



# RESEARCH

QUARTERLY RESEARCH REPORT  
JULY 2024





## We are accomplishing more than ever through our research, scholarship and creative endeavors.

This year, for example, we awarded 16 faculty members with University Research, Scholarship and Artistic Achievement Awards (URSAAA). The criteria for these awards are demanding. They were established by faculty to make URSAAA recognition exclusive, reserved only for those faculty who have achieved at the highest levels of their fields and who are consistently among the top performers at Clemson. To earn an URSAAA, a faculty member must meet at least one of three criteria:

1. Amass more than 1,000 citations on a single publication;
2. Earn exclusive fellowships and national and international honors, awards and recognitions; or
3. Exceed research expenditures of \$1 million in a fiscal year.

These are not simple feats. Yet, at our annual Research Symposium in May, we recognized 16 faculty members with URSAAA awards ([pages 15-16](#)). This is a testament to the outstanding work our faculty are doing and, in particular, the level at which we are conducting research at Clemson now. We have established a research culture at Clemson that encourages researchers to think big, to pursue bold ideas, and to strive to make great impact.

They are doing that. Consider our 2024 Researchers of the Year, also announced at the Research Symposium ([pages 13-14](#)). Our junior faculty Researcher of the Year, Thao Tran (pictured on the cover of this report), is one of just 11 researchers from the U.S. selected for a prestigious 2023 Beckman Young Investigators Award from the Arnold and Mabel Beckman Foundation. She is the first recipient from Clemson or any college or university in South Carolina. That is just one of her accolades. Senior Researcher of the Year Ronnie Chowdhury is also a decorated faculty member, recently earning a \$20 million investment from the U.S. Department of Transportation to lead a national center that will push our national transportation system into a smarter future.

Awards and recognitions continue to come:

- Four faculty received prestigious Fulbright awards, which coincidentally is one of the honors that can lead to an URSAAA award ([page 19](#)).
- Director emirata of the Brooks Center received the Order of the Palmetto, the highest civilian honor given by the state ([page 21](#)).
- A nursing professor was named a Fellow by a national association of her peers ([page 24](#)).

Students are also accomplishing at high levels.

- Five students received Fulbright awards ([page 20](#)).
- Five students and one recent alumnus earned prestigious graduate research fellowships from the National Science Foundation ([page 22](#)).
- A master's student won a national award in support of her work connecting science with public policy ([page 23](#)).

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## From the Senior Vice President for Research, Scholarship and Creative Endeavors

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More accomplishments, along with other noteworthy research news, are listed on [pages 12-25](#).

While honors continue to come, we also continue to expand our research enterprise. Research awards received through the third quarter were up 30 percent from the same nine-month period of the prior year. Full details on our research metrics are included on [pages 4-11](#), including a list of our top grants received during the quarter.

Clemson is full of examples of faculty members making great impacts through research. [Pages 26-34](#) include a profile of one faculty member from each college, along with select accomplishments for each individual, to give you an idea of the breadth of work happening at Clemson and the impact we are having through our research, scholarship and creative endeavors.

It truly is a great time to be a Clemson Tiger!



Tanju Karanfil

Sincerely,

**Tanju Karanfil**, Ph.D., PE, BCEE, IWA Fellow

Senior Vice President for Research, Scholarship and Creative Endeavors  
Clemson University

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# RESEARCH

## RESEARCH METRICS

*This section covers institutional research productivity with data on proposal submissions, awards and expenditures.*

## Executive Summary

- Clemson reported total R&D expenditures of \$287 million for 2023 to the National Science Foundation Higher Education Research and Development (HERD) Survey. This is an increase of more than 9 percent from 2022 ([page 5](#)).
- Competitive expenditures topped \$128 million through the third quarter of FY2024, an increase of nearly 21 percent from \$106 million during the first nine months of the previous fiscal year. ([pages 6-7](#)).
- Proposal submissions were \$584 million through the third quarter of FY2024. ([page 8](#)).
- Research awards reached \$186 million through the third quarter of FY2024, up 30 percent from the same nine-month period of the prior year. ([page 9](#)).
- Descriptions of the top awards received during the third quarter are on [pages 10-11](#).

**The tables on the following pages provide details on proposal submissions, awards and expenditures per college/unit. Abbreviations used in the tables are listed below.**

**CAAC:** College of Architecture, Art & Construction

**CAH:** College of Arts & Humanities

**CAFLS & PSA:** College of Agriculture, Forestry & Life Sciences and Public Service & Agriculture

**CBSHS:** College of Behavioral, Social & Health Sciences

**CECAS:** College of Engineering, Computing & Applied Sciences

**COE:** College of Education

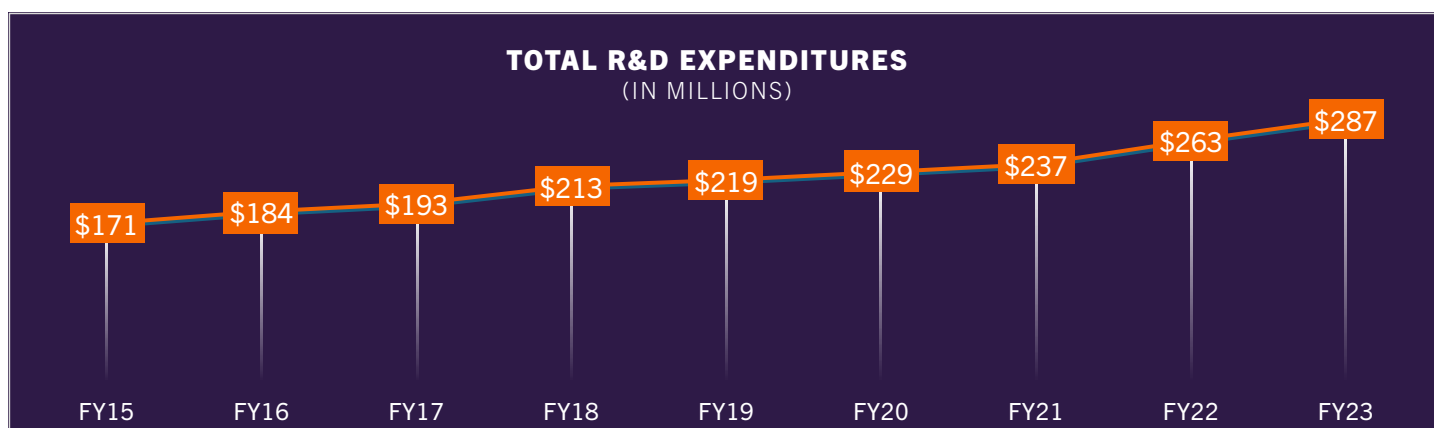
**COB:** Wilbur O. and Ann Powers College of Business

**COS:** College of Science

# Total R&D Expenditures

Clemson's total R&D expenditures continued to increase in 2023 to \$287 million, as shown in the chart below. This data includes expenditures on all research revenue, including state support, gifts, external research services, competitive awards, and other sources, as reported to the National Science Foundation Higher Education Research and Development (HERD) Survey.

The table below shows various outputs (Ph.D. productivity, licensing revenue, patents, etc.) and the size of the workforce supporting research activity at Clemson.



	2020	2021	2022	2023	2024 3rd Quarter
NIH R01-Equivalent Awards	1	3	1	6	1
Doctorates Awarded	249	225	242	285	310
STEM Doctorates Awarded	162	159	172	190	197
Disclosures	68	44	50	61	55
Patents	12	15	33	11	9
Licenses/Options	13	13	27	16	10
Licensing Revenue	\$315,578	\$239,074	\$380,286	\$392,162	\$171,886
Start-up Companies (based on licenses/options)	1	1	4	4	6
<b>Supporting Workforce</b>					
Graduate Student Enrollment	5,627	5,538	5,448	6,401	5,872
Sponsored Graduate Research Assistants	637	546	729	926	996
Postdoctoral Fellows	98	106	117	112	141
Research Faculty: Permanent 100% Non-E&G Funded	18	12	2	5	4
Research Faculty: Temporary 100% Non-E&G Funded	54	45	32	28	36

# Competitive Expenditures

Competitive expenditures topped \$128 million through the third quarter of FY2024, an increase of nearly 21 percent from \$106 million during the first nine months of the previous fiscal year. Competitive expenditures include funds only from competitively bid projects, such as federal awards.

