short, we became a stronger department during those years, and Emil is largely to thank for our success.

Edriss Titi received his Ph.D. in 1986 from Indiana University and following postdoctoral positions at the University of Chicago (1986–1988) and Cornell University (1988–1989), joined the faculty at the University of California, Irvine, as an assistant professor. In 2014, Edriss retired from



UC Irvine, and he joined our department the same year as the Arthur G. and Mary E. Owen Professor of Mathematics.

During his career, Edriss has published about 270 research articles, with many more appearing each year. He mentored 12 doctoral students, along with 15 postdocs and numerous junior faculty members. His work has been recognized by many awards, honors and prizes, including a 2009 SIAM Prize for Best Paper in Partial Differential Equations, a 2009 Humboldt Research Award for Senior U.S. Scientists, and a 2020 Best Paper Award from the International Consortium of Chinese Mathematicians. He is a fellow of the Institute of Physics in London (since 2004), SIAM (since 2012), the AMS (since 2013), and the John Simon Guggenheim Memorial Foundation (since 2019).



Jianxin Zhou received his Ph.D. in 1986 from Penn State University, and following a postdoctoral position, also at Penn State, joined our department in 1987. Jianxin has published 82 papers and mentored nine doctoral students. He was selected as the Feng Kang Professor of 2004

at Shanghai University, and he has served as the primary advisor of the Texas A&M Chinese Student and Scholar Association and Table Tennis Club. Along with Paulo Lima-Filho, Jianxin was a principal architect of our successful joint program with Beihang University (2014 - 2019).

GRADUATE PROGRAM

Graduate Students Earn Awards

Dean's Doctoral Award

Awarded by: College of Arts and Sciences

Gradin M. Anderson
 Brigham Young University, Utah

The Dr. Dionel E. Avilés '53 and Dr. James E. Johnson '67 Graduate Fellowship Program

The Dr. Dionel Avilés '53 and Dr. James Johnson '67 Fellowship Program seeks to attract, recruit, and support the development of high achieving graduate students who meet one or more of the following criteria: (1) Be a first generation prospective graduate student; (2) Have a disability defined as a physical or mental impairment that substantially limits one or more major life activities, as described in the Americans with Disabilities Act of 1990, as amended; (3) Be a veteran of the U.S. military; or (4) Come from a disadvantaged background. This year one of our incoming student won this award:

Shuaib A. Mughal
 University of Central Florida

Guseman Prize

Awarded by: Department of Mathematics

Dr. Larry Guseman, a favorite professor in our department who served as graduate advisor from 1980 until his appointment in 1988 as the first director of graduate studies at Texas A&M, is remembered fondly by colleagues and students alike for his wit, wisdom, thoughtfulness and leadership. His dedication to Texas A&M and to the mathematics graduate students was complete and untiring. For 2024-2025 academic year we have two awardees:

Yongming Li

Advisors: Jonas Luhrmann (chair), Dean Baskin (co-chair)

"Yongming possesses impressively broad knowledge in partial differential equations, harmonic analysis, functional analysis, and probability theory—especially remarkable for his stage of training. He already has two published papers (including one single-author paper) and two preprints, all focused on the dynamics of solitons in nonlinear Klein-Gordon and nonlinear Schrödinger equations. He shows strong potential to become both an outstanding research mathematician and an excellent teacher."

· Ryo Toyota

Advisor: Guoliang

Yu "Ryo is an exceptionally talented Ph.D. student with research interests in noncommutative geometry and operator algebras. Since his arrival, he has written three highly impressive research articles. One of them has been accepted for publication in the Journal of Noncommutative Geometry, the leading journal in the field. Ryo is also deeply engaged in the mathematical community and is always willing to help fellow students explore advanced topics. For example, he organized a working seminar covering several subjects, including quantitative K-theory, K-homology, and index theory, and gave many excellent lectures in these seminars."

Dr. Joseph Newton Graduate Student Service Award

Awarded by the College of Arts and Sciences for substantial service to the university, college, department, profession or community while enrolled as a graduate at Texas A&M University and maintaining high academic achievement. Two students received this award:

- Marshal King
- Nicklas Day

The Thomas Powell '62 Endowed Graduate Fellowship

Ten students received this award.

- Erik Davis
- Weixun Deng
- Valentia Fragkiadaki
- Yongming Li
- Xiaoyu Su
- Buzheng Shan
- Ryo Toyota
- Garrett Tresch

- Derek Wu
- Zhiyuan Yang

The John P. Fackler, Jr. Endowed Graduate Student Award for Excellence

Three students received this award.

