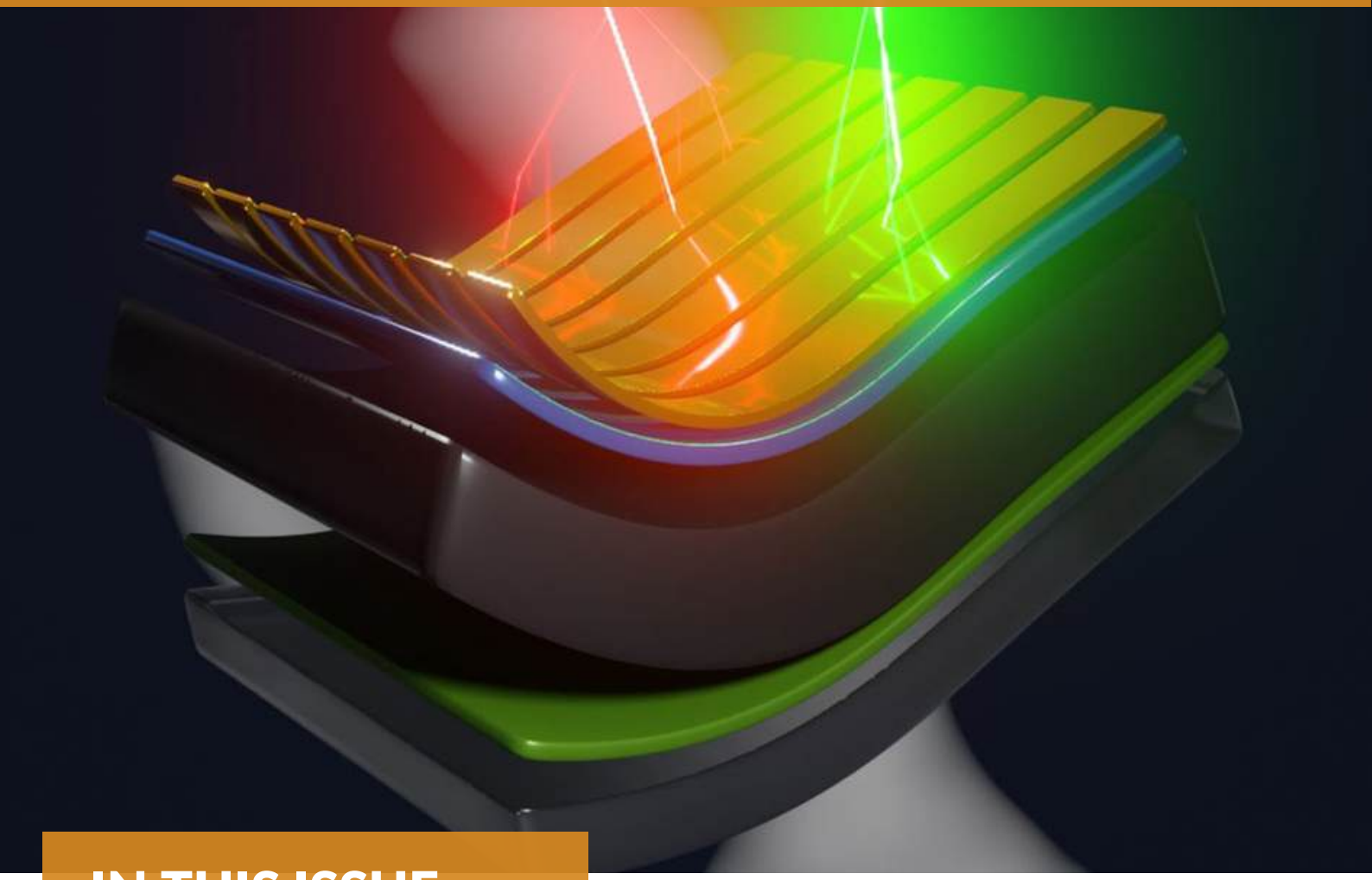
2024 IN REVIEW

The Schlieren

School of Chemistry and Materials Science



IN THIS ISSUE

Ahmad Kirmani Leads the Way in Perovskites

RIT Assistant Professor Ahmad Kirmani from the School of Chemistry and Materials Science is leading the way in perovskite research at RIT. Kirmani's research is helping to expand and improve space exploration through understanding how the metal-halide perovskite, the next-generation printable semiconductor, reacts to harsh extraterrestrial conditions and self-heals in those conditions.