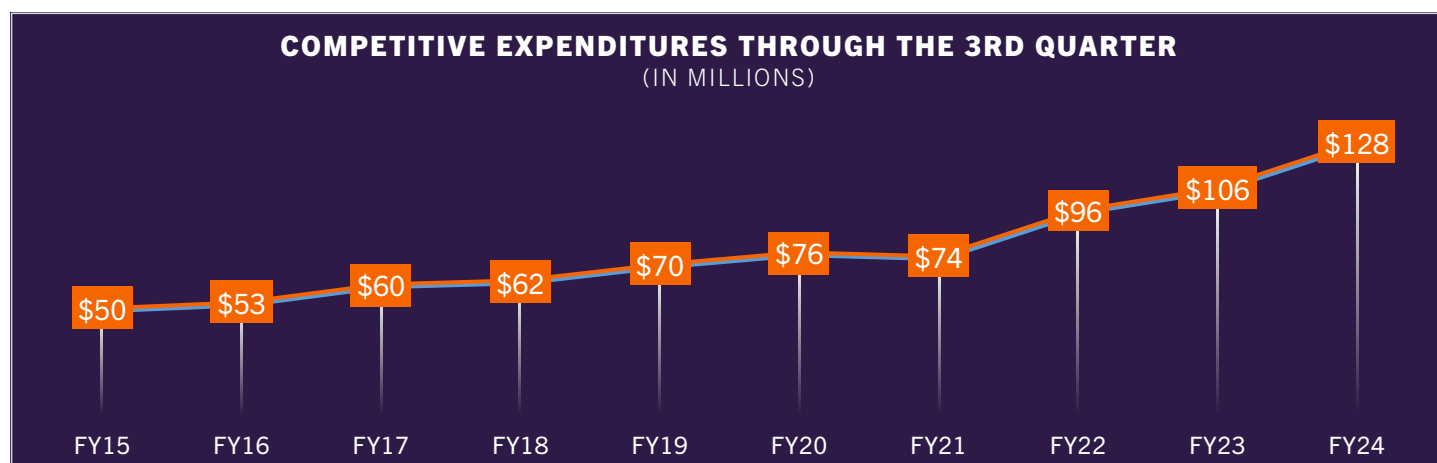
Additional details on expenditures by business unit, innovation cluster, funding source, and per tenure/tenure-track faculty member are included in the table on the next two pages. Full year-end data for FY2024 is not yet available. The column for 2024 is data through the third quarter only (July 1, 2023 - March 31, 2024); data for other years is for the full 12-month period.

The graph on the following page compares competitive expenditure data for the first three quarters of past fiscal years.

Research Expenditures (millions)	2020	2021	2022	2023	2024 3rd Quarter
<b>By Business Unit</b>	\$105.3	\$114.4	\$141.4	\$160.3	\$128.3
CAAC	\$1.2	\$1.0	\$1.1	\$1.3	\$1.0
CAH	\$0.4	\$0.1	\$0.2	\$0.6	\$0.7
CAFLS & PSA	\$20.2	\$20.5	\$25.0	\$29.7	\$26.0
COB	\$0.7	\$0.7	\$0.7	\$1.0	\$0.9
CECAS	\$46.4	\$54.4	\$71.7	\$76.0	\$57.0
CBSHS	\$6.7	\$9.0	\$12.0	\$16.7	\$13.6
COE	\$2.4	\$2.3	\$3.8	\$5.6	\$4.7
COS	\$17.3	\$15.9	\$18.5	\$23.1	\$18.1
VP for Res & Interdisc Inst	\$9.5	\$9.6	\$7.0	\$6.2	\$5.4
All Other	\$0.5	\$0.8	\$1.5	\$1.6	\$1.0
<b>By Innovation Cluster</b>	\$105.3	\$114.4	\$141.4	\$160.3	\$128.3
Advanced Materials	\$13.5	\$14.3	\$18.6	\$21.1	\$16.3
Cyberinfrastructure & Big Data Science	\$4.4	\$5.5	\$8.2	\$7.7	\$5.3
Energy, Trans. & Advanced Manufacturing	\$14.5	\$19.9	\$27.7	\$29.5	\$19.5
Health Innovation	\$27.1	\$27.1	\$26.3	\$30.5	\$25.1
Human Resilience	\$9.7	\$12.7	\$14.8	\$19.1	\$16.5
Sustainable Environments	\$23.9	\$21.3	\$26.8	\$33.7	\$31.8
Other	\$12.1	\$13.6	\$19.6	\$20.2	\$14.0

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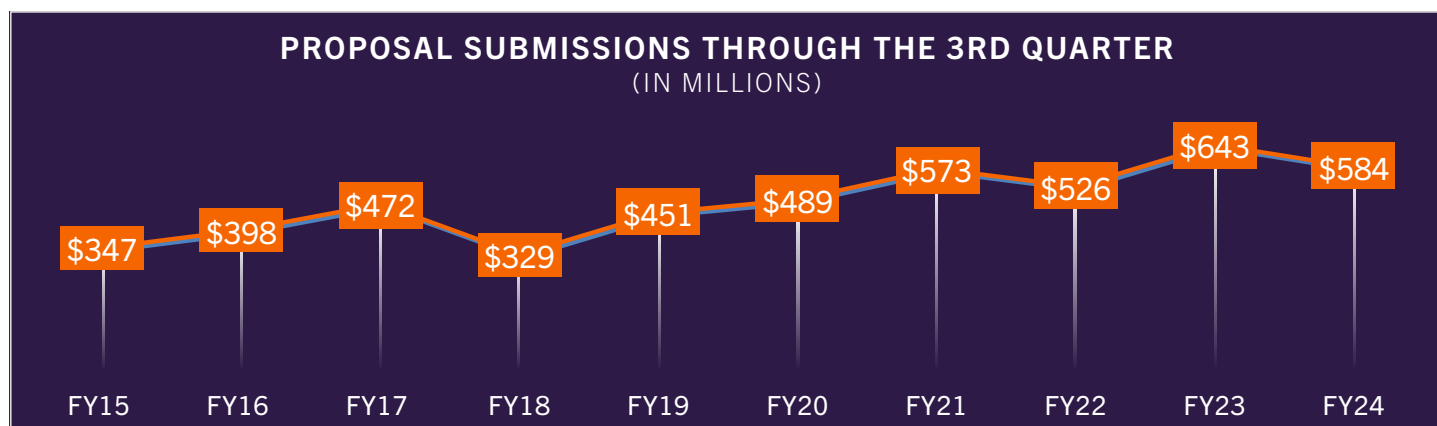
# Competitive Expenditures



Research Expenditures (millions)	2020	2021	2022	2023	2024 3rd Quarter
By Funding Source	\$105.3	\$114.4	\$141.4	\$160.3	\$128.3
Federal Government	\$85.2	\$95.1	\$125.1	\$141.0	\$114.2
Foundations, Societies, and Associations	\$6.9	\$6.2	\$4.6	\$5.4	\$3.8
Industry/Other	\$5.6	\$4.8	\$4.8	\$5.9	\$3.3
International	\$0.3	\$0.4	\$0.5	\$0.5	\$0.4
Local Government	\$0.5	\$0.8	\$0.9	\$0.7	\$0.4
State Government	\$6.8	\$7.3	\$6.2	\$8.2	\$6.2
Per T/TT Faculty Member					
CAAC	\$20,942	\$18,195	\$21,321	\$26,231	\$20,030
CAC	\$4,218	\$1,113	\$1,864	\$5,507	\$7,005
CAFLS & PSA	\$137,438	\$131,195	\$196,657	\$231,788	\$192,953
COB	\$6,991	\$7,132	\$6,787	\$9,865	\$9,625
CECAS	\$201,553	\$223,843	\$296,203	\$310,088	\$230,650
CBSHS	\$50,495	\$67,202	\$90,220	\$121,581	\$96,142
COE	\$47,742	\$48,805	\$80,058	\$121,114	\$88,613
COS	\$116,020	\$107,258	\$120,778	\$146,445	\$114,325
<b>Clemson average (Total exp/Total T/TT faculty)</b>	<b>\$96,497</b>	<b>\$103,187</b>	<b>\$142,129</b>	<b>\$159,792</b>	<b>\$127,071</b>

# Proposal Submissions

Proposal submissions were \$584 million through the third quarter of FY2024. Quarterly data for each year are shown in the graph below. Additional details on the number and value of submissions for each college, as well as college targets for FY2024, are included in the table below.

