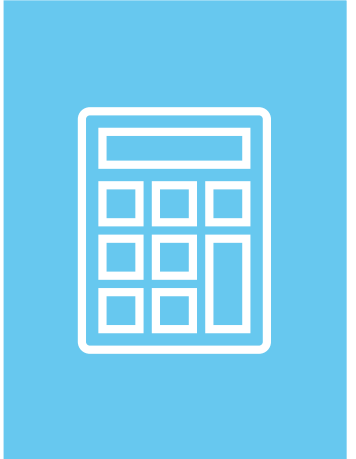



**COLLEGE OF NATURAL SCIENCES
AND MATHEMATICS**

THE UNIVERSITY OF TOLEDO

2023 ANNUAL REPORT





2024 SAVE THE DATES

Doermann Distinguished Lecture

This free public lecture will be held on **Tuesday, March 12, 2024**, hosted by the College of Natural Sciences and Mathematics in the Doermann Theatre.
Lecture Title, "Experiencing Totality: The Great Total Eclipse of 2024"

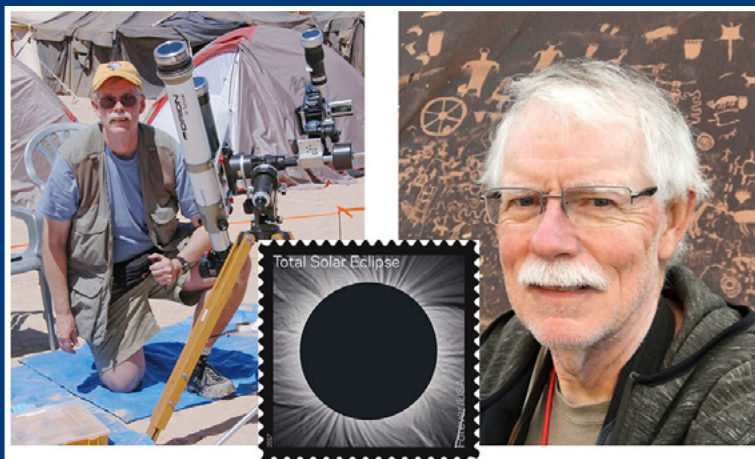


Image credit: MREclipse.com

Guest lecturer: Fred Espenak, M.S. '76, Physics, College of Natural Sciences & Mathematics Distinguished Alumnus 2018-2019.

Fred Espenak is a retired NASA astronomer and the agency's leading expert on eclipses. Known as "Mr. Eclipse", he has written dozens of books on eclipses, generated predictions and maps for over 10,000 solar eclipses, and created three websites devoted to eclipses. Espenak has participated in 29 total solar eclipse expeditions that have taken him all over the world. His photographs have been published in numerous magazines and appeared on the USPS postage stamp commemorating the 2017 eclipse across the USA.

Details on the Doermann Lecture can be found by scanning the QR code to the right or by visiting our website: utoledo.edu/nsm/events/doermann-distinguished-lecture.html



We're social ~ follow us!

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 Physics and Astronomy Nikolas Podraza

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 Website: utoledo.edu/NSM

TOTAL SOLAR ECLIPSE

Save the Date:

April 8, 2024



Join UToledo's Ritter Planetarium on April 8, 2024, to view the solar eclipse on Main Campus! For details visit: utoledo.edu/eclipse



 LETTER FROM
THE DEAN

MARC SEIGAR

Dear Friends of UToledo's College of Natural Sciences and Mathematics,

We are thrilled to present the College of Natural Sciences and Mathematics (NSM) report for the 2022-23 academic year. This was another great year for NSM. Our fundraising is going strong and we welcomed a new Director of Development, Dr. Brittanie Kuhr, to the team.

Despite pressures you may read about elsewhere, The University of Toledo and the College of Natural Sciences have both had a successful year. Our enrollment seems to be stabilizing as we brought in a larger cohort of new undergraduate students this fall. Furthermore, we launched a new B.S. in Neuroscience, joint with the College of Medicine and Life Sciences (COMLS), which is already bringing in students who otherwise would not have come to the University of Toledo. Finally, our B.S. in Data Science continues to grow exponentially, and we welcomed students from the Vidyalkar Institute, in India, into the program for the first time (and we expect even more students from Vidyalkar next year).

Once again, we have had many great successes in the last year. In particular, five faculty members received R15 (Research Enhancement Award) awards from the National Institute of Health (NIH) this last year. NIH's R15 goals are to support meritorious research, expose students to research and strengthen the research environment of the institution. Congratulations to Tomer Avidor-Reiss, Maria Diakonova, Malathi Krishnamurthy, Guofa Liu and Song-Tao Liu, all in the Department of Biological Sciences. In terms of grants brought in for the 2022-23 year, NSM secured almost \$18 million of extramural grants. As you can see, our faculty are taking NSM from strength to strength.

We continue to have outstanding fundraising and brought in over \$3 million of donations for the second year in a row! Thank you to all of our donors, without whom it would not have been possible to do the great things we are doing in NSM. Also, thank you to the UToledo Foundation team - Sam Fields, Abigail Hall, Brittanie Kuhr and Cindy Miller - for all their help in fundraising and donor and alumni engagement. We broke ground on the new Wetland Research Park at CADE (the Center for Alumni and Donor Engagement). As this project grows, we are also hoping we can secure extra funding to build a boardwalk and a pavilion at the facility. We are also focused on building our community and K-12 school outreach and this new facility will be central to this initiative. We want to spread the word about all the work UToledo is doing in the area of water quality.