A 2024 paper on this research in Nature Communications, titled "Unraveling radiation damage and healing mechanisms in halide perovskites using energy-tuned dual irradiation dosing," also had contributors from the National Renewable Energy Laboratory, University of North Texas, University of North Carolina, Chapel Hill, University of Oklahoma, and the NASA Glenn Research Center. RIT PhD student Buh Kum Tatchen is also a co-author. (Adapted article by Mollie Radzinski)

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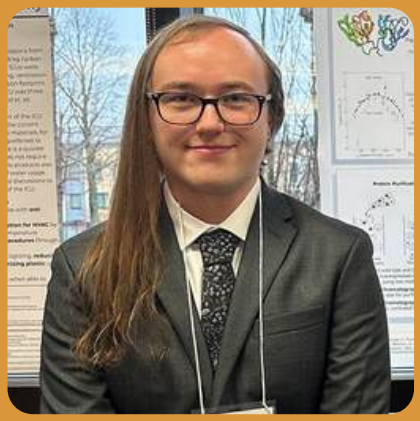
BARRY M. GOLDWATER AWARDEE- AIDAN MILLER



> *"I'm very honored to receive this award, It's very competitive. It makes me feel really good about the work that I've done in research."*

(Adapted article by Mollie Radzinski)

RIT third-year biochemistry student Aidan Miller has been awarded a Barry Goldwater Scholarship, the most prestigious undergraduate research scholarship in the United States, given to students pursuing a career in the natural sciences, mathematics, or engineering.

Miller, who is from Rochester, N.Y., is one of 438 recipients out of 1,353 nominees. The award is based on academic merit and research experience and is an on-going partnership between the Department of Defense National Defense Education Programs, UWorld, and the Barry Goldwater Scholarship and Excellence in Education Foundation. "I'm very honored to receive this award," said Miller. "It's very competitive. It makes me feel really good about the work that I've done in research."

Miller has conducted research in the laboratories of Lea Michel, professor in the School of Chemistry and Materials Science, and George Thurston, professor in the School of Physics and Astronomy, since his first year at RIT. Most recently, he has studied the biochemical and biophysical analyses of cataract-causing mutations in certain proteins through NMR spectroscopy and light-scattering. He presented this research at the national meeting of the American Society of Biochemistry and Molecular Biology in 2024 and the RIT Undergraduate Research Symposium in 2023. He presented his previous research on the analysis of clinically relevant antibiotics' effectiveness on sepsis-related E. Coli at the American Chemical Society North Eastern Regional meeting in 2022 and the Undergraduate Research Symposium in 2022.

2024 ACS Priscilla Carney Jones Scholarship Winner

Mya Soto '25 was recognized nationally winning two major awards and was recently chosen to be the student delegate for the 2025 COS convocation ceremony this spring.

Mya Soto '25 was the national winner of the ACS Priscilla Carney Jones Award. This award was established by Paul R. Jones, in memory of his wife. It provides scholarships for female undergraduate majors in chemistry or related disciplines who are beginning their junior or senior years of study. Mya was the one winner of this award nationally in 2024. Congratulations Mya!

Mya was also a recipient of the The American Society for Biochemistry and Molecular Biology Marion B. Sewer Distinguished Scholarship. This award supports undergraduate students interested in biochemistry and molecular biology. With her current passion for biochemistry, Mya Soto '25 would like to pursue a biochemistry-based major. Specifically, looking forward to investigating topics in biochemical mechanisms in infectious disease. She would like to pursue her studies in graduate school, and her long-term goal is to establish a career to carry out research. Eventually, Soto would like to teach, as she has a passion for connecting with people over her love for science. Soto has been conducting research with Dr. Suzanne O'Handley for almost three years.

2024 ASBMB NATIONAL HONOR SOCIETY INDUCTEES

RIT biochemistry students, Navraj Singh, Mya Soto, Andrew Seyler, and James Hasselbeck were among 31 inductees nationwide into 2024 ASBMB National Honor Society ΧΩΛ. The students were recognized for academics, research, outreach, and leadership in ASBMB Student Chapter. Congratulations!

JOHN WILEY JONES AWARDEE - LIAM ALMEKINDER

Invited speaker Dr. Steven Strogatz, with Liam and his mentor Jeremy Cody

(Adapted article by Mollie Radzinski)

Liam is a third-year chemistry major, from Naples, NY planning to graduate in the Spring of 2025 with a BS in Chemistry. Liam has been incredibly active about engaging in research early and has worked with Dr. Jeremy Cody. As such, he has developed experiences that lead to an understanding of several chemistry disciplines, but also a clear vision for his future. For the 2023-2024 academic year including an Emerson Research Fellowship in the summer of 2023 and the Terry Morrill Award in the summer of 2024, he has been focused on the synthesis of complex bioactive molecules. After graduating, Liam will be pursuing a Ph.D. in Organic Chemistry.