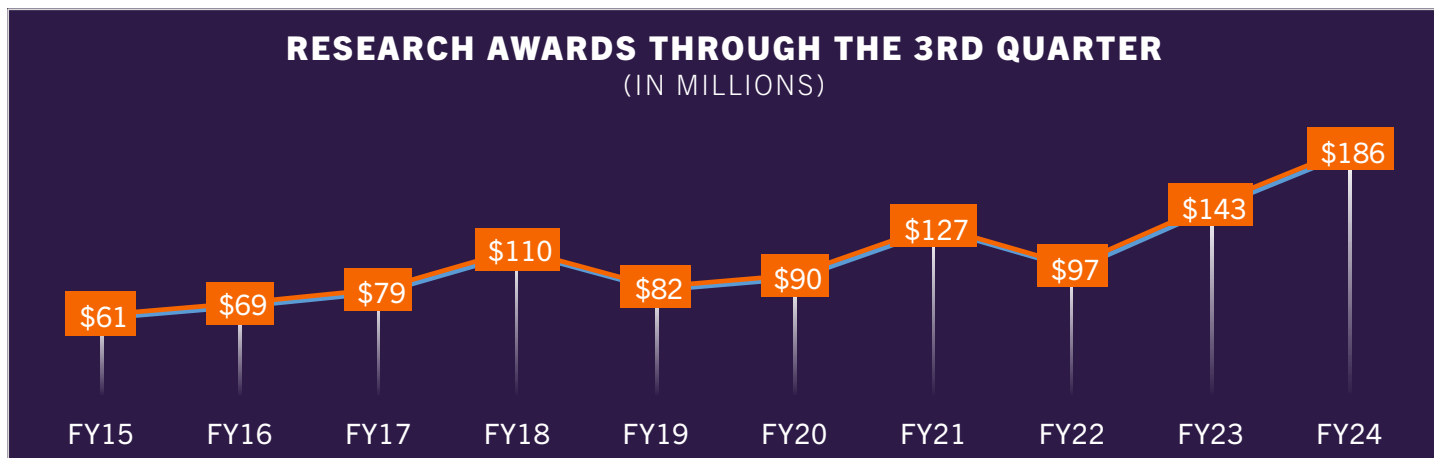


Proposal Submissions	2020	2021	2022	2023	2024 3rd Quarter	
By Count	1,728	1,581	1,492	1,680	1,175	
CAAC	60	49	24	20	10	
CAH	16	12	11	7	8	
CAFLS & PSA	509	426	392	451	334	
CBSHS	143	150	151	183	108	
CECAS	672	596	631	684	470	
COE	42	37	43	45	32	
COB	11	14	9	11	7	
COS	219	229	193	259	177	
VP for Res & Interdisc Inst	29	29	23	11	11	
All Other	27	39	15	9	18	
By Value (millions)	\$734	\$762.4	\$896	\$932.8	\$583.8	FY2024 Targets
CAAC	\$2.7	\$3.8	\$6.5	\$10.4	\$3.6	<b>\$11.00</b>
CAH	\$3.2	\$1.7	\$1.7	\$3.0	\$1.3	<b>\$3.25</b>
CAFLS & PSA	\$99.3	\$89.7	\$249.9	\$149.6	\$132.8	<b>\$160.00</b>
CBSHS	\$41.1	\$64.3	\$73.1	\$106.5	\$62.7	<b>\$112.00</b>
CECAS	\$405.9	\$342.9	\$380.8	\$426.0	\$252.7	<b>\$450.00</b>
COE	\$18.9	\$22.4	\$32.3	\$34.4	\$23.0	<b>\$36.00</b>
COB	\$2.9	\$4.2	\$4.8	\$6.3	\$2.0	<b>\$6.50</b>
COS	\$129.3	\$175.4	\$127.3	\$169.8	\$81.4	<b>\$180.00</b>
VP for Res & Interdisc Inst	\$19.8	\$22.3	\$11.0	\$6.7	\$5.7	
All Other	\$10.7	\$35.7	\$8.9	\$20.3	\$18.8	



# Competitive Research Awards

Research awards reached \$186 million through the third quarter of FY2024, up 30 percent from the same nine-month period of the prior year. The graph below compares awards received through the third quarter of each fiscal year. The table shows awards per college and the number of prestigious young investigator awards earned. Information on the top awards received is included on [pages 10-12](#).



Research Awards	2020	2021	2022	2023	2024 3rd Quarter
By College/Unit (millions)	\$118.3	\$162.2	\$157.6	\$282.0	\$186.0
CAAC	\$1.0	\$1.0	\$0.4	\$3.4	\$0.9
CAH	\$0.4	\$0.4	\$0.8	\$2.1	\$0.7
CAFLS & PSA	\$26.5	\$29.9	\$26.9	\$107.4	\$27.2
CBSHS	\$7.7	\$17.4	\$13.7	\$21.0	\$21.7
CECAS	\$48.0	\$75.0	\$76.4	\$102.8	\$87.3
COE	\$2.3	\$5.1	\$5.7	\$10.1	\$3.8
COB	\$1.2	\$0.2	\$0.9	\$1.1	\$1.1
COS	\$14.2	\$25.4	\$17.8	\$24.4	\$24.8
VP for Res & Interdisc Inst	\$14.6	\$5.1	\$6.6	\$7.1	\$5.3
All Other	\$2.6	\$2.6	\$8.3	\$2.6	\$13.1
Young Investigator Awards	13	9	5	8	9
NSF CAREER	9	8	4	6	9
NIH KO1	1	-	-	-	-
Air Force Young Investigator	-	-	-	1	-
Army Young Investigator	1	-	-	-	-
DARPA Young Investigator	1	-	-	-	-
EPA Early Career	-	-	-	-	-
DOE Early Career	1	1	1	-	-
Arnold & Mabel Beckman Foundation	-	-	-	1	-

## Top Competitive Awards (Third Quarter FY2024)

**Alain Litwin, professor of practice in the Department of Psychology, received \$4.5 million from the S.C. Department of Health and Environmental Control (SC DHEC) for a project to help reduce substance-use disorder. For this project, Prisma Health and the Addiction Medicine Center will continue a collaborative partnership with SC DHEC to provide opioid education, stewardship and harm reduction for people with substance-use disorders. In particular, the project aims to improve health equity and access among groups disproportionately affected by the overdose epidemic and support those previously underserved by overdose prevention programs.**

**Renee Cottle, assistant professor of bioengineering, received \$2.5 million from the National Institutes of Health (NIH) to investigate new treatments for patients with a disorder called familial hypercholesterolemia, which can cause premature cardiovascular disease. The condition affects 1 in 250 people. It is an inherited defect that impairs how the body recycles LDL cholesterol. Cottle is investigating the development of novel gene-editing therapies to treat familial hypercholesterolemia.**



Renee Cottle, right

**Emil Alexov, professor of physics and astronomy, received \$1.9 million from the NIH for research to advance knowledge of the molecular effects of human genetic disorders. Revealing the molecular effect of disease-causing mutations facilitates early assessment of disease risk and development of therapeutic solutions.**



**Richard Boyles, assistant professor of plant and environmental sciences, received \$1.8 million from the U.S. Agency for International Development (via Kansas State University) to support research on the development of climate-resilient cereal grains. The project aims to improve crop varieties and develop seed systems that increase production at scale to improve food and nutrition security while supporting growers in both local and regional markets. Kansas State University is leading the project.**

**Jens Oberheid, professor of physics and astronomy, received \$1.5 million from the National Science Foundation (NSF) for research on magnetosphere-ionosphere-atmosphere coupling. The project aims to advance the understanding of prevailing space weather conditions and to improve state-of-the-art models that are foundational to space situation awareness and prediction. Funding will support a new faculty hire in space sciences.**

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# Top Competitive Awards (Third Quarter FY2024)

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**James Lewis, assistant professor of genetics and biochemistry, received a \$1.3 million NSF CAREER Award** to better understand the genomic architecture that controls trait differences between sexes. The Lewis Lab studies butterfly evolution as a model for trait adaptation and diversification. For his CAREER project, he will map the genetic architecture of male-specific wing color in a neotropical butterfly and test the contribution of these genes to population differentiation. This work will test longstanding models for trait evolution and diversification.

**Nathan McNeese, McQueen Quattlebaum endowed associate professor of human-centered computing, received \$1.1 million from the U.S. Navy** for a project to improve human-autonomy teaming in underwater environments. Human-autonomy teaming is particularly challenging in extreme environments, which tests the limitations of both humans and autonomy – limited cognition or poor perception, for example. The proposed research explores human-autonomy teams in extreme underwater environments to advise these teams on how to consider and minimize the effects of these limitations to maximize team effectiveness.



Nathan McNeese, center



Lawrence Murdoch, right

**Lawrence Murdoch, professor of environmental engineering and earth sciences, received \$1 million from the Pacific Northwest National Laboratory** to support research at the lab's Center for Understanding Subsurface Signals and Permeability (CUSSP). CUSSP is advancing a basic understanding of the complex chemical and physical processes that occur as fluids flow through the deep fracture networks in enhanced geothermal systems, which could serve as an abundant source of energy.

**Ehsan Mousavi, endowed associate professor in the Nieri Department of Construction, Development and Planning, received \$905,881 from the S.C. Department of Transportation** to develop a data-driven decision-making tool to inform the department's scope of services, fee development and maintenance. As part of the project, the research team will develop online software for the agency that will take input from project managers and return editable contract documents that support efficiency, performance and user-friendliness.

**Brandon Ross, Cottingham associate professor of civil engineering, received \$850,034 from the S.C. Department of Transportation** to support the cost-effective screening, assessment and repair of timber piles. There are approximately 75,000 timber piles supporting South Carolina's bridges. Many of these piles are decades old. Efficient and effective screening, assessment and repair techniques are needed to avoid pile failures.



# RESEARCH

## RESEARCH NEWS

*This section highlights research news from across the university.*

### Executive Summary

- Clemson recognized two outstanding faculty members as the 2024 Researchers of the Year ([pages 13-14](#)).
- Sixteen faculty members received prestigious University Research, Scholarship and Artistic Achievement Awards ([pages 15-16](#)).
- Clemson faculty have earned 9 highly competitive early CAREER Awards from the National Science Foundation this year and another CAREER award recipient has left his previous institution to join Clemson ([pages 17-18](#)).
- Four Clemson faculty earned prestigious Fulbright Scholar Awards ([page 19](#)) and three Clemson students and two recent alums earned Fulbright scholarships ([page 20](#)).
- Brooks Center for the Performing Arts Director Emerita Lillian “Mickey” Harder has been honored with the highest civilian award in the state of South Carolina ([page 21](#)).
- Five Clemson University students and one recent alumna were recently recognized with the country’s most prestigious STEM-focused graduate research fellowship ([page 22](#)).
- A master’s student won a national award in support of her work connecting science with public policy ([page 23](#)).
- A Clemson professor was named one of just 10 Fellows of a national nursing association ([page 24](#)).
- Clemson reached an agreement with NASA to unlock increased opportunities for research and education for faculty and students ([page 25](#)).

