



## INNOVATION & INITIATIVE TIDBITS

The Mathematics Department welcomed the new hires of August 2025, two new postdoctoral fellows, **Dr. Menevse Paulovicks** and **Dr. Dean Spyropoulos**, and a college track assistant professor, **Dr. Chau Hoang**. The latter, our own pride and joy, earned her PhD in Spring 2025 under the supervision of **Dr. Paul Tian**. We wish them all the best on a smooth path in their academic career.

On a nostalgic note, we honor the legacy and long time contributions in teaching, scholarship, mentorship, and service of: **Dr. Robert Smits** who left for the University of Alabama in Fall 2025; **Dr. Tony Wang**, who enters retirement in Spring 2026 after more than 30 years as faculty at NMSU; and **Dr. Ernest Barany** who will retire this summer after decades of service.

This year the NMSU mathematical community has been deeply saddened by the passing of **Professors Emeriti Richard Bagby, Don Johnson and Carol Walker**. Their distinguished careers and life long contributions will be remembered with great respect, admiration, and gratitude.

We congratulate our colleagues on their recent promotions and tenure: **Drs. Mary Ballyk, Prasit Bhattacharya, Adina Oprisan, and Ilya Shapirovskiy**. Their commitment to education and research paid off and we wish them continued success in the new chapter of their career. Last, but not least, we congratulate **Ms. Sarah Archuleta** on her **2026 Roush Teaching Award**, and **Dr. Adaline De Chenne** on her nomination for the **Cristmore Teaching Award**. Their dedication and hard work go hand in hand with our students' success.

The accomplishments of our students come as a tribute to continuity of learning and development which is consistently underlined by the generous contributions from the donor community. We are very grateful.



There are still many other things that we can do to improve our students' experience and academic performance at NMSU. Reopening our Mathematics Tutoring Center in Walden Hall is one of them, but the rehabilitation project is just a spark, not ready to come home.

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In Memoriam

# POSTDOCTORAL PROGRAM

## WELCOME NEW MEMBERS

Our postdoctoral program continues to grow as we now have four scholars. These researchers are great assets to the department, as they strengthen the research activity within their respective areas while also providing fresh enthusiasm to teaching and scholarship.

**Dr. Andre Kornel** is doing research in discrete quantum structures, mathematical logic, noncommutative geometry, and quantum information. Andre is currently leading the Quantum Working Seminar, and is also co-organizer (with **Dr. Ilya Shapirovskiy**) for the 35th Joint **NMSU/UTEP** workshop on Mathematics, Computer Science, and Computational Sciences that will be held at NMSU in April, 2026.

**Dr. Arvind Kumar** joined the commutative algebra group two years ago and, beside teaching and research, he has been actively involved in the life of the department through many activities: he designed and lead a five-week undergraduate research program that mentored an undergraduate and a graduate student, participated in the **NMSU-MAS program**, a teaching development program on active learning, and gave several talks in our Colloquium and Algebra Seminar.

In Fall 2025 we welcomed two new members in the program.



**Dr. Menevse Paulovicks** joined the analysis group with research in functional analysis and

noncommutative operator algebras. She earned her doctoral degree from Arizona State University in 2021, and after that she continued with a postdoctoral position in the Department of Mathematics at University of Colorado, Boulder. Right after she joined our department, she co-organized (with **Dr. Boyu Li**) the **Analysis Seminar**, and the **Groupoid Fest Conference at NMSU, November 15-16, 2025**.

**Dr. Dean Spyropoulos** also joined the postdoctoral program in Fall 2025 with research interest in Khovanov homology/spectra, categorification, Floer theory, and quantum groups. Dean earned his PhD from **Michigan State University** in May 2025. At NMSU he is under the supervision of **Dr. Keegan Boyle**. They are working together on a paper related to “L-Spaces and quasi-alternating links in  $RP^3$ ”.



He was invited to give a talk in a Special Session on Recent progress in Quantum Topology and The 2026 Joint Mathematics Meetings in Washington, DC. At NMSU he gave talks in our Colloquium and in the **Topology Seminar**.

Our undergraduate program is also on the rise and benefiting from more students in our advanced classes. We are happy to report on the accomplishments of our students.

**Gabriel Agnew** participated in several research projects involving modal and quantum logic, ranging from studying the logic of closeness in metric spaces to analyzing the structure of quantum graphs. He is currently in the **Research Training Group**, lead by **Drs. John Harding, Ilya Shapirovskiy, and Bruce Olberding**, where he is studying dualities between algebra and logic.