John Wiley Jones had a passion for science education and was a generous contributor to academic excellence at RIT. In 1974, Jones Chemicals established the John Wiley Jones Distinguished Lectureship in Science to contribute to the education programs of RIT's College of Science. Jones intended to bring eminent scientists to the RIT campus with the expectation of a formal lecture presentation open to the public. The company also created an endowment to support science education at RIT, the first grant of its kind in the university's history.

A portion of this endowment was used to establish the John Wiley Jones Award for Outstanding Students in Science as a tangible expression of Mr. Jones's wish to help and encourage young people to prepare themselves for careers in scientific fields. He believed that protecting the environment and making the world safer and more fruitful for all people posed a significant challenge for future scientists. In their selection of the John Wiley Jones Outstanding Students in Science, the five academic units of the College of Science must consider the student's academic achievements, citizenship, and contributions to the quality of campus life.

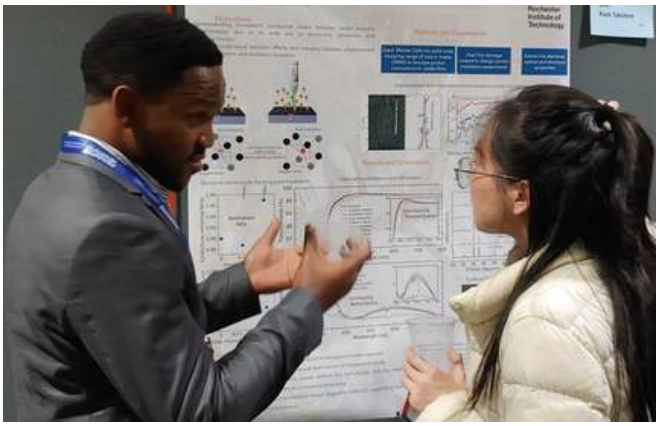
KIRMANI'S ROLE IN $10 MILLION FOR U.S. SPACE FORCE RESEARCH

continued from cover...

With the proliferation and commercialization of the space sector, there is a need for better, cheaper technologies and materials that enable the exploration of planets and environments beyond Earth. Perovskite has a soft, crystalline structure with the ability to repair itself after being damaged, unlike conventional semiconductors. Kirmani is trying to further understand how these materials are able to heal themselves at the atomic level.

RIT selected to receive $9.9 million for U.S. Space Force research RIT has been selected to lead the United States Space Force University Consortium/Space Strategic Technology Institute 3 (SSTI) research regarding advanced space power and propulsion, which includes $9.9 million in funding.
The research is in partnership with the Air Force Research Laboratory and will enable game-changing space power and propulsion technology that will transition to the U.S. Department of Defense. The University of Michigan is also a lead institution for this research, which will include advancements in solar technology, thruster technology, and novel power approaches.

> *"We have found some really surprising and astonishing properties. Perovskites appear to hold up at energy levels and intensity levels far higher than silicon, and silicon has been used for powering space satellites. We have been recreating space stressors like radiation, vacuums, and atomic oxygen to see how perovskites perform."*



PhD student Buh Kum Tatchen presented a poster at the Materials Research Society (MRS) Fall meeting 2024 (Boston) on his work in the Kirmani group.

RIT's Ahmad Kirmani gives a TEDxRIT talk on how perovskites semiconductors are the future of space.

As a center leader for the SSTI, RIT will work with other university partners to develop lower-cost, sustainable solar cells that can be used for power systems. Specifically, the team will be building off work by Kirmani with perovskites and their use in space.

Advancing space technologies has become a large focus of funding for both private and governmental and military purposes. RIT continues to build its reputation as a leader in space technology and Kirmani is quickly becoming a large part of that legacy at RIT.

Oustanding Teaching Award

Dr. Douglas Tusch

The Outstanding Teaching Award for non-tenure-track faculty recognizes excellence in teaching by lecturers at RIT who have made a significant commitment to students at RIT.