## 2024 Researchers of the Year

A chemist working to unlock the power of quantum technology and a cybersecurity expert helping to advance smart cities and regions were named 2024 Clemson University Researchers of the Year.

Mashrur “Ronnie” Chowdhury, the Eugene Douglas Mays Chair of Transportation in the Glenn Department of Civil Engineering, was named Senior Researcher of the Year at the annual Clemson University Research Symposium on May 8. Thao Tran, assistant professor of chemistry in the College of Science, was named Junior Researcher of the Year.

Chowdhury serves as founding director of the National Center for Transportation Cybersecurity and Resiliency (TraCR) and the Center for Connected Multimodal Mobility (C2M2), both sponsored by the U.S. Department of Transportation. His research focuses on the evolving realms of sensing, communications, computing, cybersecurity, and cyber-resiliency, all with the goal of establishing a secure and resilient IoT environment for smart cities and regions. Chowdhury and his team delve into the myriad vulnerabilities present in the nation’s transportation systems, public infrastructures, and cyber-physical-social systems, while also exploring strategies to mitigate these vulnerabilities effectively.

Chowdhury is a Fellow of the American Society of Civil Engineers, a senior member of the Institute of Electrical and Electronics Engineers, and a member of the Transportation Research Board Committee on Intelligent Transportation Systems.

“I am honored to receive this award, as it represents recognition of the impact of our research and the dedication of our team members, including my students,” Chowdhury said. “This recognition will motivate us to continue and expand our work in the evolving frontiers of cyber-physical-social systems and their cybersecurity.”

Tran is working to develop a deep understanding of how chemistry determines targeted physical properties in innovative materials and why such chemistry-property relationships exist. Her work is supporting important advances in energy and information technologies that could advance environmental conservation, national security, and healthcare.

“I’m truly honored to receive the 2024 Junior Researcher of the Year award. My research team, including Ph.D. students, undergraduate researchers, and exchange scholars, feels encouraged to be recognized for all the work we are putting in,” Tran said. “We’re grateful for the continued, unparalleled support from multiple units, people and leaders across the institution. We’re excited to continue to contribute to quantum materials research that benefits people and society while cultivating the future STEM workforce with new knowledge, skill sets, and thinking capabilities necessary for building meaningful careers.”



**Ronnie Chowdhury with President Clements**

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# 2024 Researchers of the Year

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Tran is one of just 11 researchers from the United States selected for a prestigious 2023 Beckman Young Investigators Award from the Arnold and Mabel Beckman Foundation to support her research in quantum technology. She is the first recipient from Clemson or any college or university in South Carolina. Tran is also a recipient of the National Science Foundation's Early CAREER Award and the College of Science 2024 Rising Star in Discovery Award. She was honored as 2024 Scialog Fellow by the Research Corporation for Science Advancement and named 2024 Rising Star in Materials Chemistry Science by American Chemical Society Materials Au.



For Researcher of the Year, each college nominates a junior faculty member who received their terminal degree within the past 10 years and a senior faculty member. Winners were selected by an interdisciplinary committee.

In addition to Tran, junior faculty nominees were Elizabeth Cieniewicz, assistant professor in the Department of Plant and Environmental Sciences; Dhaval Gajjar, assistant professor in the Nieri Department of Construction, Development and Planning; Joshua Catalano, assistant professor in the Department of History; Irene Pericot-Valverde, assistant professor in the Department of Psychology, Emily Howell, assistant professor in the Department of Education and Human Development; Jessica Larsen, Carol and John Cromer '63 Family Endowed Associate Professor in the Department of Chemical and Biomolecular Engineering; and He Li, assistant professor in the Department of Management.

Additional senior faculty nominees were Xiuping Jiang, professor in the Department of Food, Nutrition and Packaging Sciences; Hala Nassar, professor in the School of Architecture; Jordan Frith, Pearce professor in the Department of English; Lesley Ross, professor and SmartLife Endowed Chair in the Department of Psychology; Hans Klar, professor and chair of the Department of Educational and Organizational

Leadership Development; Barbara Campbell, professor in the Department of Biological Sciences; and Ryan Mullins, J. Daniel and Nancy Garrison Distinguished Professor in the Department of Marketing.

"Congratulations to all of our nominees," Karanfil said. "This is a tremendous group of scholars, all deserving of this recognition. Being nominated by your college for this award is a great honor."

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“ Congratulations to all of our nominees. This is a tremendous group of scholars, all deserving of this recognition. Being nominated by your peers is an incredible honor.



- **Tanju Karanfil**

senior vice president for research,  
scholarship and creative endeavors

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# University Research, Scholarship & Artistic Achievement Awards (URSAAA)

The University awarded 16 faculty members with University Research, Scholarship and Artistic Achievement Awards at the annual Research Symposium on May 8.

To earn the award, recipients must meet at least one of the following criteria:

- Author a publication with more than 1,000 citations;
- Earn an exclusive fellowship or national and international honor, award or recognition; or
- Exceed research expenditures of \$1 million in a fiscal year.



The following individuals received an URSAAA:



## Kyle Brinkman

Professor and Department Chair  
Materials Science and Engineering

**URSAAA Achievement:** Fellow of the American Ceramic Society and the Royal Society of Chemistry



## David Freedman

Professor and Chair  
Environmental Engineering and Earth Sciences

**URSAAA Achievement:** Publication exceeding 1,000 citations



## Mazyar Faridi

Assistant Professor  
English

**URSAAA Achievement:** National Endowment for the Humanities faculty fellowship



## Ronald Gimbel

Professor and Director  
Clemson Rural Health

**URSAAA Achievement:** Annual expenditures exceeding \$1 million



## Zoran Filipi

Director  
School of Mechanical and Automotive Engineering

**URSAAA Achievement:** Annual expenditures exceeding \$1 million



## Sudeep Hegde

Assistant Professor  
Industrial Engineering

**URSAAA Achievement:** Publication exceeding 1,000 citations

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# URSAAA

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**Leslie Hossfeld**

Dean

College of Behavioral, Social and Health Sciences

**URSAAA Achievement:** Annual expenditures exceeding \$1 million



**Lesley Ross**

Professor and SmartLife Endowed Chair in Aging and Cognition

**URSAAA Achievement:** Annual expenditures exceeding \$1 million



**Nathan McNeese**

McQueen Quattlebaum Endowed Associate Professor

Human-Centered Computing

**URSAAA Achievement:** Annual expenditures exceeding \$1 million



**Joe Ryan**

Sue Stanzione Distinguished Professorship for ClemsonLife

**URSAAA Achievement:** Fulbright Scholar



**James Morris**

Professor

Genetics and Biochemistry

**URSAAA Achievement:** Annual expenditures exceeding \$1 million



**Divya Srinivasan**

McQueen Quattlebaum Professor

Industrial Engineering

**URSAAA Achievement:** Annual expenditures exceeding \$1 million



**Meihua Qian**

Associate Professor

Education and Human Development

**URSAAA Achievement:** Publication exceeding 1,000 citations

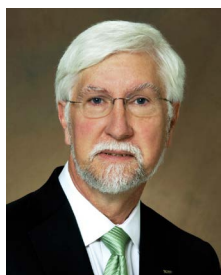


**Joe Watkins**

Chair

General Engineering

**URSAAA Achievement:** Annual expenditures exceeding \$1 million

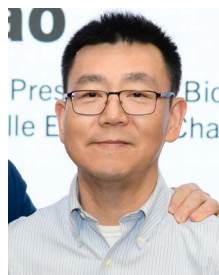


**Bruce Rafert**

Director of Initiatives

Eukaryotic Pathogens Innovation Center

**URSAAA Achievement:** Publication exceeding 1,000 citations



**Hai Yao**

Ernest R. Norville Endowed Chair and Professor

Bioengineering

**URSAAA Achievement:** Annual expenditures exceeding \$1 million



# Early Career Awards

Young faculty members are proving Clemson to be a great place to build a career.

Consider the growing numbers of early-career award recipients at Clemson. In fiscal year 2024, nine faculty members have earned prestigious early CAREER awards from the National Science Foundation (NSF) and another left his previous institution to come to Clemson and bring his award with him.

These are highly competitive catalyst awards given to the brightest young minds in the country to help them build a research portfolio. The full list of early career award recipients, including past winners, is posted [online here](#). Brief descriptions of this year's NSF CAREER Award recipients are included below and on the next page.

## NSF CAREER Awardees 2024



**Jackie Cha**  
Assistant Professor  
Industrial Engineering



**James Lewis**  
Assistant Professor  
Genetics & Biochemistry



**Long Cheng**  
Assistant Professor  
School of Computing



**Dan Li**  
Assistant Professor  
Industrial Engineering



**Federico Iuricich**  
Assistant Professor  
School of Computing



**Ge Lv**  
Assistant Professor  
Mechanical Engineering



**Jordon Gilmore**  
Associate Professor  
Bioengineering



**Adam Melvin**  
Associate Professor  
Chemical Engineering



**Stephen Kaeppler**  
Assistant Professor  
Physics & Astronomy



**Thao Tran**  
Assistant Professor  
Chemistry

**Jackie Cha, assistant professor of industrial engineering, received a \$574,833 NSF CAREER Award** for research aimed at helping surgical teams work with robots as new technology changes team dynamics in the operating room. Recent advances in surgical robots have transformed how teams of humans and robots collaborate with each other. Some of those robots in labs are on the cusp of being able to independently perform surgical tasks but are not fully autonomous. Cha's work will help humans and robots work together.