- Nicklas Day
- Santiago Radi
- Jing Ye

Lechner Scholars Fellowship

Awarded by: Texas A&M University

The Walter W. Lechner Estate endowment was established to promote matriculation and progress of graduate students accepted into the graduate programs at Texas A&M University. We have three recipients this year:

Adrija Dalal

Indian Institute of Technology, Madras, India

- Tara Prasad Sharma
 Sikkim University, India
- Fangming Zhang
 Nanjing University, China

Pearcy-Heep Endowed Graduate Mathematics Fellowship

Awarded by: Department of Mathematics

This fellowship was endowed by our colleague Carl Pearcy in 1998 and later augmented by the Herman F. Heep and Minnie Belle Heep Texas A&M University Foundation in 2005. We have four recipients this year:

· Fan Wu

Fudan University, China

Ian Sebastian

University of Padova, Italy

Yunpeng Meng

Capital Normal University, Beijing, China

Hayeon Kim

Yonsei University, Seoul, Korea

Dr. Joel Zinn Endowed Fellowship

Awarded by: Department of Mathematics

This fellowship was endowed by Michele D. Zinn in 2019, in memory of our beloved colleague Joel Zinn. We have two recipients this year:

Aristeidis Seremetis

University of Patras, Greece

Jinchun Shao

University of Chicago

Dr. Walter E. Koss Endowed Fellowship

Awarded by: Department of Mathematics

This fellowship was endowed in 1999 by Dr. Edwin Koss in honors of his father Dr. Walter E. Koss, who was Professor of Mathematics at Texas A&M from 1937 until 1957. The fellowship recipients will continue to receive their stipend provided they maintain the required academic standing.

Jinqi Chen

Tufts University

David Jorgensen

Brigham Young University, Utah

Kestrel Strom

University of Hawaii, Manoa

Nischal Bhattarai

The University of Alabama at Tuscaloosa

2024-2025 Department of Mathematics Graduates

Ph.D.

May 2025

Mansi Bezbaruah

Dissertation: Shape Optimization of Microstructures

Governed by Maxwell's Equations

Chair: M. Maier Co-Chair: T. Davis

Orsan Kilicer

Dissertation: Higher Order FEM for Surface

Stokes Problem
Chair: A. Demlow

Zheng Kuang

Dissertation: Growth of Groups with Finitely Many

Incompressible Elements Chair: V. Nekrashevich

Benjamin Warren

Dissertation: Representations of Braid and Motion Groups

Chair: E. Rowell

August 2025

Mohsen Alshahrani

Dissertation: Temporal Splitting Schemes for

Multiscale Problems Chair: Y. Efendiev Co-Chair: E. Gildin

C.J. Bott

Dissertation: Computation of Schubert Galois Groups

Chair: F. Sottile

Erik Davis

Dissertation: Goss L-Values of Sinha Modules

Chair: M. Papanikolas

Valentia Fragkiadaki

Dissertation: Two Weight Inequalities for Paraproducts

and Applications to Sobolev Spaces

Chair: P. Alonso Ruiz Co-Chair: I. Holmes

Tanuj Gupta

Dissertation: Diederich-Fornæss Index and the Global

Regularity of the Complex Green Operator

Chair: E. Straube

Jordy Lopez Garcia

Dissertation: Toric Compactifications of Periodic

Graph Operators
Chair: F. Sottile

Master of Science

December 2024

Niranjana Kulkarni

Computational Math Track, Thesis Option

Thesis: On the Radial Reduction of the Linearization at a Solitary Wave in the Nonlinear Dirac Equation in Three

Spatial Dimensions Chair: A. Comech

Henian Li

Traditional Math Track, Non-Thesis Option

Chair: M. Anshelevich

Daniel Mandragona

Traditional Math Track, Non-Thesis Option

Chair: G. Berkolaiko

Peter Morcos Mikhail

Computational Math Track, Non-Thesis Option

Chair: A. Bonito

May 2025

Myriahm Gonzalez

Computational Math Track, Non-Thesis Option Chair: P. Daripa

Jonah Robinson

Traditional Math Track, Non-Thesis Option Chair: F. Sottile

Sarah Vastani

Mathematic Biology Track

Chair: M. Tran

August 2025

Marshall King

Traditional Math Track, Non-Thesis Option Chair: G. Berkolaiko

Michail Lolis

Traditional Math Track, Non-Thesis Option

Chair: M. Papanikolas

Zhaohua Pei

Traditional Math Track, Non-Thesis Option Chair: V. Nekrashevych

Lene Wang

Computational Math Track, Thesis Option Thesis: Mathematical Foundations of Quantum Computing: Operator Theory, Entanglement, and Quantum Algorithms