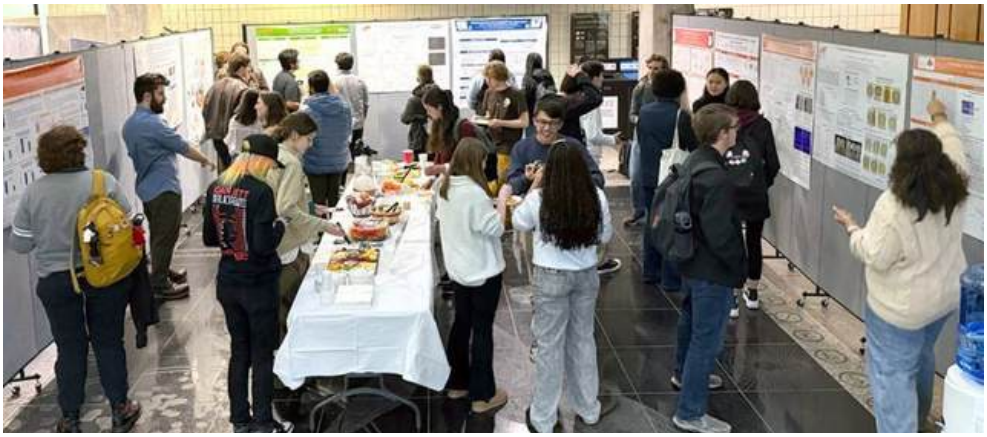
Tusch, joined RIT in 2017 and is also the recipient of the 2019 Student Government Extra Mile Award. He teaches Organic Chemistry related courses and labs. He is beloved by the students and is involved in chemistry education research with his organic chemistry colleagues at RIT. His service activities focus on recruiting and retention efforts, and health and safety in laboratory settings. He earned his B.S. (Biochemistry) from RIT, and his M.S. (Chemistry), Ph.D. (Chemistry) from University of Rochester. Proud to have you in our SCMS team!

2024 Faculty Beacon Award

Dr. Lea Michel

Awarded by the RIT Division of Diversity and Inclusion, the Faculty Beacon Award recognizes an RIT faculty member who has a proven track record for supporting the division's work in a manner that has impacted the RIT community. We are proud to have Dr. Michel working hard for our colleagues and scholars in promoting diversity, equity, inclusion and justice in the College of Science, at RIT, and beyond. Thanks and congratulations to Dr. Michel on this well-deserved honor and recognition.

Below, Lea attends the Annual Biomedical Research Conference for Minoritized Scientists (ABRCMS) in Pittsburgh Nov 2024.



Students discuss their research in detail during the poster session in the atrium of Gosnell.

ANNUAL SLIDE SLAM

Drs. Suzanne O'Handley and Jian Liu, hosted the annual Research Slide Slam. Professors shared their projects in a 5-minute, single-slide format, followed by poster presentations from students. This event brought faculty and students together to collaborate, network, and showcase exciting research!

Dr. Jian Liu Awarded NSF Grant

Professor Jian “Ken” Liu, assistant professor of chemistry and materials science was recently awarded a grant from the NSF CBET Division in response to Engineering Research Initiation (ERI) solicitation in May 2024. Liu’s research team will explore liquid:liquid interfaces and interfacial reactions in hierarchically cross-connecting nanoporous materials.

Pictured from left: Minhazur Rahman Shawon, Lamisa Rahman, Chitra HK, Mitra Keshavarz, Alexander Dyer, Celine Cammarere, and Dr. Liu.

Honoring our SCMS Research Scholars 2024

The 2024 Research Scholars ceremony was an amazing showcase of many talented students who have committed to conducting research in the school of chemistry and materials science with one of our faculty. These students were required to work a minimum of three semesters in the same research lab, maintain a high GPA, and present their work as either a publication or a paper at a conference off-campus. COngrats to these amazing scholars a huge thank you to their mentors.

Format below includes: student name (research mentor), what’s next after RIT
Back Row from left: L. James Macisco (Dr. Todd Pagano), Graduate school in chemistry, James Hasselbeck (Dr. Lea Michel), Medical School at the Duquesne University College of Osteopathic Medicine, Andrew Seyler (Dr. Suzanne O'Handley) Medical School , Navraj Singh (Dr. Lea Michel) Medical School, PJ Nikolai (Dr. Tina Goudreau) Graduate Program in Chemistry

Front Row from Left: Lee Schoneman (Dr. Michael L. Gleghorn), RIT Bioinformatics M.S. program, Matt Henry (Dr. Hans Schmitthenner) A career in the pharmaceutical industry, Aidan Lynch (Dr. Suzanne O'Handley and Dr. Michael Gleghorn),UConn Medical School, Peggy Chen (Dr. Suzanne O'Handley), Lake Erie College of Osteopathic Medicine Medical School, Martina Videva (Dr. Lea Vacca Michel), Medical School, Gabriela Gonzalez (Dr. Lea Michel), Graduate school at Duke University to get a PhD in Chemistry, Benjamin Rippel (Dr. Gerald A. Takacs), Continue working in the company, H2OB LLC, which he created,

Not in photo: Hunter Heineman (Drs. Tina Goudreau and Jerry Takacs) A volunteer year

HAWAIIAN SHIRT NIGHT FOR THE HANS GROUP

It's becoming a tradition that Dr. Hans Schmitthenner submits his research group photo at the Hawaiian shirt night at the Amerk's baseball game!