**Long Cheng, assistant professor in the School of Computing, received a \$502,505 NSF CAREER Award** to evaluate privacy protections, inclusiveness and policy compliance of "voice personal assistants" like Amazon Alexa or Google Assistant, which are commonly used for ordering items online or managing bank transactions, among other uses. Cheng aims to design a new accessible and inclusive privacy notice mechanism for users; propose a dynamic analysis framework to evaluate how existing skills conform to various policy requirements and measure potential social bias issues in mainstream VPA platforms.

**Federico Iuricich, assistant professor in the School of Computing, received a \$550,602 NSF CAREER Award** for research to enable effective human-AI collaboration in data analysis tasks, specifically when working with 3D point cloud data. Point cloud data allows the collection of three-dimensional maps by unmanned vehicles in remote and inaccessible place. This point cloud data has become ubiquitous in spatial applications such as autonomous navigation, urban planning, forest monitoring and

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# Early CAREER Awards

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disaster management, among others. While artificial intelligence is advancing, human experts remain indispensable. Iurich will help humans and AI work together.

**Jordon Gilmore, associate professor of bioengineering, received a \$550,000 NSF CAREER Award** for a project to improve diagnostics and treatment of infected chronic wounds. Gilmore's research combines artificial intelligence, advanced medical textiles and electrochemical biosensing to support real-time healthcare diagnostics. For his CAREER project, Gilmore hopes to better understand the formation and progression of bacterial biofilms prevalent in chronic wounds. The work could help to develop a real-time system for monitoring and treating infections that often lead to amputation.

**Stephen Kaeppler, assistant professor of physics and astronomy, received a \$360,000 NSF CAREER Award** for a project to understand fundamental physical processes associated with a commonly occurring auroral type called pulsating aurora, specifically on the electrical circuit associated with the "on-off" modulations that are pulsating aurora. As part of the workforce development, Kaeppler will continue to train undergraduates in space mission design and for some of those undergraduate students to participate in a NASA sounding rocket program for students (ROCKSAT-X).

**James Lewis, assistant professor of genetics and biochemistry, received a \$1.3 million NSF CAREER Award** to better understand the genomic architecture that controls trait differences between sexes. The Lewis Lab studies butterfly evolution as a model for trait adaptation and diversification. For his CAREER project, he will map the genetic architecture of male-specific wing color in a neotropical butterfly and test the contribution of these genes to population differentiation. This work will test longstanding models for trait evolution and diversification.

**Dan Li, assistant professor of industrial engineering, received a \$555,504 NSF CAREER Award** to help develop system-wide cyber-physical resilience of continuous manufacturing operations. She will investigate the interplay between the industrial internet-of-things (IIoT) and physical equipment to uncover previously unseen system-level risks induced by interconnectivity. Li aims to collaborate with industry stakeholders and extend this work to other critical infrastructures to enhance national cyber-physical resilience.

**Ge Lv, assistant professor of mechanical engineering, received a \$570,938 NSF CAREER Award** to advance knowledge in the control and optimization of powered lower-limb exoskeletons by investigating a novel human-in-the-loop framework to rapidly customize task-invariant assistance for volitional human motion across locomotor tasks.

**Thao Tran, assistant professor of Chemistry, received a \$718,100 NSF CAREER Award** to advance her research on the use of materials chemistry in technological advances related to energy and quantum information science. Tran will combine chemical principles, appropriate synthetic techniques and advanced structural and physical properties characterization to develop new, more functional materials. The work will help to advance quantum technologies that can process information to solve complex problems much faster than classical computers.

**Lastly, Adam Melvin recently joined Clemson** as an associate professor of chemical engineering, bringing his \$500,000 NSF CAREER award with him from Louisiana State University. Melvin is working to develop peptides to control protein degradation, which can be used in diagnosing cancer and diabetes.

# Honors, Achievements and Recognitions

## Four Clemson faculty members receive Fulbright Scholar Awards

Four Clemson University faculty members have received prestigious Fulbright Scholar Awards, which provide international lecturing and research opportunities that advance careers while benefiting host institutions and countries.

Upon return from their Fulbright experiences, scholars are uniquely able to infuse curricula with cross-cultural perspectives and facilitate international research and engagement opportunities on campus.

### Fulbright Scholars:



Caine

**Kelly Caine, Iceland (Cybersecurity and Critical Infrastructure)** – Kelly Caine is a professor in the Human-Centered Computing Division of the School of Computing and Dean's Professor in the College of Engineering, Computing and Applied Sciences. She will live in Reykjavik, Iceland from August 2024 to May 2025 with her husband, Micah, and son, Bash. In the fall, Caine will co-teach a class at the University of Iceland on usable cybersecurity and give a public lecture on her co-authored book, "Understanding Your Users." Additionally, she plans to focus on research in the spring. Her research interests include usable security and privacy, human-computer interaction, human factors, health informatics and designing for special populations.



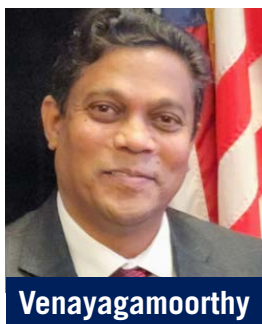
Olson

**Laura R. Olson, Italy (Political Science)** – Laura R. Olson is the Thurmond Professor of Political Science and affiliated faculty in Religious Studies. Her research focuses on contemporary religion and politics with emphases on public opinion and civic engagement. Olson's research project is a revision of one she prevented her from completing in 2020 and focuses on the relationship between religious variables and attitudes towards migrants in post-pandemic Italy. She will teach two courses at the University of Bari Aldo Moro in Bari, Italy.



Rhodes-Purdy

**Matthew Rhodes-Purdy, England (Political Science)** – Matthew Rhodes-Purdy, assistant professor in the Department of Political Science, has earned a Fulbright Distinguished Scholar Award to study the challenges and successes of contemporary-era democracies in Manchester, England. He will join the University of Manchester in 2025 for the spring and summer terms. Specifically, Rhodes-Purdy will spend six months analyzing the Manchester Labour Party's successful use of grassroots democratic practices, evaluating how the party interacts with society in a positive and effective way. The project will investigate how the Labour Party motivates its members, mitigates challenges and connects with other organizations to ensure collective action over time.



Venayagamoorthy

**Kumar Venayagamoorthy, South Africa (Electrical and Computer Engineering)** – Kumar Venayagamoorthy is the Duke Energy Distinguished Professor of Power Engineering and professor of electrical and computer engineering. He will be with the University of Pretoria in Pretoria, South Africa, from July to December 2024, to contribute to the transition of the South African electricity infrastructure to a sustainable grid while working with University of Pretoria faculty members. His long-term international collaboration in research and education in South Africa will focus on research education and innovation in smart grids, artificial intelligence and climate change.

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# Honors, Achievements and Recognitions

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## Five Clemson students and alums awarded prestigious Fulbright scholarships

Three Clemson students and two alums are preparing to travel to the Czech Republic, Germany, Philippines, Serbia and Scotland after being awarded Fulbright U.S. Student grants, a highly competitive scholarship program that facilitates cultural exchange, learning, research and service opportunities between American students and communities across the globe.

The Fulbright U.S. Student Program is designed to increase mutual understanding between the people of the United States and its 140 participating countries. Student recipients, which include recent college graduates, graduate students and early career professionals from all academic backgrounds, use their awards to pursue graduate study, conduct research, or teach English abroad.

During the application process, students decide which country they would like to apply to and what type of grant they want to pursue.

Of Clemson's five recipients, two were awarded English teaching assistantships, two will conduct research and one is enrolling in a graduate degree program. The students are senior wildlife and fisheries biology major Christian Blackburn, agriculture Ph.D. student Audie Cherry, and biomedical engineering major Calvin Paulsen. Alumni are Alexandra Colwell ('23) and Shreya Tellur ('23).

[READ MORE](#)



Clockwise from top left: Blackburn, Cherry, Paulsen, Tellur and Colwell

“

For three years in a row, five Clemson students have been awarded Fulbright scholarships. This year's results are a significant accomplishment for these students and for the University — and demonstrate that Clemson is building a thriving Fulbright culture on campus.



- **Robyn Curtis**

director, Office of Major Fellowships

[continued on next page](#) ►

# Honors, Achievements and Recognitions

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## ASL professor receives appointment at the Deaf Arts Academy to promote signed music

Assistant Professor of American Sign Language (ASL) Jody Cripps is continuing to advocate for increased awareness and the development of signed music.

Earlier this year, Cripps was appointed to serve as the professor of signed music at the Deaf Arts Academy. The academy is supported by the Canadian Cultural Society of the Deaf, which hosts a festival to celebrate Canadian deaf art and culture. Cripps participated in sessions held in Halifax, Nova Scotia, in June about the emerging art form that flows from the culture of deaf people.

His responsibilities included creating the curriculum on signed music as one of the signed language arts for the Deaf Arts Academy, explaining signed music and encouraging the musical inventiveness of deaf professionals. [READ MORE](#)



Cripps



Harder

## Brooks Center director emerita awarded Order of the Palmetto

Brooks Center for the Performing Arts Director Emerita Lillian "Mickey" Harder has been honored with the highest civilian award in the state of South Carolina.