Chair: K. Dykema

Wesley Yang

Traditional Math Track, Non-Thesis Option Chair: J. Siegel

Master of Science | Distance Learning

December 2024

Russell Cook

Computational Math Track Chair: R. Rahm

Jacob Selensky

Computational Math Track

Chair: G. Petrova Co-Chair: O. Shatalov

May 2025

Maxwell Cao

Teaching Track

Chair: O. Shatalov

Adam Dajani

Mathematics and Statistics Track

Chair: G. Petrova

Tyler Lehmberg

Teaching Track

Chair: M. Vorobets

Merrimon Stillman

Teaching Track

Chair: F. Sottile

Nicolas Towers

Teaching Track

Chair: O. Shatalov

Co-Chair: J. Weeks

Dacia Wright

Computational Math Track

Chair: R. Rahm

August 2025

Rachel Bevan

Computational Math Track

Chair: J. White

Jorge Canada

Teaching Track

Chair: R. Rahm

Priyadarshan Kolte

Computational Math Track Chair: J. Siegel

Christopher Roosa

Teaching Track Chair: R. Rahm

Graduate Courses

New Courses

MATH 637, Algebraic Geometry II will be offered every odd numbered spring semester.

MATH 659 is an intensive two-week course offered every May for incoming master's in quantitative finance students from the Mays Business School.

Redesigned Courses

• MATH 603, Methods of Applied Mathematics, under agreement with Aerospace Engineering, redesigned and cross-listed with the new course AERO 600, Introduction to Aerospace Graduate Mathematics, as the preparatory course for an Aerospace Ph.D. qualifying exam in mathematics. The Department of Mathematics will teach this course in the fall, and the Department of Aerospace Engineering will teach it during the spring.

New Corses Submitted for Curricular Approval Request System

- MATH 657, Quantum Computation and Quantum Information theory, to be taught every spring semester.
- MATH 665, Representation Theory of Lie algebras and Lie Groups, to be taught every even-numbered spring semester.

Graduate Student Groups Elect New Leaders

American Mathematical Society Student Chapter

President: **Seth Hoisington**

Vice President: Lawrence Dongilli

Treasurer: **Jean Carlos Villegas Morales** Social Coordinator: **Tom Winckelman**

Secretary: Vasiliki Micheas

UNDERGRADUATE PROGRAM

New Courses and Programs

We are excited to announce the introduction of three new courses that reflect the growing intersection between mathematics and emerging technologies. These courses will be offered under the Math 489-Special Topics designation in the coming academic year:

- Statistics for Risk Modeling (fall 2025)
- Ideals, Varieties, and Algorithms (spring 2026)
- Mathematics of Quantum Algorithms (spring 2026)

In addition, we have expanded our academic offerings with a new track and are actively exploring another:

Bachelor of Science in Applied Mathematics – Economics Emphasis + M.S. ECON

Launching in fall 2025, this five-year accelerated program leads to a B.S. in applied mathematics and an M.S. in economics. Students who complete the applied mathematics—economics emphasis are encouraged to continue into the master's program in economics. This 3+2 degree provides a strong foundation in both mathematical modeling and economic analysis.

Bachelor of Science in Applied Mathematics – Data Science Emphasis

We are developing a new data science track in collaboration with computer science and statistics. As an initial step, two foundational courses—
Computational Linear Algebra and Optimization—
will be introduced in the 2026–27 academic year.
Students interested in data science are encouraged to take relevant courses across interdisciplinary areas.

Actuarial Science Program

In recent years, the Society of Actuaries has made significant changes to its curriculum by eliminating certain topics (and even an entire exam) and emphasizing new topics. To stay current with these changes, we asked Instructional Assistant Professor JJ Lee to create a course that teaches the material covered in Exam SRM, Statistics for Risk Modeling. Lee piloted this course in spring 2024 and will teach it for the second time this fall, when our Undergraduate Programs Committee will begin the curricular process to give this class a permanent course number and incorporate it into our applied mathematics – actuarial science degree plan.

When Passion Meets Innovation: Distance Master of Science Program



Dr. Oksana Shatalov is a driving force behind the success of the Distance Masters Program in the Department of Mathematics at Texas A&M University.

At Texas A&M University, a Distance Masters Program directed by Dr. Oksana Shatalov is empowering professionals from diverse fields to deepen their understanding of mathematics, sharpen their skills, and unlock new career opportunities in an increasingly data-driven world. Read about how the program supports non-traditional students from various academic disciplines.

Undergraduate Student Organizations



Pi Mu Epsilon (Math Club)

The 2024-2025 Math Club officers were Kevin Le (president), Mckinley Xie (vice president), Daniel Rodriguez (treasurer), Lucian Chauvin (webmaster) and Cade Dulaney (outreach coordinator). For 2025-2026, the new math club officers are McKinley Xie (president), Joshua Im (vice president), Daniel Rodriguez (treasurer), Lucian Chauvin (webmaster) and Anders Bahrami (outreach coordinator). Professors Philip Yasskin and Frank Sottile are the faculty advisor and alternate advisor.