Dr. Hans reports that his group has been highly productive and is very proud of the recent article published co-authored by Dr. Joe Hornak and many RIT students:

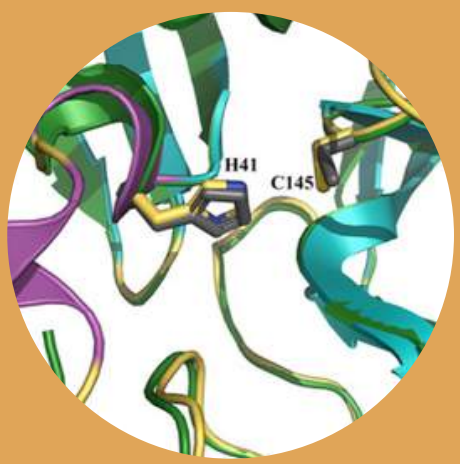
O'Brien AM, Pileski GC, Henry MP, Soika DQM, Deutsch AW, Hornak JP, Schmitthenner HF. Self-Assembling Peptide-Based High-Relaxivity Targeted MRI Contrast Agents. *ChemMedChem*. **2024** Sep 16;19(18):e202400391. doi: 10.1002/cmdc.202400391. Epub 2024 Jul 19. PMID: 38830117.

Pictured From left: Gabby Redman, Andrew O'Brien, Dr. Hans, Joan, Griffin Pileski, Samara DeSouza, Jaclyn Conley, Yoonjung Cho

K-12 CLEAN ENERGY EDUCATION PROGRAM

Alla Bailey, principal lecturer, and Gerald Takacs, professor in the School of Chemistry and Materials Science, received their tenth consecutive year of funding from Constellation Energy's E2: Energy to Educate program. Their project trains high school teachers and students on clean energy, emphasizing hydrogen fuel cells through curriculum development, workshops, and hands-on activities.

IMPACTFUL PUB SPOTLIGHT



Dr. Paul Craig, and an image from the paper for the active site of both proteases, with the catalytic dyad (H41 and C145 in 6LU7) shown, with 6LU7 in gold and 1Q2W in gray

Paul Craig, professor in the School of Chemistry and Materials Science, was part of a team that published "Evolution of the SARS-CoV-2 proteome in three dimensions (3D) during the first 6 months of the COVID-19 pandemic" in Protein: Structure, Function, Bioinformatics. The article, co-authored with Katherine See '23 (chemistry) and other researchers, examined the structural evolution of a SARS-CoV-2 protein using bioinformatic tools. The paper is one of the top 10 most cited in the journal.

Chemistry, Culture, and Career - How RIT Shaped a Merck Scientist

Adapted from an article by Mary Pryor

DR. NNAMDI AKPORJI BS'16

Nnamdi Akporji '16 was drawn to RIT because of its unique atmosphere, which he experienced firsthand during a campus visit. "I really liked the culture," he explains. "It seemed like a very inclusive place to me from the start. There was a focus on experience outside of regular classes like co-ops and research and that was something that I hadn't really seen before. I also liked the amenities! The recreation center is amazing." This combination of a welcoming atmosphere, facilities, and an emphasis on practical experience set the stage for Nnamdi's academic journey, where he would go on to develop critical research skills under faculty mentorship.

Nnamdi ultimately landed in the chemistry program at RIT. "I had a knack for chemistry since high school and was curious to learn more about the possible career opportunities in this field," he explains. Once at RIT, Nnamdi discovered a passion for research. "I really liked the research experience and working closely with a professor. I worked with Dr. Hans Schmitthenner on the synthesis of a urea-based PSMA inhibitor for use in imaging agents for magnetic resonance imaging (MRI) and positron emission tomography (PET) of prostate cancer. Our work was published, and the experience helped me when applying for graduate school and was crucial to my success in the long run."

After earning a PhD at UC Santa Barbara under the mentorship of Dr. Bruce H. Lipshutz, Nnamdi landed a Senior Scientist position at Merck & Co. in New Jersey involving the research, development, optimization, and production of a chemical process into a commercial product.

Nnamdi explains, "When you first start off as a process chemist, you join a team that works on the synthesis and process optimization of potential drug candidates. The role involves extensive lab work, collaboration with third-party contractors and manufacturers, and assisting in scaling up processes." As he gained experience, Nnamdi's responsibilities expanded to include managing various aspects of drug manufacturing, from sourcing materials to contributing to the U.S. Food and Drug Administration (FDA) filings and overseeing global manufacturing sites. "It's a great career if you have an interest in understanding how a drug goes from an idea to a product," Nnamdi concludes.