In terms of student success, in NSM we are committed to making sure that our students get the most out of their program of study. This year, we are working on revising our first-year experience course (known as NSM 1000), so that it better meets the needs of students. Our goal is to offer a new, two-semester course, that would cover what students really need to know. We may even start to offer a sophomore-year experience course, but this would be more focused on career development and other items. This is part of a longer-term project we have in mind to build more high-impact practices (HIPs) into the curriculum, things like a first-year experience, career development, a capstone course, undergraduate research, internships and study abroad. These HIPs keep students engaged and leads to better student outcomes and more success. We are just getting started, so please watch this space. We will provide more reports on progress every year.

Finally, to all our friends, I ask that you stay in contact, stop by when you can, and send us any information you'd like to share with us about your career and other news.

Best Regards and Go Rockets!

Dean, UToledo College of Natural Sciences and Mathematics



Pictured (L-R): Gayle Heer, Tracy Long, Jennifer Ramos, Dr. Brian Ashburner, Adam Hintz, Dr. John Plenefisch, Dean Marc Seigar, Rita Yunker, Jamie Fager and Beth Fowler.



DEPARTMENT OF BIOLOGICAL SCIENCES

Chair, Dr. Song-Tao Liu

The Department of Biological Sciences saw **104 undergraduate and 21 graduate** students complete their degrees in the 2022-23 academic year!

Select highlights from the year include:

Awards and recognitions received by undergraduate and graduate students!

- **Derek Kluczynski (undergraduate student, Avidor-Reiss lab)** was selected as a 2023 Barry Goldwater Scholar by the Board of Trustees of the Barry Goldwater Scholarship and Excellence in Education Foundation and the Department of Defense National Defense Education Programs.
- **Katrina Turner (Ph.D. candidate, Avidor-Reiss Lab)** was awarded a NIFA Education and Workforce Development (EWD) Fellowship (\$95,000) for her research on the role of sperm centriole in fertility titled “The Function of Centriole Protein POC1B In the Rabbit Sperm”.



Derek Kluczynski, 2023 Barry Goldwater Scholar

Awards and recognition received by our faculty!



Dr. Lirim Shemshedini, OCR Research Award

- **Dr. Tomer Avidor-Reiss** received the 2022-23 Excellence in Research Award from the College of Natural Sciences and Mathematics
- **Dr. Lirim Shemshedini** received the 2022 Discover Award for Research presented by Ohio Cancer Research (OCR) at the Renaissance Toledo Downtown Hotel on Thursday, September 29, 2022, during the Grande Illusions Sauté event.

It was an amazing year for new research grant awards by our departmental faculty researchers!

- **Dr. Tomer Avidor-Reiss** received an NIH R15 grant award for the project “The Role of Rabbit POC1B in Sperm Centrioles”. The three-year award was funded in the amount of \$451,500.
- **Dr. Bruce Bamber** received the Interdisciplinary Research Award from the University Research Foundation, title: “Whole-network computational analysis of olfactory coding”, along with Co-Is Robert Smith, Rammohan Shukla and James Burkett, in the amount of \$40,000.
- **Dr. Maria Diakonova** received an NIH/NCI R15 grant award for the project “Role of prolactin in adipocyte-breast cancer cell crosstalk”. The three-year award was funded in the amount of \$451,500.
- **Dr. Malathi Krishnamurthy** received an NIH/NIAID R15 award for the project “Stress granules in virus infections”. The three-year award was funded in the amount of \$451,500.
- **Dr. Guofa Liu** received an NIH/NINDS Brain for Life R15 grant award for the project “The coordination of miRNAs in axon guidance”. The three-year award was funded in the amount of \$451,500.
- **Dr. Song-Tao Liu** received an NIH/NIGMS R15 award for the project “MTFR2 in the control of mitochondrial dynamics and mitotic spindle integrity”. The three-year award was funded in the amount of \$451,500.

Three faculty members in Biological Sciences received URFO grant awards for Spring 2023!

- Interdisciplinary Research Initiation Award: **Dr. Bruce Bamber** for whole-network computational analysis of sensory-driven behavior, in the amount of \$85,000.
- Research Innovation Program Award: **Dr. Qian Chen** for the essential role of polycystins in kidney cell cytokinesis, in the amount of \$105,000.
- DeArce-Koch Memorial Fund for Medical Research Award: **Dr. Lirim Shemshedini** for androgen down-regulation of BARD1/BRCA1 in prostate cancer cells, in the amount of \$98,190.

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

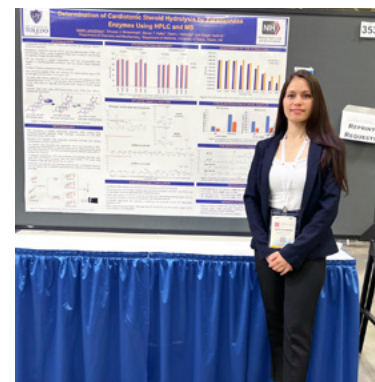
Chair, Dr. Jon Kirchhoff

The Department of Chemistry & Biochemistry saw **17 undergraduate and 18 graduate** students complete their degrees in the 2022-23 academic year!

Select highlights from the year include:

Awards and recognitions received by undergraduate and graduate students!