Brooks Center executive director Janice Crews and State House Rep. Jerry Carter (R-Pickens) presented Harder with the Order of the Palmetto on the Lillian Utsey Harder Stage. The order established in 1971 recognizes citizens for extraordinary lifetime service and achievements of national or statewide significance.

Harder exceeded those qualifications with flying colors.

She taught in the Department of Performing Arts for 24 years, began an endowed chamber music series in memory of her late parents, served as the director of the Brooks Center for 21 years and was named an honorary alumna of Clemson University in 2017.

[READ MORE](#)

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# Honors, Achievements and Recognitions

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## Six Clemson students and alumnus awarded prestigious graduate research fellowships

Five Clemson University students and one recent alumnus were recently recognized with the country's most prestigious STEM-focused graduate research fellowship, awarded annually through the National Science Foundation (NSF). Three students also received Honorable mentions.

The NSF's Graduate Research Fellowship program helps ensure the quality, vitality and diversity of the country's scientific and engineering workforce by supporting outstanding students pursuing research-based graduate degrees at accredited United States institutions.

***Clemson's recipients were selected from more than 12,000 applications.*** They each receive a three-year annual stipend of \$37,000 and a \$16,000 cost-of-education allowance, which is paid to the University to cover their tuition and fees. They also receive access to expanded opportunities for professional development.

Past graduate research fellowship recipients have become leaders in their respective fields, with 42 program alumni becoming Nobel laureates and more than 450 becoming National Academy of Sciences members.

Student recipients are genetics and microbiology double major Virginia Dellinger, materials science and engineering major Annika DeVol, environmental and natural resources major Lily Margeson, automotive engineering graduate student Joshua Murray, and chemical engineering major Kayleigh Trumbull. Clemson alumnus recipient is Michal Smith ('22).

[READ MORE](#)



Clockwise from top left: Dellinger, DeVol, Margeson, Smith, Trumbull and Murray.

“Clemson's dedication to research fulfills our land-grant mission and supports the University's strategic vision to transform lives in South Carolina and beyond while building economic prosperity. Our students' selection for prestigious NSF Graduate Research Fellowships bears witness to that commitment.



- **Robert H. Jones**

executive vice president for academic affairs and provost

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# Honors, Achievements and Recognitions

► [continued from previous page](#)

## Kaitlyn Meadows receives Ecological Society of America Graduate Student Policy Award

Clemson University student Kaitlyn E. Meadows has been named a 2024 Katherine S. McCarter Graduate Student Policy Award recipient by the Ecological Society of America.

Meadows is a second-year master's student in the Clemson University Department of Biological Sciences. She is from Maryville, Tennessee.

The award provides graduate students with hands-on training and science policy experience including interacting with congressional decision-makers, federal agency officials and ecologists who work in the science and public policy arena.

As an undergraduate student at the University of Tennessee, Meadows studied ecology and evolutionary biology with the intention of attending medical school.

That all changed after her first research experience, which she initially hoped would help in her pursuit of attending medical school. She worked with a graduate student who was researching plant recovery after a devastating 2016 wildfire in Gatlinburg, Tennessee. That fire caused 14 deaths and burned more than 17,900 acres.

"I fell in love with it. I pretty much decided then that I didn't want to go to medical school anymore. I wanted to pivot and go to grad school and do conservation work," Meadows said.

Meadows, who was accepted at Clemson for her undergraduate studies back in 2018, saw in 2021 that Sharon Bewick, an assistant professor in the Department of Biological Sciences, was looking for graduate students for the following year.



Meadows

[READ MORE](#)



Cromartie

## Cromartie named Mover and Shaker by Library Journal

Shamella Cromartie, associate dean for organizational performance and administration for Clemson Libraries, is one of 50 library professionals from across the country to receive a 2024 Movers and Shakers Award from Library Journal.

Cromartie was recognized in the Change Agents category for her work to uplift others in the field of librarianship, especially those who are under-represented in the field.

Cromartie serves as chair of the Roundtable for African American Concerns of the South Carolina Library Association and is a member of the Black Caucus of the American Library Association. She is also a member of the Clemson University Commission on the Black Experience and recently completed the President's Leadership Institute. She was recently named to the 2024 cohort of the UCLA Library Senior Fellows program.

Cromartie joined Clemson Libraries in 2022. She was previously associate dean of libraries at Western Carolina University for nearly three years. Prior to that, she served as head of public services at Fayetteville State University and has held positions at both academic and public libraries.

[READ MORE](#)

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# Honors, Achievements and Recognitions

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## Business student awarded Neiman Marcus Group x Fashion Scholarship Fund

Marketing Major Olivia Porter has been chosen as a recipient of the Fashion Scholarship Fund and her scholarship had been elevated to “named scholar” through the Neiman Marcus Group.

The Fashion Scholarship Fund is a national nonprofit that works with students across the nation by awarding \$1.4 million in annual scholarships to students interested in the fashion industry. Each year, a prompt is released for students to complete where students choose a focus for a case study: design, merchandising, marketing analytics, or business strategy. Olivia competed in marketing analytics, creating an omnichannel marketing campaign for lululemon, a very popular athleisure company. Her inspiration to create something that would authentically further their ESG initiatives came from a summer job in Portland.



[READ MORE](#)

## School of Nursing’s Tracy Fasolino among latest cohort of hospice and palliative care fellows

Clemson School of Nursing professor Tracy Fasolino, her gray sweatshirt has an embroidered statement saying, “Patient care is my passion.” That statement becomes evident as she talks about her work in palliative care.

In March, Fasolino was inducted into the Hospice and Palliative Nursing Association (HPNA) as a Fellow. This fellowship recognizes leadership and a visionary spirit and is reserved for HPNA members who have made significant contributions to the Association while impacting the hospice and palliative nursing field. HPNA Fellows are nurses who have promoted and advanced both the specialty of hospice and palliative nursing and the mission of HPNA. This year, she was one of 10 professionals chosen as a Fellow of the Association.

“This is a lifetime achievement, and I am honored that I have been selected among my peers for this recognition,” said Fasolino.

A member of the Association since 2012, she has contributed to her field through mentorship, advocacy, research and education for non-hospice palliative care. She has created educational resources for patients and nurses and currently serves on the editorial board for the Journal of Hospice and Palliative Care as well as the Association’s board of directors.




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**Fasolino was one of just 10 professionals chosen as Fellow.**

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[READ MORE](#)



# NASA Space Act Agreement

Clemson University and NASA's Johnson Space Center have signed a Space Act Agreement that opens the door to unique research and education opportunities aimed at advancing space exploration.

Johnson Space Center in Texas is home to America's astronaut corps, NASA's Mission Control Center, International Space Station operations, and a team of scientists and engineers working on advances in science, technology, engineering, and medicine.

The agreement paves the way for Clemson faculty and NASA to identify and pursue mutual research that fosters innovation in aerospace engineering, space and Earth science, advanced materials, computer and data science, advanced manufacturing, human health in space, and numerous other fields. Additionally, Clemson students will have an opportunity to engage with NASA's leading experts, participate in educational outreach activities, and benefit from mentorship and internship programs related to human spaceflight.

"Through the Space Act Agreement, Clemson University and NASA will continue to elevate our partnership to new heights," said Jim Clements, Clemson University President. "We both share a deep commitment to research, innovation, collaboration and positively impacting the lives of others. And together, we will continue discovering new and exciting ways to create an even brighter future for everyone."

Clemson alumna and Johnson Space Center director Vanessa Wyche visited Clemson to sign the agreement.

"NASA's Johnson Space Center's history of working with colleges and universities dates back to the early days of the Mercury, Gemini, and Apollo programs where students, faculty, and staff helped us achieve our human spaceflight missions," Wyche said. "The partnership with Clemson University to collaborate in research and technology development initiatives will assist NASA in meeting our nation's exploration goals and advance human spaceflight as we continue missions on the International Space station, return to the Moon under Artemis, and prepare for future human missions to Mars."

NASA's research interests align well with Clemson's strengths in energy, advanced materials, health, robotics, mobility and autonomous systems, to name a few, and NASA has been an important sponsor of Clemson research already. A Clemson faculty member is working on a NASA-sponsored project to help build stronger teams that can work effectively amid the rigors of space exploration, for example. Clemson has faculty members working on advanced materials that can withstand the extreme temperatures of space, AI-enabled drones for mapping and modeling, novel materials for spacecraft windows, and microbial fuel cells for space life-support systems, among other projects.

"Strong relationships with agencies like NASA are essential to our efforts to pursue meaningful, impactful research projects that translate and align with agency goals," said Tanju Karanfil, Clemson senior vice president for research, scholarship and creative endeavors. "This relationship enhances the student experience at Clemson and provides invaluable connections for students to pursue their dreams after graduation and for faculty to think boldly in their pursuit of discovery. I am excited to see where our faculty and our students take this opportunity because with NASA, the sky is not a limit."



Clemson alumna and Johnson Space Center director Vanessa Wyche with Clemson President Jim Clements.