Several faculty members played pivotal roles in shaping Nnamdi's academic and professional journey. He expresses his gratitude, saying, "Dr. Hans Schmitthenner was a fantastic mentor and I attribute a lot of my success to him in the research space. Also, Dr. Jeremy Cody and Dr. Christina Goudreau Collison were both fundamental in my understanding of organic chemistry. I am forever grateful to them."

For students aspiring to pursue a similar field, Nnamdi offers this advice: "Don't be afraid to ask for help. In chemistry and a lot of other sciences, it is crucial to have some sort of research experience when looking to further your career. When you have an idea of the kind of career that you want to pursue, start looking at the requirements and how you can obtain them to put yourself in the best position to succeed."

NEW RIT DIRECTOR FOR AI

Dr. Christopher Collison

Dr. Christopher Collison has been appointed Director of the RIT Artificial Intelligence (AI) Hub. The AI Hub is a newly formed strategic entity responsible for developing AI solutions for teaching and learning and promoting AI-enabled innovations and services on campus.

Collison is the Jane King Harris Endowed Professor in the School of Chemistry and Materials Science, College of Science at RIT. He is a passionate and experienced researcher in AI-driven materials chemistry and renewable energy. With 20 years at RIT and over $1.2 million in funding as a Principal Investigator, he has integrated computational and AI approaches into experimental work in organic photovoltaic devices, nanomorphology, and photoactive materials. His current research captures 3D molecular geometry as a numerical input, essential for AI-driven predictions of drug-protein interactions.

Collison was selected for this role because of his deep understanding of AI technologies, including machine learning and large language models. As Director, Collison will maintain relationships with AI researchers and instructional faculty across various disciplines. The role requires a balanced approach to teaching and learning, facilitating curriculum changes that embrace AI at a pace suitable for all faculty members. He will also engage with our students, ensuring their active involvement and addressing their needs as RIT transitions into more AI-integrated educational practices. As a leading technology university with world-class experts, RIT is well-positioned to play an integral role in teaching and innovation in AI.

If you are interested in reading about where the state of the art is in the AI chemistry domain read the folliwng article co-authored by Collison:
A Review of Large Language Models and Autonomous Agents in Chemistry, M. Caldas Ramos, C. Collison and A. D. White, Chem. Sci., 2024, DOI: 10.1039/D4SC03921A

AN IMPRESSIVE RIT TURNOUT AT LOCAL ACS

A huge turn out by RIT student presenters and their mentors at the Local ACS Research Symposium held at SUNY Brockport on Saturday, April 20th, 2024. Many of our students gave posters and talks. The plenary speaker was our very own Dr. Lea Michel. Awards were presented to Martini Videva for the ACS Senior Undergraduate Chemistry Award, and to Andrew O'Brien for best oral presentation at the meeting. A job well done everyone!

BREAKING BARRIERS AND LEADING BY EXAMPLE
Dr. Amie FornAh-Sankoh '17


Photo Credit: Whitney Curtis for Nature

Dr. Amie Fornah-Sankoh, BS '17 (biochemistry), graduated from the University of Tennessee at Knoxville with a Ph.D. in biochemistry and cellular and molecular biology. Chemistryworld.com featured her as the first deaf Black woman to earn a STEM doctorate. She addressed the graduation ceremony as a featured speaker on Saturday, May 20, 2023.

While growing up during the civil war in the West African country of Sierra Leone, Sankoh encountered barriers to her survival, education, and language acquisition, all of which she had to overcome.

When Sankoh was 12 years old, her parents sent her to the United States for a better education. In the United States, she learned American Sign Language and connected with the Deaf community. Sankoh attended RIT/NTID, where she excelled in science. She credits NTID chemistry professor Todd Pagano as a mentor and advocate, who believed in her potential and challenged her to gain science knowledge.

After completing a bachelor's degree in biochemistry and at RIT and working with Dr. Suzanne O'Handley, she pursued her Ph.D. at UT studying the effects of hormones on plant-pathogen interactions. Although she experienced challenges during her Ph.D. journey, she found strength and support through the university's Program for Excellence and Equity in Research (PEER), which provides professional development and mentoring opportunities for exceptional underrepresented students. "As a deaf African American woman, I was told many times, 'you can't,' but it is all of those experiences that made me the fighter, survivor, and advocate I am today," she said.

Sankoh currently works as a postdoctoral research assistant at the Danforth Plant Science Center in St. Louis, Missouri. Sankoh values the importance of diversity in science, and aims to work towards increasing diversity in STEM fields.

"It's time for me to make a difference as a deaf scientist," she said. "I feel that my life and educational experiences would encourage many deaf students and people of color and help them see the possibilities of STEM careers."