- **Sabitri Lamichhane (Ph.D. candidate, Isailovic Lab)** was the recipient of a GSA Research Award for the 2022-2023 AY in the amount of \$2,170 for her project “Investigation of Enzymatic Regulation of Cardiotonic Steroids by Paraoxonases using UHPLC-MS”.
- **Abigail Olomukoro (Ph.D. candidate, Gionfriddo Lab)** was awarded an Advancing Science Conference Grant to attend and present her research at the 2022 National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCHE) Conference in Orlando, FL, Sept. 2022. The selection committee recognized Abby as one of the country’s best and brightest upcoming scientists. Abby also received the 2023 Merck Research Award for Underrepresented Chemists of Color.
- **Six undergraduate students** were awarded Undergraduate Summer Research Fellowships from the Office of Undergraduate Research to perform research in the laboratories of five department faculty members in Summer 2023:
 - **Paul Friday** (B.S. biology major, chemistry minor), Dr. Ronald Viola (mentor)
 - **Fateh Aameera Haris** (B.S. biochemistry major), Dr. Emanuela Gionfriddo (mentor)
 - **Elijah Harris** (B.S. biochemistry major), Dr. Joseph Schmidt (mentor)
 - **Chloe Villa** (B.S. chemistry major), Dr. Wei Li (mentor)
 - **Jonathan Waller** (B.S. chemistry major), Dr. Mark Mason (mentor)
 - **Ernest Wolke** (B.S. chemistry major), Dr. Wei Li (mentor)



Sabitri Lamichhane, presenting her research at the American Society for Mass Spectrometry.

Awards and recognitions received by our faculty and recent alumni!

- **Dr. Emanuela Gionfriddo** was the recipient of three very prestigious awards during the 2022-2023 AY: the 2022 ACS Analytical Division Satinder Ahuja Award, the 2023 LCGC Emerging Leader in Chromatography Award and the 2023 EAS Young Investigator Award.
- **Dr. Cora Lind-Kovacs** received a two-year renewal of her project “Molecular Design of Lead Acid Battery Model Expanders”, which was funded by the American Battery Research Group (ABRG) through Argonne National Laboratory with collaborator Pietro Papa Lopes. The project was funded for \$478,759 from June 1, 2023 to May 31, 2025.
- **Dr. Ron Viola**, in collaboration with **Dr. Lirim Shemshedini (Biological Sciences)** and Isaac Schiefer (PI), received funding of \$45,000 through the UToledo Research Innovation Program for their project titled “Synthesis and Evaluation of Novel Dual Mechanism EZH2/AR Inhibitors for Prostate Cancer”.
- **Two U.S. Patents were awarded based on research in the department:**
 - » U.S. Patent 11634517-B2 ‘Pyrrole-based polymers for metal extraction, analysis, and removal’ was issued on April 25, 2023. Inventors include Distinguished University Professor and Chair **Jon Kirchhoff**, and UToledo doctoral graduates **alumni Ahmad Rohanifar, ‘19** (Intel Corp.) and **Govind Sharma Shyam Sunder, ‘21** (Waters Corp).
 - » U.S. Patent 20230128972-A1 ‘Anat Inhibitors and Methods of Use Thereof’ was issued on April 27, 2023. Inventors are Emeritus and Distinguished University Professor **Ron Viola** and Dr. Adrian Stecula, Isomorph Labs, UK.



Abigail Olomukoro, 2023 Merck Research Award for Underrepresented Chemists of Color.

Thank you to Dr. Jon Kirchhoff for serving as Department Chair for the past seven years. His hard work and dedication are greatly appreciated. Effective July 1, 2023, Dr. Steven Sucheck will be serving in the role of Department Chair. We wish him great success!



DEPARTMENT OF ENVIRONMENTAL SCIENCES

Chair, Dr. Jon Bossenbroek

The Department of Environmental Sciences saw **27 undergraduate and 11 graduate** students complete their degrees in the 2022-23 academic year!

Select highlights from the year include:

Awards and recognitions received by our graduate students!

- **Donnie Day (Ph.D. student, Weintraub Lab)** was 1 of 10 students' country-wide selected to receive the U.S. Department of Energy's Office of Science Student Travel Award to attend the Environmental System Science Principal Investigators Meeting, Bethesda, MD, May 2023.

- **Joy Jackson (Ph.D. student, Spanbauer Lab)** attended the Ecology and Systematics of



Joy Jackson, Ph.D. student

Diatoms course at Iowa Lakeside Laboratory (May 22-June 16, 2023). Joy received three separate awards that allowed her to attend this course.

- **Sabrina Jaffee (Ph.D. student, Qian Lab)** received the 2023 IAGLR David M. Dolan Scholarship (\$3,000) for her research "Application of Bayesian hierarchical models in grass carp and harmful algal bloom management". She received her M.S. in biology/ecology from UToledo in 2021. Sabrina is the third student from Dr. Qian's lab to receive this scholarship that specifically support individuals pursuing a future in applied environmental statistics/modeling pertaining to the Great Lakes.

- **Cameron McMillan (Ph.D. candidate, Weintraub Lab)** was selected as one of 44 Ph.D. students nationwide to conduct research at the U.S. Department of Energy's national laboratories. Through the DOE's graduate research fellowship, McMillan will continue his environmental microbiology research, investigating how temperature controls arctic soil decomposition.



Cameron McMillan, Ph.D. candidate

Awards and recognitions received by our faculty and staff!

- **Dr. Kennedy Doro** received an award from the US Department of Energy through Vista Clara Inc., for the project, "Robust High-resolution Magnetic Resonance Sensors for In-situ Measurements of Soil Hydrogeology at Coastal Interfaces", in the amount of \$38,751.
- **Dr. Daryl Moorhead** received an award from the National Science Foundation (NSF) Division of Environmental Biology for the project, "Collaborative Research: MRA: Resolving and scaling litter decomposition controls from leaf to landscape in North American drylands", which was awarded for 4-years in the amount of \$150,288.
- **Steve Murphy**, Laboratory Machinist, received the 2022-2023 Outstanding Staff Member Award from the College of Natural Sciences and Mathematics.
- **Dr. Jeanine Refsnider** received a URFO award for Spring 2023, category Research Awards and Fellowships, for the gut microbiome as a biomarker of host and ecosystem health in high-salinity environments, in the amount of \$144,500.
- **Dr. Trisha Spanbauer** received a National Science Foundation (NSF) 5-year award with funding of \$425,368 for the joint proposal, "Collaborative Research: BoCP-Implementation: The impact of climate change on functional biodiversity across spatiotemporal scales at Lake Tanganyika, Africa".