# RESEARCH

## FOCUS ON FACULTY

*This section highlights junior faculty members at Clemson University. Each College submitted a profile of one junior faculty member.*

## Executive Summary

- Each college provided a brief introduction to a select faculty member. Click the links below to read about faculty from the respective college.
  - » [College of Agriculture, Forestry and Life Sciences and Public Service and Agriculture](#)
  - » [College of Architecture, Art and Construction](#)
  - » [College of Arts and Humanities](#)
  - » [College of Behavioral, Social and Health Sciences](#)
  - » [Wilbur O. and Ann Powers College of Business](#)
  - » [College of Education](#)
  - » [College of Engineering, Computing and Applied Sciences](#)
  - » [College of Science](#)



College of  
**AGRICULTURE, FORESTRY  
AND LIFE SCIENCES**

**Jane Dever, Ph.D.**

*Professor*

**Plant and Environmental Sciences**



Dever joined Clemson University as director of the PeeDee Research and Education Center (Pee Dee REC) in April 2024, bringing a wealth of experience in leading plant technology research efforts (including internationally) and administrative skills that will continue and expand the center's impact and reach. Concerning her appointment, she noted, "I understand that the model for land-grant research centers has changed over the years, and I just hope to help it change in a direction to maintain the economic and overall health of the Pee Dee region."

Dever began her career after receiving her bachelor's (textile engineering technology), master's (crop science), and doctoral (agronomy) degrees from Texas Tech University. Before her appointment with Clemson University, she was professor and associate director of Texas A&M AgriLife Research and Extension Center in Lubbock, Texas. She previously led Bayer CropScience's global cotton-breeding program. A recipient of the Cotton Genetics Research Award, Dever focuses on breeding to improve cotton's fiber quality as well as its tolerance for drought, nematodes and diseases. She was an appointed scientific member of the National Genetic Resources Advisory Council and currently serves on two journal editorial boards and seven professional societies.

## Select Accomplishments

- Collaborated on more than \$25 million in research funding, including \$12 million for an international development program creating organic cotton seed systems in West Africa targeting women producers.
- Published 65 journal, 40 technical and 136 conference proceeding articles, three book chapters, two patents, and 10 invention disclosures.
- Received two Vice Chancellor's Awards in Excellence - one in 1995 for Industry/ Agency/ Association Partnership and one in 2015 for Team Collaboration and was named a Texas A&M Board of Regents Service Fellow in 2017.
- Received the "You Can't Pick Better" (2003) and Gold Laureate (2007) awards from Bayer CropScience. U.S. market share of FiberMax® varieties went from 0 to 46% during her tenure.
- Mentored 50 graduate students, four post-doctoral researchers and two visiting scientists.
- Published 24 peer-reviewed articles and more than 50 technical management articles/blog pieces.
- Developed seven Extension manuals/booklets and three online forage-livestock courses.



College of  
**ARCHITECTURE, ART  
AND CONSTRUCTION**

## Caitlin Dyckman, Ph.D.

*Associate Professor*

**School of Architecture**



Dyckman is an associate professor at Clemson University in the Department of City Planning and Real Estate Development. She came to Clemson in 2006 after completing her Ph.D. in city and regional planning at University of California Berkeley, a J.D. from the U.C. Davis King Hall School of Law, and a postdoctoral fellowship in the Agricultural and Resource Economics Department at U.C. Berkeley.

With both a legal and a planning background, her research focuses on national and international management issues where land (and its uses) meets water. More specifically, she pursues funded and unfunded research both collaboratively and independently on larger watershed and water policy issues, including state water planning and interstate allocation dispute resolution; water rights restructuring in response to climate change and changing demand sectors; coastal and shoreline management innovations; integration of municipal and household-level water conservation opportunities into urban planning; and planners' roles in federally-funded watershed-based planning. Additionally, she and her research team are examining exurban conservation easements' spatial, fiscal and biological fine-scale effects in regionally representative counties around the country.

### Select Accomplishments

- Invited Panelist for “Competing Water Interests” Panel 1, Sustainable Water Infrastructure Management Conference, Arlington, VA, Dec. 12 – 14, 2023.
- Co-author of “The Conservation Easement Clustering Patterns in Twelve U.S. Exurban Counties.” Under review, *Landscape and Urban Planning*.
- Author of “U.S. Water Policy and Planning with Respect to Climate Change” in the *Oxford Research Encyclopedia of Environmental Science*. Last modified January 31, 2023.
- Co-author of “Contributions of [U.S.] conservation easements to naturalness, connectivity, and habitat conservation using parcel-level comparisons.” Revised and under review, *Frontiers in Conservation Science*.
- Co-author of “A Hypothesis Test for Detecting Distance-Specific Clustering and Dispersion in Areal Data.” *Spatial Statistics*. 2023.
- Principal Investigator on a National Science Foundation funded project called, “CNH-L: Coupled Social and Ecological Consequences of Conservation Easements,” 2015 – 2021, \$850,000.



College of  
**ARTS AND  
HUMANITIES**

## Lee Morrissey, Ph.D.

*Alumni Distinguished Professor*

**English**



A member of the Clemson English faculty since 1995, Morrissey has served twice as department chair (2007-2010 and 2013-2017), as interim associate dean of the College of Architecture, Arts, and Humanities (2018-2019), and as a Fulbright Scholar at the National University of Ireland-Galway (2010-2011). Affiliate faculty in Religious Studies, he was appointed alumni distinguished professor in 2009 and founding director of the Clemson Humanities Hub in 2016.

A specialist in English-language literature written between the first half of the seventeenth century and the latter half of the eighteenth century, his work bridges literature, history, and architecture, often with reference to English poet, John Milton. Morrissey is the author of four monographs: *From the Temple to the Castle: An Architectural History of British Literature, 1660-1760* (UVA Press, 1999); *The Constitution of Literature: Literacy, Democracy, and Early English Literary Criticism* (Stanford UP, 2008); *Milton's Late Poems: Forms of Modernity* (Cambridge UP, 2022); and *Milton's Ireland: Royalism, Republicanism and the Question of Pluralism* (Cambridge UP, Fall 2024). In 2004, he was invited by Cambridge University Press to co-author a new textbook, *English Literature in Context* (2008), which has since gone into a revised, second edition. Morrissey has edited or co-edited three anthologies, in subjects ranging from eighteenth-century English literature (*Blackwell Encyclopedia of British Literature, 1660-1789*; 2015) to the Great Books (*Debating the Canon: A Reader*, from Addison to Nafisi; 2005), and contemporary art (*The Kitchen Turns Twenty*; 1992). His current research focuses on the early literature, history, and architecture of English colonial plantations, from Ireland through the Caribbean to South Carolina.

### Select Accomplishments

- Recipient of numerous national and international grants: National Endowment for the Humanities (NEH) Summer Stipend; a Fulbright Scholarship; Trinity College, Dublin, Long Room Hub Fellowship (declined); a Newberry Library Short-Term Fellowship; and a Muriel McCarthy Research Fellowship from Marsh's Library, Dublin.
- As Project Director and/or as co-principal investigator, between 2017 and 2021 while directing the Humanities Hub, Morrissey was awarded over \$700,000 in funding from the NEH through the American Rescue Plan, the CARES Act, a "Creating Humanities Communities" Challenge Grant, and an Exhibition: Implementation grant.
- Recent publications: *Milton's Ireland: Royalism, Republicanism and the Question of Pluralism*. (Cambridge UP, Fall 2024); and *Milton's Late Poems: Forms of Modernity* (Cambridge UP, 2022).



College of  
**BEHAVIORAL, SOCIAL  
AND HEALTH SCIENCES**

## Lior Rennert, Ph.D.

*Associate Professor*

**Public Health Sciences**



Rennert is founding director of Clemson's Center for Public Health Modeling and Response (PHMR), where he conducts research on data-driven approaches to inform and improve community health outcomes. Last year, Rennert received more than \$26 million in funding as principal investigator on three large awards. The first award, from the National Institute of Health (NIH) National Library of Medicine, is to develop modeling frameworks to reduce health disparities during health emergencies. The second project, awarded by the NIH National Institute on Drug Abuse, is developing data-driven approaches for opioid use disorder treatment and prevention via mobile health clinics and peer support services. The goal of the third award, funded by the Centers for Disease Control and Prevention, is to develop a statewide network for infectious disease outbreak detection, forecasting, and coordination of emergency response.

Rennert has lead publications in the top health, medical and science journals, including *Lancet Public Health*, *Lancet Regional Health*, *Lancet Child and Adolescent Health*, *Nature Communications*, *Nature Scientific Reports* and *Clinical Infectious Diseases*. He has over 70 peer-reviewed publications with 22 as first or senior author. He has 46 presentations at international, national, state, and local conferences/meetings, and 38 media appearances on television, journal, and newspaper articles at the national, state, and local level.

Rennert has worked with healthcare decision makers at Prisma Health, University of South Carolina, Medical University of South Carolina and Clemson Rural Health to improve health outcomes related to opioid-use disorder, hepatitis C virus (HCV), human immunodeficiency viruses (HIV) and respiratory infectious diseases by identifying high-risk communities across the state and working to allocate essential resources, including mobile health clinics, to these communities. As lead of Clemson's health strategy team during the Covid-19 pandemic, Rennert worked to improve health outcomes for Clemson students, employees and surrounding communities. He also served on Prisma Health's Opioid Stewardship Committee to evaluate and inform opioid policy and practices. This work led to his appointment as a Provost's Fellow, where he is responsible for developing epidemiological approaches to advance public health and decision-making research and awareness communication for Clemson University.