(Adapted from an article by Jamaal Brown)

POLLUTION RESEARCH AND EDUCATION

ADAPTED FROM AN ARTICLE BY MOLLIE RADZINSKI (RIT NEWS)

Above, Mr. Smith confers with associate professors Nathan Eddingsaas, left, and Christy Tyler, right, as they examine the results at New York state's Rochester Institute of Technology.

A new Rochester-based research center will study the lifecycle of microplastics, including its origin as plastic waste, distribution, and movement in the Great Lakes freshwater ecosystem. The research will also focus on how climate change could intensify the environmental and health threats posed by microplastics.

The Lake Ontario Center for Microplastics and Human Health in a Changing Environment is a collaboration between Rochester Institute of Technology and the University of Rochester, and supported by a $7.3 million grant from the National Institute of Environmental Health Sciences (NIEHS) and the National Science Foundation (NSF) under the federal Oceans and Human Health program.

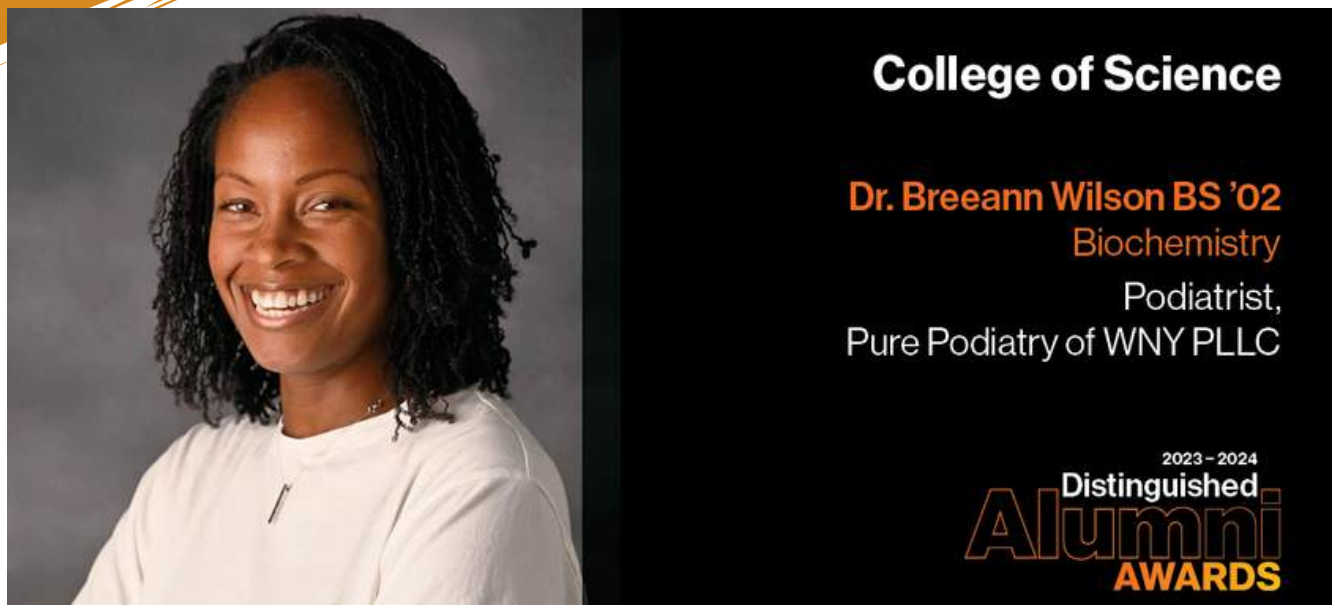
The new center will undertake research projects that aim to understand how environmental changes may affect the movement and characteristics of microplastics in Lake Ontario, how microplastics interact with other contaminants, and the impact on inflammation and immune response in model biological systems. The goal is to develop and promote solutions that inform future research, community actions, and policy changes that will lessen the health effects associated with microplastics.

The interdisciplinary team, which will be led by Dr. Christy Tyler, professor in the Gosnell School of Life Sciences, includes Matthew Hoffman, professor in the School of Mathematics and Statistics; **Nathan Eddingsaas, associate professor in the School of Chemistry and Materials Science**; Steven Day, professor and head of the Department of Biomedical Engineering; and André Hudson, professor and dean, College of Science. They will examine how climate-related factors, namely warmer weather and more severe storms, will increase the delivery of post-consumer plastic to Lake Ontario.

2024 Highlights

2024 had many exciting and memorable events. Dr. Joe Lanzafame did a wonderful job as mace bearer during the May Convocation events in the Polisseni arena. Celebrating our graduates is always a joyous event. Also we experienced a full total eclipse! Well, sort of. On April 8th, 2024 at about 3:30pm in the afternoon, while the campus was buzzing with students, Rochester was in the path of totality. It was just a shame the glasses RIT provided were unnecessary since it ended up being a cloudy day. We experienced the absolute darkness without actually seeing the eclipse. Still impressive!