*“Among all areas of mathematics, logic definitely captivates me the most. It’s broadened my perception on mathematics (and the universe as a whole) and is surprisingly powerful in its rigor and expressive capabilities. Presently, my interests lie in modal logic, especially in non-normal modal logic systems and their relational semantics. Outside of mathematics and logic, however, I am an avid musician, performing my viola for a variety of quartets, symphonies, and ballets. While I’m not practicing my viola or studying math, I might be hiking, baking, composing music, or playing with my birds!”*

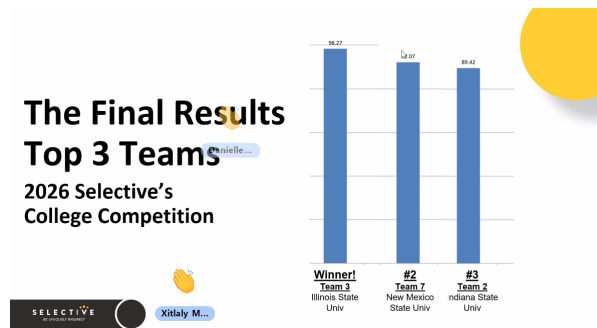


Two undergraduate students, **Andrés Batista** and **Geraldine Romero Tenorio**, started a fresh collaboration with marketing (Allie Reeves, Jacob Acosta) and finance (Brando Salas) students. They

competed against eight universities across the country in the **Selective Insurance Company College Competition**. This was **the first time** that NMSU has ever participated in this competition. The team did an outstanding job and was placed **second**, after the returning champion Illinois State University, and followed on the third place by Indiana State University.

### The Final Results Top 3 Teams

2026 Selective’s College Competition



The \$2,000\$ prize money will assist these students in traveling to conferences.



The team from left to right: Jacob Acosta, Andres Batista, Geraldine Romero, Allison Reeves, and Brando Salas.

Congratulations to all! Go Aggies!

**Geraldine** is a senior student majoring in Actuarial Science and Insurance with a minor in Risk Management.

*“From a young age, I have enjoyed working with numbers and learning how businesses manage risk and make decisions to prevent losses. I am passionate about my career path, and although the journey has not always been easy, I am proud to share that I will be graduating in the Spring. Over the course of five weeks, we managed a simulated insurance company and presented weekly financial and operational results while making strategic business decisions. I am very proud of the hard work, teamwork, and learning experience this competition provided—it was truly an amazing opportunity”.*



**Andrés Batista** is a junior majoring in Mathematics with concentration in Actuarial Science, and minors in Risk Management and Insurance and Finance. He was the team liaison for the competition:

*“We simulated managing a brokerage agency and made strategic decisions on pricing, risk management, and business operations. It provided a great opportunity for our team to apply our analytical and problem-solving skills to a realistic industry scenario. At NMSU, I am involved in GIS and serve as an officer, and in my free time I love to exercise”.*

**Mashiath Khan** is a graduate student under the direction of **Dr. Guram Bezhanishvili** who is expected to graduate in Spring 2026. His research is in mathematical logic, with a particular focus on modal logic and its semantic foundations. His work on predicate and monadic extensions of modal logic has been disseminated in two papers: *Establishing the finite model property for the monadic extension of the Grzegorzczuk logic* that will appear in *Annals of Pure and Applied Logic*, and *Proving finite axiomatizability results for the product logics  $GL \times S5$  and  $Grz \times S5$* , just submitted to the *Journal of Symbolic Logic*. Last summer he participated at the conference **BLAST 2025** at UC Boulder, the main conference dedicated to the intersection of Boolean Algebras, Lattices, Algebra, Set theory and Topology. NMSU was home for BLAST 2021.



He is very pleased with the opportunities and graduate experiences at NMSU. *“Alongside my research, I have been actively involved in teaching and assisting the department with undergraduate mathematics courses. I am grateful for the supportive and intellectually open environment at NMSU, which has provided me with invaluable opportunities to grow as a researcher and educator”.*

Another senior graduate student **Sehwan (Sam) Kim** is graduating in Spring 2026 under the direction of **Dr. Bruce Olberding**. Sam is from South Korea, and joined NMSU after receiving a master of arts degree in mathematics from Miami University, Ohio. His research is related to Prufer domains and holomorphy rings. He recently presented a poster at the **SLAM (Southwest Local Algebra Meeting)**, University of Texas at Arlington, March 2026.



He will participate to the **AMS Spring Central Sectional Meeting**, North Dakota State University, April 2026, and give a talk on the “*Prufer domain as a holomorphy ring*”. In his work, he considered holomorphy rings of specific nonempty subsets of the Zariski-Riemann space of a finitely generated field extension of a non-algebraically closed field. The main tool used in analyzing the *ideal theory* of these holomorphy rings is the Zariski patch topology that helps with the decomposition of holomorphy rings into an intersection of *good* discrete valuation rings. This ideal theory involves finitely generated and radical ideals, Zariski-Samuel associated prime ideals, minimal prime ideals, and the quotients of radical ideals.