ALUM HIGHLIGHT

Matt McCormick, B.S. Geology '16 and M.S. Geology '21

Matt is a Regional Hydrogeologist with the U.S. EPA Region 9 (Pacific Southwest) for the Superfund Emergency Management Division. His responsibilities include: Federal facilities and site cleanup (including Arizona, California, Hawaii and Nevada), emergency response, planning and preparedness and Tribal Land cleanup and remedial support. One of the areas that Matt has investigated in depth is PFAS (aka, forever chemicals) contamination detection, fate, transport and remediation. He has developed such a solid background in these contaminants during his first two years with the U.S. EPA that he has become a national expert!

DEPARTMENT OF MATHEMATICS AND STATISTICS

Chair, Dr. Geoffrey Martin

The Department of Mathematics and Statistics saw **11 undergraduate and 11 graduate** students complete their degrees in the 2022-23 academic year!

Select highlights from the year include:

Presentations and recognitions received by our faculty members!

- **Dr. Alessandro Arsie** was an invited presenter at a workshop on “Various Guises of Reflection Arrangements” held at the International Center for the Mathematical Sciences in Edinburgh, Scotland, UK, March 13-17, 2023. He presented “On Integrable Hierarchies Associated to Orbit Spaces of Reflection Groups”. Dr. Arsie also served on the NSF panel for Dynamical Systems, Symplectic and Poisson Geometry (March 22-24, 2023).
- **Drs. Zeljko Cuckovic and Trieu Le** were invited to present in the special session “Operator Theory on Analytic Function Spaces” at the 34th International Workshop on Operator Theory and its Applications (IWOTA) at the University of Helsinki, Finland, July 31-August 4, 2023.

Dr. Cuckovic presented “On spectrum of Hankel operators on the polydisk”

Abstract: We give sufficient conditions for the spectrum of the Hermitian square of a class of Hankel operators on the Bergman space of the polydisk to contain intervals. (Joint work with Zhenghui Huo and **Dr. Sonmez Sahutoglu**).

Dr. Le presented “On range of Berezin transform in several variables and applications”

Abstract: For an integrable function u on the unit ball, let $B(u)$ denote its Berezin transform ... Our results have direct applications to the study of algebraic properties of Toeplitz operators with pluriharmonic symbols on the Bergman space. In particular, we show that if φ, ψ are bounded pluriharmonic functions on the ball such that $T\varphi T\psi$ has finite rank, then one of φ, ψ must be zero. (Joint work with **Dr. Akaki Tikaradze**).

- **Dr. Funda Gultepe** organized the first Math Corps at UToledo Summer Camp, a free program for middle school students and high school mentors from under-served communities in the Toledo area, which welcome 25 students to campus for its inaugural cohort from Monday, July 11 - Friday, August 5, 2022. Dr. Funda Gultepe also received an award from the Toledo Community Foundation, of \$61,649, on June 30, 2023, to help fund a second cohort in Summer 2024.
- **Dr. Ekaterina Shemyakova** gave a plenary talk at the 2023 “Gone Fishing” Poisson Geometry Conference at Amherst College in Amherst, MA, in March 2023, titled “On super cluster algebras based on super Plucker and super Ptolemy relations”.



The University of Helsinki, Finland



Math Corps at UToledo Summer Camp 2022

Research publications featuring graduate students and faculty members!

- **Dr. Trieu Le** and two of the departments **Ph.D. students, Chanaka Kottegoda and Tomas Rodriguez**, coauthored a paper titled “Square roots of weighted shifts of multiplicity two” which was accepted by Canadian Journal of Mathematics. <https://doi.org/10.4153/S000843952200073X>
- **Dr. Ekaterina Shemyakova** had a paper published in Journal of Geometry and Physics, “On super cluster algebras based on super Plucker and super Ptolemy relations”. <https://doi.org/10.1016/j.geomphys.2023.104776>



DEPARTMENT OF PHYSICS AND ASTRONOMY

Chair, Dr. Nikolas Podraza

The Department of Physics and Astronomy saw **17 undergraduate and 8 graduate students** complete their degrees in the 2022-23 academic year!

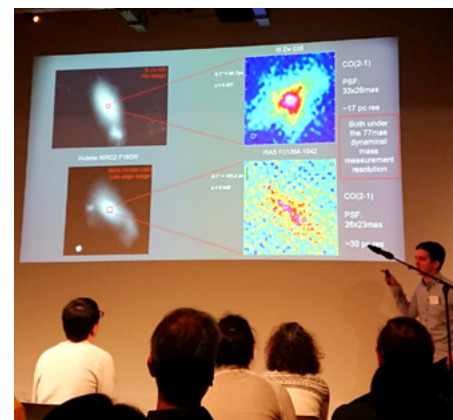
Select highlights from the year include:

Research publications featuring faculty and alum!

- **Dr. Rupali Chandar** had a paper accepted to the Astrophysical Journal, title: A Tale of 3 Dwarfs: No Extreme Cluster Formation in Extreme Star-Forming Galaxies, which included co-authors: **Mandy Caputo (Ph.D. student in physics)** and 2022 REU (Research Experiences for Undergraduates) students Aimee Toscano (Washington & Jefferson College) and Jaidyn Conyers (University of Akron). <https://arxiv.org/abs/2304.02450>

Awards and recognitions received by faculty, staff and students!