In 2024–2025, our Pi Mu Epsilon chapter attended and organized multiple events in our mathematical community. We set up booths to play mathematical games and puzzles at Howdy Week, Aggieland Saturday, the Math and Stat Fair, the Physics and Engineering Festival, the Chemistry Open House, the Houston Science Festival, and the Brazos County Youth to Career Fair. In addition, we attended STEM nights at College Station High School and Rock Prairie Elementary School and did class presentations at Rock Prairie Elementary and Cypress Grove Intermediate schools.

Many members presented research findings at the Joint Mathematics Meetings in Seattle in January 2025: Anders Bahrami, David Cates, Lucian Chauvin, Tom Haque, Kevin Le, Jennifer Mackenzie, Seungheon Oh, Jenna Plute, Daniel Rodriguez, Matthew Swaringen and McKinley Xie. We also hosted an REU Results Poster Session at Texas A&M.



Aggie Actuaries

The Department of Mathematics at Texas A&M University continues to distinguish itself in preparing students for careers in the actuarial profession. A notable number of students from the spring 2025 graduating class in applied mathematics completed the actuarial science emphasis, with several securing full-time roles at top actuarial firms nationwide—including Aon, the Cigna Group and Tokio Marine. In addition, many students earned part-time internships or pre-internship roles at firms such as Aon, Tokio Marine, the Cigna Group, Pacific Life and Blue Cross.

In recent years, Texas A&M actuarial graduates have gone on to work at leading companies like Mercer, BlueCross BlueShield, Cigna, Traveler's Insurance, USAA, Lewis & Ellis, Tokio Marine HCC and Ernst & Young (EY). This strong track record reflects the department's growing reputation and the high demand for actuarial talent trained at Texas A&M. Many of these companies actively recruit students through the Sciences Career Fair (held each fall and spring), presentations at Aggie Actuaries Club meetings and job postings on <a href="https://linear.com/hireAggies.com/hireAg

At the heart of student engagement in the actuarial field is the Aggie Actuaries Club. In fall 2024, Dr. Minchul Kang took on the role of faculty advisor, supporting a team of club officers: Alec Yoon, Shivani Sriharan, Robert Mullen, Manu Singhal and Aidan Orsargos. Under their leadership, the club has strengthened partnerships with established actuarial firms while also introducing new companies to weekly Thursday evening meetings.

In addition to employer engagement, the club has prioritized career readiness and exam preparation. Club officers hosted introductory sessions for students interested in actuarial careers, as well as examfocused events for Exam P (probability) and Exam FM (financial mathematics). As a result of these efforts, more than 10 club members passed Exam P or FM last year. Additionally, they organized résumé review workshops and mock interviews to help students secure internships and full-time roles.

Looking ahead, the Aggie Actuaries Club aims to grow both in size and impact by welcoming students from a variety of disciplines. The club plans to expand its outreach to more actuarial firms to participate in weekly presentations, enhancing students' networking opportunities. Officers will also continue to support exam preparation by sharing their personal experiences and study strategies to improve pass rates among members.

The Statistics for Risk Modeling course, first offered in spring 2024, has quickly become an essential component of the actuarial preparation track. Designed to support students preparing for Exam SRM, it builds on the foundational knowledge from Exam P and Exam FM while equipping students with more advanced skills in statistical modeling.

MATHEMATICS OUTREACH: INSPIRING CURIOSITY IN 2024–2025

From vibrant competitions to immersive research experiences, the Department of Mathematics at Texas A&M University continues to lead with dynamic outreach programs that spark a love of mathematics across all ages and backgrounds. Coordinated by the Outreach Committee—chaired by Dr. Oksana Shatalov and including Peter Kuchment, David Manuel, Kun Wang, John Weeks and Zhizhang Xie—these efforts bring together faculty, students, alumni and community partners in a shared mission to make mathematics accessible, engaging and fun.

Highlights from the Year

High School Mathematics Contest (Nov. 2, 2024)

Now in its 33rd year, the contest welcomed 315 students for subject exams, a Best Student exam, a Power Team exam and the always-popular Buzz Contest conducted by Professor Emeritus Doug Hensley. Students, coaches and parents praised the day as "a fun time for students who love math." Sponsored by Texas Instruments, Maplesoft, MathWorks and the Department of Mathematics, the 2025 contest will be held on Oct. 25.



Mathematics and Statistics Fair (Feb. 22, 2025)

The Math and Stat Fair is where mathematics comes alive—full of puzzles and games, arts and crafts, magic and mystery, statistics and problem-solving, not to mention raffle tickets and free pizza! Held annually on the last Saturday in February, this year's fair welcomed 423 participants and 135



Dr. Philip Yasskin plays a strategy game involving a chessboard with a participant.

volunteers for a full day of creativity, logic and interactive discovery. Visitors challenged themselves

Dr. Jacob Mashburn spins a wheel with a participant as part of a statistics activity.

les like tic-tac-toe, hex bridges, e Towers of Hanoi, built explored probability with en enjoyed mathematical magic he event, organized in

collaboration with the Department of Statistics, MathHappens and 4DSTEAM, earned a spotlight in <u>Spirit Magazine</u> for its impact on community STEM engagement. Keynote speaker Dr. Oksana Shatalov captivated nearly 200 attendees with "Straightedge, Compass, and the 2,000-Year Math Mystery" and made complex history, geometry and algebra accessible and exciting for all ages. Whether solving puzzles, winning prizes or simply enjoying pizza with math enthusiasts, participants left inspired. The next fair is tentatively scheduled for Feb. 28, 2026.