We congratulate our **Spring 2025 PhD** graduates for their great academic accomplishments and success in securing academic positions.

**Xiangfei Chen**, student of **Dr. Tony Wang** with research interests in statistical analysis of parameters for elliptical and skew elliptical distributions, is currently a **tenure-track assistant professor at Bridgewater State University, MA.**

**Chau Hoang**, who studied under the direction of **Dr. Paul Tian**, is currently a **college-track assistant professor at NMSU**. Her research interests are focused on several stochastic models with applications in biology, stochastic models for ontogenetic growth of organisms, and adaptive immune responses in oncolytic virotherapy.

**Sebastian Melzer**, student of **Dr. Guram Bezhanishvili**, is a **postdoctoral** student at **University of Salerno, Italy**. His most recent publication *Maximal  $d$ -spectra via Priestley duality* will appear in the prestigious *Journal of Algebra and Its Application*.

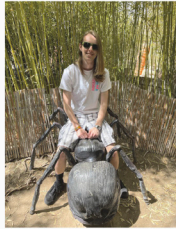
**Ranjitha Raviprakash** is currently a **postdoctoral** student at **University of KwaZulu-Natal, Durban, South Africa**, and she graduated under the direction of **Dr. Guram Bezhanishvili**. Significantly, her paper *The Funayama envelope as the TD-hull of a frame* has been published in the top journal *Theory and Applications of Categories*.

**Miguel Peinado** is currently a renewable-term faculty at **The University of Oklahoma**. He graduated under the supervision of **Dr. John Harding** with a thesis titled *Remarks on Canonical completions*. He recently published a paper *Monadic ortholattices: completions and duality*, in *Algebra Universalis*.

The Math Problem of the Week has been a great success and an impactful experience characterized by a significant participation from all students across campus. Congratulations to **Spring** and **Fall 2025 winners, Conrad Wesley and Donna Ha**, respectively!

### MATH PROBLEM OF THE WEEK

Spring 2025 Winner

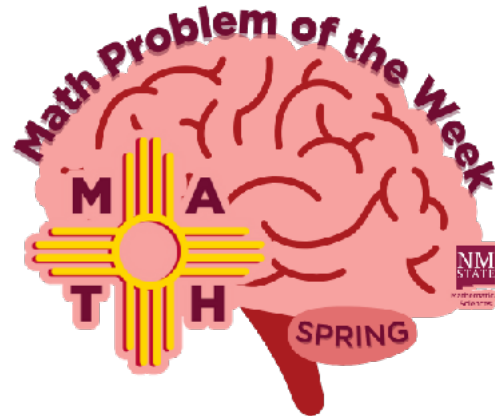


Conrad Wesley  
BS Physics

I graduated over the summer with my BS in Physics, back this year to complete my MS, and I plan to go on to get a PhD and teach physics at the university level. I had a lot of fun participating in the Math PotW and wish everyone luck for this semester!

Starting with Spring 2026 new rules have been implemented to make the competition more challenging and fairer.

The competition is now divided in two phases. The Open Qualification phase is open to all students, and the top performers for the first six weeks will be invited to participate in the second phase. The Championship Finals is an in-person examination administered on campus without the help of calculating devices or external aids. The competition winners will be decided based on their performance in this phase. The Champion will receive a \$500 prize. Besides, there are scholarship opportunities for students majoring in Mathematics at NMSU: top 3 students will receive a \$6,000 scholarship (\$1,500 per year) and the



### MATH PROBLEM OF THE WEEK

Fall 2025 Winner



Donna Ha

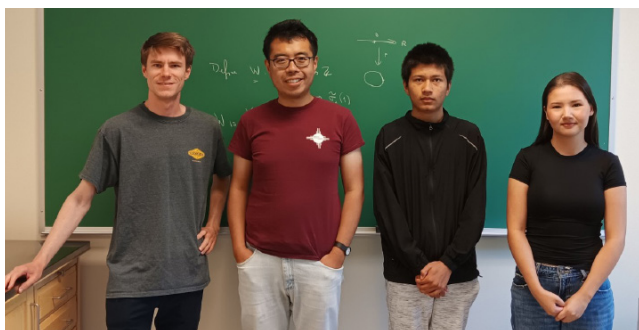
I'm currently studying pre-nursing and mathematics. I find that math has an impactful application in society, so I want to get involve in statistical modeling.

next 3 runners-up receive a \$3,000 scholarship (\$750 per year), as long as they maintain a 3.0 GPA.