- **James Agostino (Ph.D. student, Medling lab)** presented his talk, “Quantifying Nuclear Molecular Gas Content with High Resolution ALMA CO Observations of Luminous Infrared Galaxies”, at the Torus Workshop “Smoke and Mirrors” in Leiden, Netherlands, December 2022. Additionally, James and Dr. Medling received a grant award of \$34,983 from the National Radio Astronomy Observatory to fund another year of James’ ALMA work investigating black hole fueling.
- **Dr. Rupali Chandar** accepted the Helen Luedtke Brooks Endowed Professorship of Astronomy, which supports an astronomer in the Department of Physics and Astronomy who has demonstrated sustained outstanding performance and ability.
- **Dr. Robert Collins**, Distinguished University Professor, NEG Endowed Chair and Scientific Co-Director of the Wright Center for Photovoltaics Innovation and Commercialization, received the 2022-2023 Excellence in Professional Service Award from the College of Natural Sciences and Mathematics.
- **Dr. Randy Ellingson** and co-Investigators **Dr. Dragan Isailovic, Chemistry & Biochemistry**, and Dr. Ivana Validzic (Vinca Institute, The University of Belgrade, Serbia), received an award of \$99,964 from the U.S. Department of State for “Renewable Energy and Water for the U.S. and Serbia”. The project will run for 2.5 years and involves planning and holding academic workshops on critical topics – renewable energy sources, solar energy and energy’s impact on clean water; in-person exchange visits for both institutions by scholars and students; joint research projects on antimony sulfide solar cells and more.
- **Dr. Anne Medling** received a NASA D.2 Astrophysics Data Analysis (ADAP) Grant for her project, “Fueling the Fire: Tracing Black Hole Growth in Pre-Quasar Systems”. The three-year project was funded for a total of \$437,057.
- **Dr. Kathy Shan**, Senior Lecturer, received the 2022-2023 Excellence in Teaching Award from the College of Natural Sciences and Mathematics.
- **Dr. Yanfa Yan**, Distinguished University Professor and **Dr. Zhaoning Song**, research assistant professor, were awarded a \$1 million grant from The U.S. Department of Energy as part of a \$42 million round of funding to advance critical technologies for producing, storing and deploying clean hydrogen. UToledo will provide an additional \$250,000 to the project, for a total investment of \$1.25 million.



James Agostino presenting at the Tours Workshop



L-R: Dr. Dragan Isailovic, Sanduni Premathilika (Ph.D. candidate), Dr. Ivana Validzic, Tyler Brau (Ph.D. candidate) and Dr. Randy Ellingson at First Solar.

UTOLEDO LAKE ERIE CENTER NEWS

Female African Scientists Visited the UToledo Lake Erie Center to Discuss Great Lakes Research

A group of 15 female aquatic scientists, from eight African countries, visiting the Great Lakes region to compare and contrast issues here with Africa's Great Lakes, visited the UToledo Lake Erie Center to discuss their research with several faculty members in the Department of Environmental Sciences.

The group of scientists were visiting as part of a 10-month program called African Women in Science, or AWIS, offered by the African Center for Aquatic Research and Education, or ACARE.

Dr. Christine Mayer said of the visit, "I was impressed hearing about their research. There are so many environmental problems that we deal with in Ohio that are also present across the African countries where our visitors work."

"It was great to discuss both the similarities and differences in working on environmental issues across the Laurentian and African Great Lakes. While we find ourselves on different sides of the globe, pressing concerns about pollution and climate change were a reoccurring theme in our conversations. It was an incredible experience to build connections and future collaborations with these accomplished scientists", said **Dr. Trisha Spanbauer**. (Dr. Spanbauer will be conducting field work in Lake Tanganyika, the world's longest freshwater lake, next year for her recent NSF grant award, "Collaborative Research: BoCP-Implementation: The impact of climate change on functional biodiversity across spatiotemporal scales at Lake Tanganyika, Africa").

An exciting visit and great opportunity to share research with fellow scientists who conduct their research in a region approximately 8,000 miles from NW Ohio!



Two UToledo Lake Erie Center Scientists Presented at Stone Lab's 2022 Annual Science Writers Event

Robert Mapes, field crew leader for the adult Grass Carp removal project, spoke about grass carp removal and research supported at UToledo by the OH DNR-DOW and the Great Lakes Fishery Commission, as well as work at other partner agencies. Mapes is a UToledo alum (B.S. '13) and received his M.S. from Kansas State University.

Zachary Amidon (Ph.D. student) discussed his research, which is to determine factors contributing to low recruitment of Lake Erie Whitefish. His work has been supported by the USGS and The Nature Conservancy. Amidon is a UToledo alum (M.S. '19) and received his B.S. from SUNY Cobleskill.

ZOOTeen Volunteers Spend Time at the UToledo Lake Erie Center

Dr. Tom Bridgeman, Dr. Bill Hintz and Dr. Christine Mayer hosted a group of high school students at the UToledo Lake Erie Center who were participating in the ZOOTeen program through The Toledo Zoo, June 2023. The ZOOTeen volunteers spent the morning at the LEC learning about lake sturgeon research in Dr. Hintz's lab and spent time with Dr. Mayer collecting aquatic organisms in the LEC pond and identifying organisms under a microscope. The ZOOTeens then went on a trip aboard the Glass City Pearl (J&M Cruise Lines) with Dr. Bridgeman, on Lake Erie, to learn about water quality (the boat trip was funded by an education grant awarded to Dr. Bridgeman).

We love seeing our local high school students so interested in the research that happens in our community and the Department of Environmental Sciences!