Integral Bee (March 4, 2025)

The 18th annual Integral Bee brought together 58 students across three divisions—high school, Calculus II college and advanced undergraduates. Contestants competed for bragging rights, T-shirts and prizes including subscriptions to Maple and TI calculators. Wild card winners from the audience also earned recognition for their skill.

TAMU Math Circle

This weekly enrichment program serves mathematically curious students in grades 5–12. More than 115 students attended 19 sessions in 2024–25, with some commuting from the



Houston area. Students were grouped by level (prealgebra, algebra/geometry, algebra II+), engaging in discovery activities and problem-solving led by 20 faculty, six graduate students and 25 undergraduates. Thanks to support from the AIM Math Circle Network, the program continues to grow and gain national visibility, including recent presentations at MAA MathFest.





Program for Research in Mathematics (PReMa)



Founded in 2021, PReMa offers high school students nationwide a pathway into mathematical research.
Supported by an MAA DMEG grant since 2024, the program mentored over 50 students this year on projects in quantum dynamics, graph theory, and puzzle-based mathematics. Mentors

included Professors Simone Cecchini, Chun-Hung Liu, Wencai Liu, Xin Liu, and Timo Sprekeler.

Outcomes include one published student paper and two submitted for publication, with one participant gaining admission to MIT's PRIMES program. The academic year culminated in the High School Mathematical Research Conference (May



3–4, 2025) featuring 11 student talks and keynote addresses.

SEE-Math Camp

Now in its 24th year, the SEE-Math summer camp welcomed 51 gifted middle schoolers (32 boys and 19 girls) for two weeks of mathematical exploration. Students investigated Platonic solids, Euler numbers, infinities, matrices, rounding errors, the Pythagorean Theorem, and more—including Rubik's cubes, group theory, and AR-based rotations. They also used the Maple system to create animated math stories,

learning coordinate geometry and transformations in the process. Camp games like Pop Tac Toe (play at tx.ag/0dwRxMy) and access to the students' animations (see-math.math.tamu.edu/2025) reflect the program's perfect blend of learning and creativity.

Pi Mu Epsilon / Undergraduate Math Club

In 2024–25, Pi Mu Epsilon (PME) led the department's student outreach presence. PME students ran activity booths at major campus and community events—Howdy Week, Aggieland Saturday, Math & Stat Fair, Physics Festival, Chemistry Open House, Houston Science Festival and more. They also visited local schools for STEM nights and classroom presentations.

During 2024–2025, Pi Mu Epsilon (PME) and the Math Club led the department's student outreach with a strong presence at campus and community events. Members hosted booths with mathematical games and puzzles at Howdy Week, Aggieland Saturday, the Math & Stat Fair, the Physics and Engineering Festival, the Chemistry Open House, the Houston Science Festival, and the Brazos County Youth to Career Fair. They also supported STEM nights at local schools and visited classrooms at Rock Prairie Elementary and Cypress Grove Intermediate to share the excitement of mathematics.

PME members were active in research as well, with many presenting their work at the Joint Mathematics Meetings in Seattle this past January, and the chapter also organized an REU Results Poster Session here at Texas A&M.

Outreach in Brief

Events Offered: High School Math Contest, Math & Stat Fair, Integral & Derivative Bees, Math Circle, SEE-Math, and PReMa.

- (Led and coordinated by faculty organizers including David Manuel and Drs. John Weeks, J.J. Lee, Kun Wang, Sinjini Sengupta, and Philip Yasskin.)
- New Milestones: PReMa publication in Pi Mu Epsilon Journal and MAA MathFest presentation

 Student Organizations: Pi Mu Epsilon/Math Club expanded outreach to schools and public STEM events across Texas

Math Outreach Highlights Shaping the Future

From middle school classrooms to national conferences, our outreach programs spark excitement for mathematics at every level. Signature events include the High School Math Contest, Math & Stat Fair, Integral & Derivative Bees, Math Circle, SEE-Math, and PReMa.

Faculty Leadership in Action

These efforts are guided by faculty champions David Manuel and Drs. John Weeks, J.J. Lee, Kun Wang, Sinjini Sengupta, and Philip Yasskin, who ensure opportunities for both enrichment and excellence.