Moreover, the competition will be extended to LCPS High School students, and we are looking into ways of making it accessible to home-school students from Las Cruces community. We thank **Drs. Prasit Bhattacharya, Keegan Boyle, Boyu Li, and Guram Bezhanishvili** for their continuing effort in making this activity so successful.

The year 2025/2026 has been rich in collaborative activities that are beginning to turn into traditions. There was also room for new initiatives, such that students have been kept engaged and everybody else busy.

In Summer 2025, Dr. Yang Hu, lead an undergraduate research program “Zeta functions of Graphs” with undergraduate students Mark Benecke, Mason Gardner, and Shokhina Jalilova. They explored zeta functions interactions with topological structures of graphs coverings, and their results have been compiled in an expository paper.



The **2025 North American Annual Meeting** of the Association for **Symbolic Logic** was held on May 13-16, 2025 at NMSU, and organized by NMSU faculty: **Drs. J Harding (chair), A. Kornell, J. Lucero-Bryan, P. Morandi, B. Olberding, I. Shapirovsky, and S. Tran.**

With over one hundred registered participants, the event provided the mathematical insights and connections in the logic field. There were six plenary talks (S. Artemov, B. Castle, P. Lutz, M. Malliaris, A. Poveda, and F. Weilacher), two series of tutorials presented by M. Soskova and J. Wolf, and six special sessions in Combinatorics and Logic, Computability Theory, Modal Logic, Model Theory, Proof Assistants, and Set Theory.

**Arizona-New Mexico Symposium on Commutative Algebra and Its Interactions: Geometric Combinatorics** took place on December 8-12, 2025 at NMSU. The symposium was organized by our NMSU faculty **Drs. Michael DiPasquale and Louiza Fouli, and Dr. Jonathan Montano, from Arizona State University.** The symposium consisted of a series of plenary lectures conducted by group leaders Christopher Manon (Kentucky), Jason McCullough (Iowa State), and Botong Wang (Wisconsin) and workshop groups of small teams that collaborated on proposed open problems. Several graduate students participated with poster presentations. This great event has been possible with the support from NSF Grant DMS #2401522, Department of Mathematics at NMSU, and the School of Mathematical and Statistical Sciences at ASU.

The mathematics department runs a series of **seminars in algebra, analysis, geometry & topology** providing a platform for collaboration between faculty members and graduate students, as well as invited talks from collaborators and experts in the field. Two **working group seminars** are also organized, one in probability (lead by **Dr. Adina Oprisan**) and another in quantum computing (lead by **Dr. Andre Kornell**), with the goal of providing graduate students with a tool for communication and structured exposition.

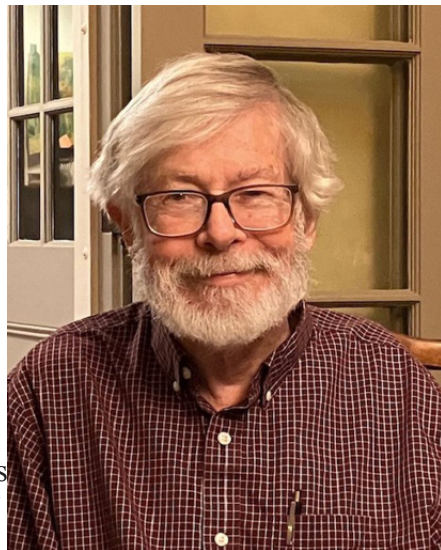
The **Colloquium Series** continued to bring leading people from areas of mathematics, and runs almost weekly in every semester. This is the event designed to keep graduate students connected with their former professors and mentors, colleagues with research collaborators. Also it enables a get together for all members of our mathematics community.

# IN MEMORIAM

We are saddened to report the passing of several beloved colleagues and community members.

**Richard J. Bagby:** Oct. 9, 1940 - Sept. 11, 2025

NMSU faculty from 1968, after completing his PhD at Rice University. Research areas: functional analysis, real analysis, operator theory, harmonic analysis, and partial differential equations. Retired from NMSU in 2002.



**Carol L. Walker:** Aug. 19, 1935 - Feb. 25, 2026



**Donald G. Johnson:** dec. January 1, 2025



Joined NMSU in 1965 and retired in 1988. PhD earned from Purdue University in 1959. Established the Mathematics Learning Center at NMSU. Research areas: lattices and ordered algebraic structures, functional analysis, associative rings and algebras, and general topology.

Phd earned from NMSU in 1963, joined the faculty in 1964. Department Head from 1979 to 1993. Dean for College of Arts and Sciences 1993 - 1996. Retired from NMSU in 1996. Research areas: theory of abelian groups, fuzzy logic, fuzzy control systems.