Scan the QR code to the left to learn more about the UToledo Lake Erie Center or visit the website at: utoledo.edu/nsm/lec/





Congratulations to the NSM faculty and staff who were recognized with awards or distinctions by The University of Toledo during the 2022-2023 academic year:

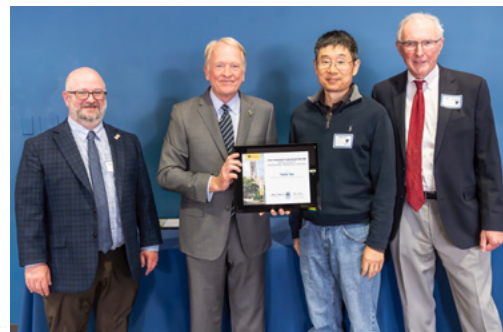
- **Dr. Thomas Bridgeman**, professor, Department of Environmental Sciences and director, UToledo Lake Erie Center, a recipient of the UToledo 2023 Excellence in Sponsored Research Award;
- **Dr. Robert Collins**, Distinguished University Professor, Department of Physics & Astronomy, a recipient of the UToledo 2023 Excellence in Sponsored Research Award;
- **Dr. Randall Ellingson**, professor and PVIC endowed chair, Department of Physics & Astronomy, a recipient of the UToledo 2023 Excellence in Sponsored Research Award;
- **Dr. Sally Harmych**, senior lecturer, Department of Biological Sciences, bestowed with the honorary title of Distinguished University Lecturer;
- **Dr. Michael Heben**, professor, Department of Physics & Astronomy, bestowed with the honorary title of Distinguished University Professor and a recipient of the UToledo 2023 Excellence in Sponsored Research Award;
- **Dr. Christine Mayer**, professor, Department of Environmental Sciences and UToledo Lake Erie Center, a recipient of the UToledo 2023 Excellence in Sponsored Research Award;
- **Dr. Adam Phillips**, associate research professor, Department of Physics & Astronomy, a recipient of the UToledo 2023 Excellence in Sponsored Research Award;
- **Dr. Nikolas Podraza**, chair and professor, Department of Physics & Astronomy, a recipient of the UToledo 2023 Excellence in Sponsored Research Award;
- **Sandra Robinson**, lecturer, Department of Mathematics & Statistics, bestowed with the honorary title of Distinguished University Lecturer;
- **Dr. Kathy Shan**, lecturer, Department of Physics and Astronomy, bestowed with the honorary title of Distinguished University Lecturer;
- **Dr. Zhaoning Song**, research professor, Department of Physics & Astronomy, a recipient of the UToledo 2023 Excellence in Sponsored Research Award;
- **Dr. Steven Sucheck**, professor, Department of Physics & Astronomy, a recipient of the 2023 UToledo Excellence in Sponsored Research Award;
- **Dr. Michael Weintraub**, professor, Department of Environmental Sciences and UToledo Lake Erie Center, a recipient of the UToledo 2023 Excellence in Sponsored Research Award;
- **Dr. Matthew Wohlever**, assistant professor, Department of Chemistry & Biochemistry, a recipient of the UToledo 2023 Excellence in Sponsored Research Award;
- **Dr. Yanfa Yan**, professor, Department of Physics & Astronomy, a recipient of the UToledo 2023 Excellence in Sponsored Research Award.



L-R: Dean Marc Seigar, UToledo President Gregory Postel, Dr. Christine Mayer and Dr. Frank Calzonetti.



L-R: Dean Marc Seigar, UToledo President Gregory Postel, Dr. Steven Sucheck and Dr. Frank Calzonetti.



L-R: Dean Marc Seigar, UToledo President Gregory Postel, Dr. Yanfa Yan and Dr. Frank Calzonetti.

FACULTY “SHOUT-OUTS” FROM THE PROVOSTS OFFICE

A total of 33 NSM faculty, staff and graduate students were recognized by the Office of the Provost as being educators who have positively impacted their students well-being, success or sense of community on campus during the fall 2022 and spring 2023 semesters through the “Shout Out” to Innovative Instructors and Staff campaign! This campaign demonstrates NSMs commitment to student success and represents the high-quality of work, instruction and dedication given by our amazing faculty, staff and students!

UToledo Partners With SENS Research Foundation for Innovative Research Opportunity!

The UToledo College of Natural Sciences & Mathematics signed an exciting new partnership agreement with the SENS Research Foundation to launch an innovative program that will provide doctoral students studying Biological Sciences the opportunity to perform extended research in the field of anti-aging as they work toward their degree.

The California-based research institute will take on one UToledo doctoral student in each of the next five years. Students will be stationed at SENS' headquarters, with the SENS Research Foundation covering their tuition, paying a stipend and working with them to develop their research skills as they complete their UToledo coursework remotely.

SENS' research is focused on finding new regenerative therapies that can remove, repair, replace, or render harmless the cellular and molecular damage that accumulates over time.

This partnership was made possible, in part, through the work of Dr. Lilli Fishman, the SENS Research Foundation's director of academic affairs and a UToledo alumna (Ph.D. '19, Avidor-Reiss), Department of Biological Sciences. Dr. Fishman will serve as a mentor to the UToledo doctoral students alongside SENS scientists.



L-R: Lisa Fabiny-Kiser, SENS Research Foundation CEO; Scott Molitor, interim vice provost for Academic Affairs; Dean Marc Seigar; Dr. Emily Lillian Fishman, SENS Research Foundation director of Academic Affairs; and Dr. Song-Tao Liu, Department of Biological Sciences chair and professor.

Saturday Morning Science Returned for Spring 2023!

Saturday Morning Science returned to UToledo after a three-year hiatus, due to the global pandemic, with three new programs to give the community the opportunity to learn about hot topics in modern science!

Organizers of the program include: Dr. Michal Marszewski (Department of Chemistry & Biochemistry), Dr. Funda Gultepe (Department of Mathematics & Statistics) and Heidi Westwick (Ritter Planetarium, Department of Physics & Astronomy).