Breaking New Ground

- PReMa research was published in the Pi Mu Epsilon Journal.
- Students showcased their work at MAA MathFest.
- Pi Mu Epsilon/Math Club expanded outreach at schools and STEM festivals across Texas.

Behind the Numbers

- The Outreach Committee (founded in 2008) continues to grow opportunities connecting math with the broader community.
- The High School Math Contest (since 1991) has spotlighted exceptional talent—including future IMO gold medalist Luke Robitaille.
- SEE-Math (launched in 2002, inspired by Wichita State) remains a cornerstone program, opening doors for local middle schoolers to explore advanced math.

Student & Community Reflections

Compliments from Math & Stat Fair Parents

"We were impressed by how many kids attended. My son even saw one of his friends. It's clear events like this are something the community values."

"My fifth grader was completely absorbed when she realized the video was about how ChatGPT works. She watched intently while we ate pizza, then asked me questions about transformers!"

"My son was thrilled when he found out he won the problem-solving challenge. He's so passionate about math—experiences like this truly keep him motivated."

"We loved how inclusive the fair was for different age groups. Our whole family enjoyed the activities, and I personally found the keynote lecture fascinating."

Compliments from SEE-Math Camp Parents

"Kids were very interested in their project and did not treat/consider the work done on it a chore."

"It should continue each summer."

"My kid enjoyed this camp so much... it definitely lit a spark after getting familiar with Maple. He spent hours working on animations before and after camp... Thanks for all your efforts in bringing it to the kids and for making this math camp such a delight."

Keep in Touch

Stay up to date on upcoming events through the FOMO (Friends of Math Outreach) mailing list and never miss an opportunity to be inspired!

FOMO Sign-Up

STAFF NEWS

We are thrilled to welcome the newest members of our staff team: Monica Contreras, Aida Carrillo and the return of Gaby Alvarez!



Monica Contreras joins the finance team as a business coordinator I, filling the finance position previously held by Gaby Alvarez. She will be assisting with travel reimbursements and visitor reimbursements. Monica brings with her 20 years of medical and 10 years of revenue billing

experience, and she is eager to learn the ins and outs of Texas A&M University. Her office is in Blocker 311C, she can be reached at 845-7565, and her email is monica.contreras@tamu.edu.

Aida Carrillo joins us as a business administrator II as part of the finance team, taking over the responsibilities of Rhonda Faust. Aida brings 20 years of experience in accounting, HR and administration, including the last five years on the finance team at Texas A&M University. She is enthusiastic



about contributing her expertise to the department. Aida's office is in Blocker 311E, her phone number is 845-3045, and her email is aidajean@tamu.edu.



Gaby Alvarez has returned to the Department of Mathematics, now serving as an administrative coordinator I on the administrative team. In her new role, she will support Peter Howard, Sonja Kubecka and Rhonda Faust with a variety of administrative tasks in the department

head's office. Gaby is excited to be back with the

department in this new capacity. She will be located in Blocker 314, her phone number is 847-7456, and her email is g.alvarez@tamu.edu.

We are excited to have Monica, Aida and Gaby as part of our team. Please join us in giving them a warm welcome to the Department of Mathematics family! Feel free to stop by, say hello and introduce yourself. We're confident they will be valuable additions and play an important role in our continued growth and success.

FORMER STUDENT NEWS

Christopher J. Bott, Ph.D. 2025, will start a visiting assistant teaching professor position at Brigham Young University this fall.

Maxwell Cao, distance M.S. 2025, will start as an assistant professor of mathematics at Lone Star College.

Daniel Creamer, Ph.D. 2018, has been named the Al & Dotty Warkentine Chair of Mathematical Sciences at Tabor College.

Erik Davis, Ph.D. 2025, will start a postdoctoral position at the University of Rochester this fall.

Jenny Fuselier, B.S. 2002, Ph.D. 2007, was promoted to professor of mathematics at High Point University in 2023 and began serving as department chair of the Department of Mathematical Sciences in 2024. She also serves as associate editor for the AWM Newsletter.

Kun (Kevin) Gou, Ph.D. 2012, has been elected to the faculty senate of Texas A&M University–San Antonio.

Zheng Kuang, Ph.D. 2025, will start a postdoctoral position at Central South University in China this fall.

Jordy Lopez Garcia, Ph.D. 2025, will start a postdoctoral position in the Department of Computational and Applied Mathematics and Statistics at the University of Notre Dame this fall.