### Select Accomplishments

- Has received \$35 million in federal awards, including \$26 million as principal investigator.
- Authored 37 publications over the past two years.
- Named Clemson University Junior Researcher of the Year in 2021.



Wilbur O. and Ann Powers College of

**BUSINESS****Kristin Scott, Ph.D.**

Professor

Management



Scott is a professor and Distinguished Powers Fellow in the department of Management at Clemson University. She is also the director of the Executive Leadership Ph.D. Program and teaches courses in the areas of business management with an emphasis on human resources management.

Her current research interests focus on developing and promoting wellbeing in the workplace as well as dysfunctional organizational behavior, employee rewards and motivation and group dynamics. Her articles have been published in the *Journal of Applied Psychology*, *Organizational Behavior and Human Decision Processes*, *Journal of Organizational Behavior* and *Research in Occupational Stress and Well-Being*. Prior to obtaining her Ph.D., Scott worked as a human resources manager for several multinational corporations, including General Electric Corp., Computer Associates and Ingersoll-Rand Co.

## Select Accomplishments

- Co-author of “Being Present and Being Thankful: A Longitudinal Study of Mindfulness, Gratitude, Prosocial Motivation and Employee Helping Behavior” (2022). *Journal of Applied Psychology*, 107(2), 240-263. (Impact Factor: 5.851)
- Co-author of “How exhausting!? An examination of the contagion effects of emotional exhaustion using social network analysis” (2020). Conditionally Accepted at the *Journal of Management Studies*. (Impact Factor: 3.799).
- Co-author of “The Ambivalent Experience of Being Envied at Work: When and How Being Envied Shapes Employee Feelings and Motivation” (2020). *Personnel Psychology*, 71(2): 181-200.
- Co-author of “Work-family conflict and social undermining behavior: An examination of PO fit and gender differences.” *Journal of Occupational and Organizational Psychology*, 88, 203-218. (Impact Factor: 2.419).
- Co-author of “Opening the Blackbox: Exploring the Link Between Workplace Exclusion, Perceptions of Envy and Worker Helping Behavior, Health and Turnover.” *European Journal of Work and Organizational Psychology*, 24:2, 239-255. (Impact Factor: 2.094).
- Co-author of “A Social Exchange-Based Model of the Antecedents of Workplace Exclusion.” *Journal of Applied Psychology*. 98(1): 37-48. (Impact Factor: 4.758).



College of

**EDUCATION****Dani Herro, Ph.D.***Professor***Education and Human Development**

Since being hired at Clemson just over a decade ago, Herro has worked tirelessly to expand her reach and impact in the learning sciences, specifically in the fields of digital media and learning and STEAM (Science, Technology, Engineering, Arts and Mathematics) Education, by forming interdisciplinary collaborations with faculty, teachers and graduate students and disseminating her research in top-tier journals, books and to the public. She has garnered more than \$7.5 million in external grant funding, published more than 70 articles, chapters and conference proceedings papers and delivered several national and international keynote addresses or workshops in New York, Ohio, Wisconsin, California, Pennsylvania, Spain, Morocco, Portugal and Finland.

She published a well-regarded and widely utilized book on STEAM education (Teacher College Press) in addition to editing a book series on digital media and learning. Herro has a strong desire to make a difference in K-12 schools, connecting directly with teachers and students; she works intentionally to increase educators' professional learning in STEAM education and digital media and learning in South Carolina and beyond. She partnered with more than 500 teachers and instructional leaders in technology and STEAM workshops, professional development, site visits, and as the first Faculty-in-Residence at Phinnize J. Fisher Middle School, later serving on their STEAM Advisory Board in Greenville County with other stakeholders and leaders from Michelin, CU-ICAR, Greenville Tech, and local architectural firms. Recently, she co-wrote six innovative curriculums with a junior faculty member (AI+Ethics, Data Science, Innovation Lab+Design Thinking, Social Media Marketing, Digital Design and Production and Game Design) for middle school computer and technical education courses, and then provided professional development for the teachers implementing the curriculums.

During 2020-2023, Herro served on the Vice President for Research Advisory Board Committee and co-chaired the yearly University Research Symposium. To increase research opportunities and visibility, she mentors new faculty, serves on numerous National Science Foundation review panels and editorial boards, and has given more than 60 presentations addressing ways to expand STEAM and technology integration in schools at national and international conferences.

## Select Accomplishments

- Awarded “Outstanding Research Paper Award” for the *Journal of Digital Learning and Teacher Education* in 2023, and “Distinguished Paper Award” from the SCEPUR in 2024.
- Awarded Honorary Distinction Awards from the College of Education for \$7.5 million in funded grants; Milestone Achievement for Total Citations on a single paper (300+).
- Named Top Senior Researcher for the College of Education, 2020.





College of  
**ENGINEERING, COMPUTING  
AND APPLIED SCIENCES**

## **Lisa Benson, Ph.D.**

*Professor*

**Engineering and Science Education**



Benson is a professor in the Department of Engineering and Science Education at Clemson University, a department that she helped establish in 2006. Benson guided the development of the Certificate in Engineering and Science Education for graduate students in STEM disciplines, which over 130 STEM graduate students have completed. She was instrumental in designing the curriculum for the Ph.D. in Engineering and Science Education and has been involved in mentoring or advising many of the 25 graduates from this program to date.

Her research focuses on the interactions between student motivation and their learning experiences in STEM disciplines. Her projects include studies of students' sense of belonging, their development of problem-solving and self-regulated learning practices, and inclusive ways of helping students achieve their career goals.

Benson is a Fellow of the American Society for Engineering Education (ASEE), the past editor of the *Journal of Engineering Education*, and the 2018 recipient of the Clemson University Class of '39 Award for Faculty Excellence. She has mentored hundreds of undergraduate and graduate students, as well as postdocs and junior faculty, and is the 2024 recipient of the Distinguished Doctoral Mentoring Award at Clemson. She earned a B.S. in Bioengineering (1978) from the University of Vermont, and M.S. (1986) and Ph.D. (2002) in Bioengineering from Clemson University. She has authored or co-authored over 150 peer-reviewed publications, most with graduate students as co-authors, in journals and conferences spanning engineering, science, and education disciplines.

### **Select Accomplishments**

- Serves as principal investigator (PI) on a recent \$1.25 million grant from the National Science Foundation (NSF) to fund three postdoctoral fellows for two years.
- Serves as a co-PI on a recent NSF-funded project to redesign engineering mechanics instruction to help students connect the physical world to the equations and problems they solve in the classroom.
- Received the 2022 Chester F. Carlson Award from the American Society for Engineering Education.
- Received the College of Engineering and Science Faculty Collaboration Award in 2015 and Faculty Mentoring Award in 2010.
- Is the founder and director of Science as Art, an annual exhibit at Clemson since 2006 showcasing creative ways to visualize and communicate STEM concepts to a broad, non-technical audience.



**Fei Xue, Ph.D.**

*Associate Professor*

**Mathematics and Statistical Sciences**



Xue is motivated to advance theory and practice of numerical linear algebra algorithms to solve large-scale computational problems that can be formulated with matrices and vectors. This domain is a pillar of numerical methods for computational sciences and engineering, supporting a wide range of routine computations in statistics, operational research, physics, fluid mechanics and partial differential equations (PDEs), and recently in complex networks, data sciences and deep learning. Xue is focused on developing new cost-efficient computational methods that deliver good approximate solutions rapidly and robustly, supported by mathematical theory, to tackle large problems that are costly or prohibitive to solve by traditional algorithms. He is interested in thorough understanding of pros and cons of various alternative methods and strives to achieve further problem-dependent improvement in algorithm performance. This is based on mathematical insights advancing hand in hand with carefully designed numerical experiments and mindful awareness of different algorithms' behavior. Xue's research interests and activities in recent years expand to uncertainty quantification, computational physics, complex network, and randomized numerical linear algebra algorithms that realize the behavior of classical methods at a high probability and incur significantly lower computational cost, including the development and analysis of iterative subspace methods that no longer need orthonormal basis vectors, which is toppling the conventional wisdom and tradition held in this area for many decades.

Xue is committed to education through active student recruitment and advising. He serves on the Graduate Affairs Committee on a regular basis to recruit new graduate students and revise policies for the graduate program. Since he joined Clemson in 2016, he has advised three doctoral students in the School of Mathematical and Statistical Sciences, who all have graduated with a Ph.D. degree. He has provided financial support continuously to his advisees from federal grants.

## Select Accomplishments

- Authored 28 peer-reviewed journal publications, many of which appeared on top computational math journals such as *SIAM J. Sci. Comp.*, *SIAM J. Matrix Anal. Appl.*, *Numer. Math.*, *Math. Comput.*, and *IMA J. Numerical Analysis*.
- Co-authored the textbook publication "Numerical Analysis: An Introduction" (De Gruyter Textbook).
- Is principal investigator (PI) or co-PI on four National Science Foundation research awards (total amount \$922,312), supported continuously since 2011.
- Has given 25 invited presentations (international, national, regional meetings, symposia, and department seminars).



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**RESEARCH**

Quarterly Research Report

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