Saturday Morning Science is free to the public and is sponsored by the Office of the Dean. Spring 2024 programs will begin in February. For more information on past and upcoming programs, visit the website at: www.utoledo.edu/nsm/saturday-morning-science or scan the QR code to the right.

Although shorter than typical, the spring 2023 season offered a variety of interesting topics:



March 25, 2023

Observing the Birth of Stars with the James Webb Space Telescope: a Toledo Odyssey

Dr. Tom Megeath, Department of Physics and Astronomy, UToledo

April 1, 2023

A New Look at Handedness: From the Laboratory to the Nation

Dr. Stephen Christman, Department of Psychology, UToledo

April 22, 2023

The Science of Jams, Preserves and Marmalade

Tara Grey, Jam Maker and Owner Gus & Grey, Detroit

(You can watch the above program recordings, available on the website.)

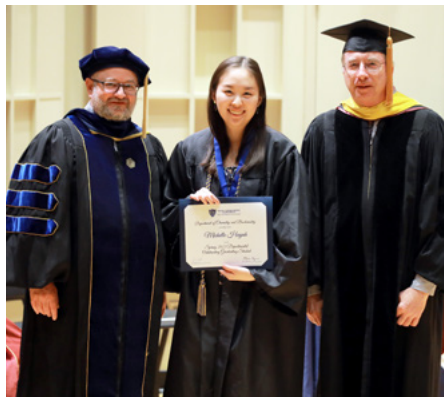
CNSM Department Undergraduate Outstanding Graduating Students Fall 2022 & Spring 2023

Spring 2023 Biological Sciences
Outstanding Graduating Student
Anish Karnani



L-R: Dean Marc Seigar, Anish Karnani and Dr. Song-Tao Liu, department chair.

Spring 2023 Chemistry & Biochemistry
Outstanding Graduating Student
Michelle Huynh



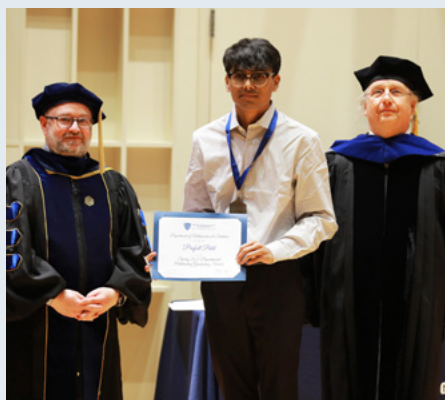
L-R: Dean Marc Seigar, Michelle Huynh and Dr. Jon Kirchhoff, department chair.

Spring 2023 Environmental Sciences
Outstanding Graduating Student
Anthony Tomalewski



L-R: Dean Marc Seigar, Anthony Tomalewski and Dr. Jon Bossenbroek, department chair.

Spring 2023 Mathematics & Statistics
Outstanding Graduating Student
Prafull Patil



L-R: Dean Marc Seigar, Prafull Patil and Dr. Geoffrey Martin, department chair.

Spring 2023 Physics & Astronomy
Outstanding Graduating Student
Samuel Seibert



L-R: Dean Marc Seigar, Samuel Seibert and Dr. Nikolas Podraza, department chair.

Fall 2022 Biological Sciences
Outstanding Graduating Student
Abigail Royfman



L-R: Dr. Song-Tao Liu (department chair), Abigail Royfman and Dean Marc Seigar.

Fall 2022 Chemistry & Biochemistry
Outstanding Graduating Student
Isabella Walter



L-R: Dean Marc Seigar, Isabella Walter and Dr. Jon Kirchhoff, department chair.

Fall 2022 Physics & Astronomy
Outstanding Graduating Student
Robert Snuggs



L-R: Dean Marc Seigar, Robert Snuggs and Dr. Nikolas Podraza.

UToledo Wright Center for Photovoltaics Innovation and Commercialization (PVIC) RISE 2023 Summer Program!



Anya Knoepp works with the PVIC team in the world of chemical bath deposition. Here she crafts the electron transport layer for solar cells!

UToledo's Research in Science & Engineering (RISE) program is an outreach program designed to introduce high school students to scientific research. Since the summer of 2010, the RISE program has partnered high school students with active research groups in science and engineering throughout UToledo's campus.

During the Summer 2023 RISE program, eight talented high school students participated in the eight-week outreach program with groundbreaking projects. The funding for these projects was made possible by the Department of Energy's Solar Energy Technologies Office, through an award to Vitro Architectural Glass, of which PVIC is a subcontract.

UToledo PVIC, Department of Physics & Astronomy research projects:

- Maddie Heben, Pioneer High School (Ann Arbor), worked with mentor Alisha Adhikari on the project, *Effect of Sulfur Concentration on the Hydrothermal Deposition of Antimony Sulfoselenide Solar Cells*
- Lydia Roberts, Clay High School, worked with mentor Nadeesha Katakumbura on the project, *Rebuilding Ferro-multisource Evaporator*.

Lydia continues to work with PVIC and is an author on an upcoming paper and was listed as an author on a poster presentation

- Nithya Ranjan, Perrysburg High School, worked with mentor Kshitiz Dolia on the project, *Investigation of TCO Sputtering Parameters' Effect on Film Properties*
- Charlotte Ellingson, Ottawa Hills High School, worked with mentor Nalini Kaluarachchi on the project, *MoOx as a Back Buffer in CdTe Solar Cells*
- Anya Knoepp, Huron High School (Ann Arbor), worked with mentor Tyler Brau on the project, *Investigating Different Spin-coating Methods of Sb2S3 Solar Cells*
- Kate Brewer, Aerospace and Natural Science Academy of Toledo, worked with mentor Scott Wenner on the project, *Towards High Temperature Photoluminescence System*
- Chinmay Khare, Ottawa Hills High School, worked with mentor Victor Barone on the project, *Computational Investigation into the Site-Disordered AgSbI4 Semiconductor System*. Chinmay's work is to be published with him as first author.