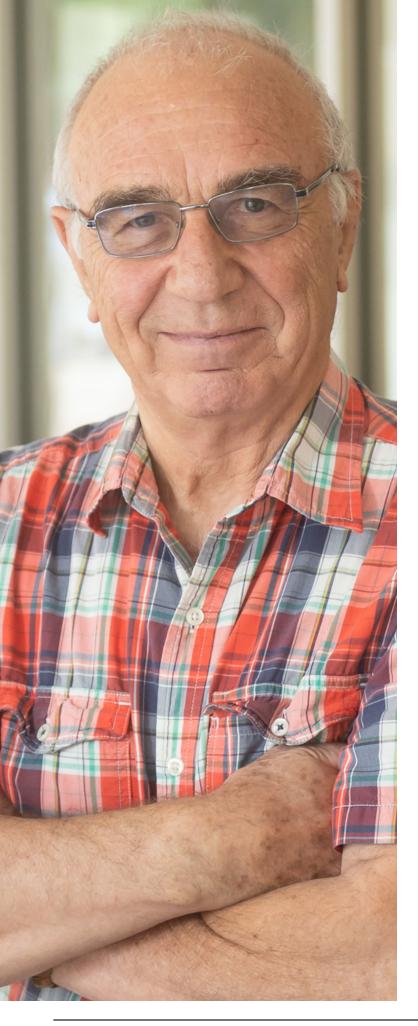
Tyler Lehmberg, distance M.S. 2025, will start as an adjunct assistant professor at Austin Community College.

Jeanette Shakalli, Ph.D. 2012, is Executive Director of the Panamanian Foundation for the Promotion of Mathematics (FUNDAPROMAT), a non-profit foundation that she created in December 2019 to spread the joy of mathematics. For information about the Foundation's free math outreach events and teaching resources (in Spanish and in English), please visit www.fundapromat.org/en or email at info@fundapromat.org.

David Sykes, Ph.D. 2021, started a second postdoctoral position at the Center of Complex Geometry, Institute for Basic Studies (IBS), Daejeon, Republic of Korea in Fall 2024.

Yu (Sophia) Shi, M.S. 2013, received her Ph.D. in 2019 from the University of Houston in Industrial Engineering, and is now an assistant professor in the Department of Mathematics at Tarleton State University.

Wei-Lun Tsai, Ph.D. 2020, began in fall 2023 as an assistant professor at the University of South Carolina.



IN MEMORIAM

RAYTCHO LAZAROV

Professor Emeritus Raytcho Lazarov passed away on November 30, 2024. Raytcho received his Ph.D. in 1972 from Moscow State University, and from 1972 to 1986 held various positions at the Bulgarian Academy of Sciences. In 1986 he became a professor at the Academy, and while in that role he established the Laboratory on Numerical Analysis, which he led until 1991. In 1991, Raytcho moved to the U.S., first to the University of Wyoming, and in 1992 to Texas A&M. During his career, he published about 163 research papers, with work supported by a variety of agencies, including the NSF, DOE, and NASA. He advised 21 doctoral students, including 10 at Texas A&M, and he has 43 mathematical descendants. He was among the founders of the numerical analysis seminar in our department, and more generally he was a driving force behind the development of the department's research group in numerical analysis. In 2014, Raytcho was presented with the Marin Drinov Award, the highest recognition bestowed by the Bulgarian Academy of Sciences.

Raytcho retired in December 2020. He will be remembered for both his outstanding career in mathematics and for his kindness and generosity to everyone he met, and especially to young mathematicians, certainly including me (Peter Howard) when I first joined the department.

In Raytcho's memory, the Dr. Raytcho Lazarov Graduate Student Fellowship has been created, with Peter Kuchment leading the effort.

REMEMBRANCES

My first contacts with Donka and Raytcho Lazarov go back to the first months after my arrival in College Station, at the end of 2002 and the beginning of 2003. Very quickly, the relations between our families became more sincere and warm. We were invited to their home for dinner, and we invited them in return. There were plenty of things to talk about, despite Raytcho and I working in completely different areas of mathematics. At one point, I needed a financial advisor whom I could trust. Raytcho happened to be that person and helped me a lot in avoiding mistakes. Each time he appeared in my office, I was happy to see him and discuss various topics related to the department, university, mathematics and sometimes politics. He was an open and friendly person.

When Raytcho informed me that he was retiring, I was surprised because he seemed like a man of great energy. It was also a pity to know that I would not see him as often as before. He told me about his plans after retirement: to live part-time in Bulgaria, his native country; part-time with his daughters living in London, if I am not mistaken; and part-time in College Station. But fate had other plans. When the terrible news of his death came, it was difficult to believe. My wife Nina and I understood at that moment that we had lost a real friend. The memory of him will live forever in our hearts.