UToledo, Department of Biological Sciences research project:

- Shrishte Baskara, Maumee Valley Country Day School, worked with mentor Pritha Chowdhury (Qian Chen Lab) on the project, *Determine the Kinase Domain Function of Human BubR1 Protein*. Shrishte continues to work in Dr. Chen's Lab.

For more information on the RISE program, visit the website at: <https://www.utoledo.edu/research/pvic/riase.html>



Lydia Roberts as she works with the PVIC team, analyzing and troubleshooting a multi-source evaporator machine.



Pictured above (L-R): Adam Phillips, Pritha Chowdhury (front), Shrishte Baskara (front), Maddie Heben, Anya Knoepp, Charlotte Ellingson, Kate Brewer, Nithya Ranjan, Chinmay Khare, Nalini Kaluarachchi (front), Victor Barone, Mark Hattarki (REU student from Rice University working with Nithya Ranjan), Rick Irving, Alisha Adhikara (front), Kshitiz Dolia, Nadeesha Katakumbura and Lydia Roberts (front).

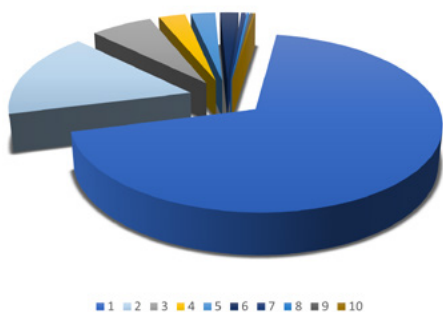


THANK YOU TO OUR DONORS

The College of Natural Sciences and Mathematics wishes to recognize all our generous and loyal supporters! Our students, faculty and staff are incredibly thankful for the continued generosity of our amazing community. The following list reflects gifts made July 1, 2022 - June 30, 2023.

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The University of Toledo Foundation “TOP TEN” Progress Fund Gifts to the College of Natural Sciences & Mathematics:



1. Joseph & Mary Capobianco Memorial Fund	\$2,100,000.00
2. The Doreen & Lyman Spitzer Scholarship Fund	\$500,000.00
3. Natural Sciences & Mathematics Wetlands Fund	\$199,104.15
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9. Dr. Lon Ruedisili Hydrogeology/Environmental Geology Fund	\$8,000.00
10. Physics & Astronomy Fund for Excellence	\$7,565.00
TOTAL GIFTS (July 1, 2022-June 30, 2023)	\$3,171,622.21

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Join our other generous donors in supporting education and excellence in the College of Natural Sciences and Mathematics!

For more information about giving, including setting up scholarships or additional gift funds, please contact Brittanie Kuhr, Director of Development for the College of Natural Science & Mathematics at 419.530.5418 or brittanie.kuhr@utoledo.edu.

You can also MAKE YOUR GIFT ONLINE at give2ut.utoledo.edu (or scan QR code below) to one of our established funds (under Funds by College):

- College of Natural Sciences and Mathematics Progress Fund (2401937)
- Supports various and priority needs of the College of Natural Sciences and Mathematics
- Friends of the College of Natural Sciences and Mathematics (2401947)
- Supports programs, needs and opportunities for the College of Natural Sciences and Mathematics
- Natural Sciences and Mathematics General Scholarship Fund (2401949)
- Provides scholarships for students in the College of Natural Sciences and Mathematics



For additional information, events and how to get involved, visit the UToledo Foundation website at: utfoundation.org or visit the UToledo Alumni Association website: toledo.alumni.org

2022 Distinguished Alumni Award Recipient



The UToledo Alumni Association’s annual Homecoming Gala, held in the Lancelot Thompson Student Union Auditorium, is a chance to thank and honor our alumni who make an impact every day in communities across the country and the world. On Friday, Sept. 30, 2022, at the annual Homecoming Gala, **Dr. Douglas Geiger** (B.A. ‘82 and M.S. ‘84, Biology and M.D. ‘87) was named the Distinguished Alumni Award Recipient for the College of Natural Sciences and Mathematics. We offer our sincere congratulations to Dr. Geiger on receiving this most deserved award!

Pictured: (L-R) Dr. Douglas Geiger, 2022 Distinguished Alumni Award Recipient and Dr. Marc Seigar, Dean of the College of Natural Sciences and Mathematics.



Photo above: UToledo Homecoming Parade

While Dr. Geiger was visiting UToledo for the 2022 Homecoming Gala, he toured the Department of Biological Sciences with Dr. Song-Tao Liu. Dr. Geiger stated in a letter he wrote to Dr. Liu after his visit, “I am so impressed with the quality of the research and the creativity of the people I met. The future of the department is bright!”

Dr. Geiger also included a letter to current and future students with his reflections from his time at UToledo. It starts like this:

“It all began with freshman biology, painful labs dissecting pigs’ eyes, chasing escaped fruit flies around, writing laborious lab reports and wondering where this was all going to lead. For me, I finished my degree in biology, fortunately studied under some brilliant and inspiring professors, and went on to pursue a master’s degree concentrated in immunology. ...”



Scan the QR code to the left to read Dr. Geiger’s full letter.

Scan the QR code to the right to watch the UToledo Alumni Homecoming Gala Video to hear from Dr. Geiger and the other 2022 award recipients.





**COLLEGE OF NATURAL SCIENCES
AND MATHEMATICS**

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