Distinguished Professor Slava Grigorchuk

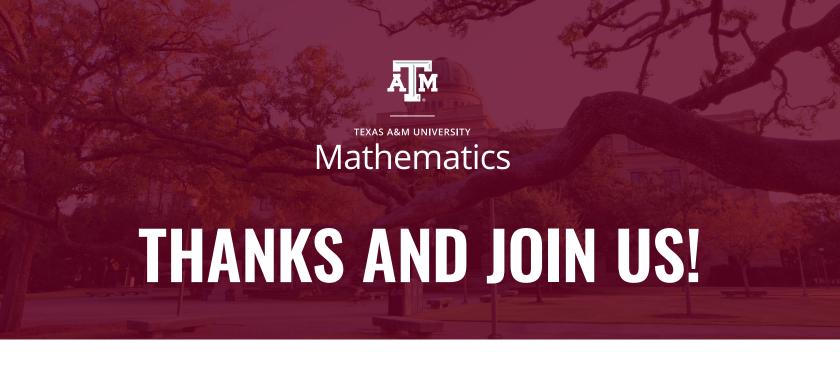
Raytcho Lazarov was the first senior hire I made after becoming department head more than three decades ago, and in my opinion, he was the most overall successful. This success was not only due to his native mathematical talent, which was truly first-rate, but also because of the influence he had in attracting others. He played a key role in bringing Jim Bramble to the department, who in turn brought Joe Pasciak, thus forming, together with Dick Ewing, one of the best numerical analysis groups in the world. This foundation allowed us to hire excellent junior faculty members such as Yalchin Efendiev and Bojan Popov, setting the platform for our strength in numerical analysis.

This strength in classical PDE analysis also helped attract further PDE scholars on a broader front, including Ciprian Foias and Peter Kuchment in the late 1990s. The eminence of this group then enabled us to hire outstanding junior faculty at a level previously unattainable.

If there were a contest in the department for "most well-liked faculty member," the winner would be clear. Raytcho had enormously good common sense, a mantra of fairness, generosity of spirit and a geniality beyond compare.

On a lighter note, by reputation, he was also the best maker of strudel and baklava this side of the Atlantic. This talent, like all the others mentioned, never left him until he had to leave us. He will be sorely missed.

— Professor Bill Rundell



2024-2025 BENEFACTORS

Kenneth & M. Susan Whittington '89

Stephen Fulling

Mai Tian Family Foundation

Gabriel Perez '16

Jie He

Nancy Matz'71

Andrea Bonito

Panayot Vassilevski

Jacob Fillman

Zhi Zhou

Ronald DeVore

Jim Morel

Guergana Petrova

Emil Straube

Maxim Olshanskiy

Kiril Dimtrov

Ludmil Tomov Zikatanov

Tzanio Valentinov Kolev

Peter Kuchment

Jay Walton

Frank Sottile

Bojan Popov

Vladmir Tomov

Petar Minev

Bangti Jin

Rostislav Grigochuk

Ivaylo Mandadjiev

Dora Mandadjiev

Irina Lazar Sadayo

Kalin Godev

Boyan Dimitrov

Boyko Tchavdarov

Tammy Nikoltcheva

Ivan Yotov

Ilia Michev

Tsvetanka Sendova

Vesselina Musick

Pavel Bochev

Mariana Vassileva

Joseph Pasciak

Rita Ewing

Yulia Georgieva-Hristova

Natallia Gonchek

STRATEGIC FUNDING PRIORITIES

The Department of Mathematics is committed to elevating its impact on the mathematics research community, even in these times of budget uncertainty. To accomplish this, we must rely more than ever before on donations from alumni and friends of the department. While donations at any level and for any department activities are appreciated, we list here a few of our top strategic funding priorities.

FEATURED FUNDING PRIORITY: DIRECTED READING PROGRAM

Introduced in 2018 by Dr. Anne Shiu as part of her NSF CAREER grant, our department's Directed Reading Program (DRP) pairs undergraduate math majors with graduate-student mentors to create a unique high-impact learning experience centered around an advanced mathematical topic of interest to both students. Funding for this program goes entirely toward providing graduate-student participants with a modest books and travel allocation in recognition of their commitment of time and expertise.

ADDITIONAL FUNDING PRIORITIES

Endowed faculty positions, including chairs and professorships, are highly prestigious, giving us the opportunity to hire from among the most active and influential researchers in the world.

Endowed postdoctoral positions are recognized and prestigious, allowing us to recruit from among the finest young researchers in the country. Our department has never had an endowed postdoctoral position, so this is an opportunity to make an unprecedented impact on department activities.

Scholarships and fellowships provide direct support for undergraduate and graduate students, encouraging top students to attend Texas A&M and rewarding the hard work of those who excel.

Departmental outreach activities generate excitement about mathematics, especially among K-12 students who will comprise the next generation of scholars in the US.

Endowed lecture series allow our department to bring in renowned researchers from around the world to discuss their work with students and collaborate with faculty.

Help Us Grow the Texas A&M Math Tradition

Join us as we continue to build on the longstanding tradition of the Department of Mathematics at Texas A&M University with innovative research, teaching and outreach programs. Learn more about the many ways you may support our students and programs through the <u>Texas A&M Foundation</u> by contacting Senior Development Officer Karen Cochran at 979-845-6474 or <u>kcochran@txamfoundation.com</u>.