Where Are They Now?



DR. BREEANN WILSON BS '02

The Distinguished Alumni Awards are presented annually by each of RIT's nine colleges, the School of Individualized Study, and the RIT Graduate School to alumni who have performed at the highest levels of their profession or who have contributed to the advancement and leadership of civic, philanthropic, or service organizations. It is the highest award an RIT college can bestow upon its alumni. The recipient of the 2023-2024 Distinguished Alumni Award for COS was Dr. Breeann Wilson '02 (Biochemistry). Thank you Dr. Breeann Wilson for your continued excellence, especially in mentoring our current scholars and sharing your time and talents.

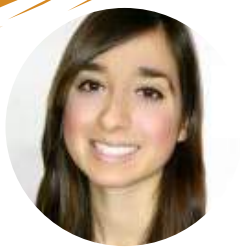
EMILY MAHONEY BS '21

Emily writes that she is a fourth-year PhD candidate at Northwestern University, specializing in the development of new organic-based redox flow batteries. She is thrilled to share that her first-ever first-author paper, focusing on the exploration of organic-based redox flow batteries just got published! thought of you last quarter when I was taking an ASL class on the side

JOE LOTT BS'04, MS '06

Joe earned his BS in polymer chemistry and MS in chemistry from RIT. He recently reported that he has started a new position as Principal Scientist at Bausch + Lomb. He is thrilled to join such an amazing team and looking forward to helping people see better to live better!

Where Are They Now?



SAM LAURO BS'18

Dr. Sam Lauro has defended her PhD dissertation at the University of Texas (Hook'em Horns!). She is now a Senior Research Specialist at Dow Chemical in PA. During her presentation, she used concepts that were discussed topics in CHMI351. "Brought on sense of pride in the old man," wrote her RIT mentor Dr. Scott Williams.

JOE RACE BS '18

Dr. Joe Race recently defended his Ph.D. dissertation titled "Understanding the Crystal Chemistry and Symmetry of Low-Dimensional Hybrid Organic-Inorganic Metal Halides". He accepted a postdoctoral fellowship position studying photovoltaic materials in the Kovnir Lab at Iowa State University. He wanted to thank everyone that has been a part of his research and academic journey.

EMILY RUDDELL BS '23

Emily reports that she is a Lab Technician at Cardinal Health in Rochester, New York. As a lab technician in the Nuclear & Precision Health Solutions (NPHS) sector of Cardinal Health, she assists in the production of 18F-fludeoxyglucose (FDG) for use in PET scans in the Buffalo, Rochester, and Syracuse, NY areas.

AMANDA MAROTTA MS '19

Dr. Amanda Marotta (CHEM MS '19) defended her PhD dissertation at Montana State University (Dr. Williams' alma mater) in Materials Science. Her thesis was titled, "Ice-templated Ceramic-Metal Composites Modified by Interfacial Metal Aluminates. She is now a Post-doc in Sandia National Labs working on ferroelectric perovskite materials. Go wildcats/tigers!

SHANE FRISCO BS '12

Dr. Tina Goudreau recently caught up with alumni Shane Frisco. Dr, Frisco wrote, "I want to make myself available to any of your students if they have questions about my experiences getting a PhD in materials science, doing a post doc at the National Renewable Energy Lab, and now working in the field of making batteries. I'm at Form Energy in the Boston area."

SCMSSTUDENT AWARDS 2024

First Yr Award in Chemistry:
Eva Reilly & Bhavi Patel (pictured right, presented by Dr. Heagy)

Undergrad Award in Analytical Chemistry:
Anna Rooney

Undergrad Award in Organic Chem:
Liam Almekinder

Undergrad Award in Biochemistry:
Andrew Seyler & Navraj Singh

Undergrad Award in Inorganic Chem:
Caitlyn Burkhardt

Undergrad Award in Physical Chemistry:
Aidan Lynch

UG Senior Achievement Award for Chemistry, sponsored by the American Institute of Chemists, Inc.: Aidan Lynch

UG Senior Achievement Award for Biochemistry, sponsored by the American Institute of Chemists, Inc.: Jimmy Hasselbeck

Grad Level Chemistry Achievement Award in Materials Science: Wyatt Morrell

Terry Morrill Summer Research Award:
Liam Almekinder

RIT Outstanding Scholars: Aidan Lynch, Martina Videva, & Gabriela Gonzalez

Emmerson UG Research Fellowship:
Griffin Pileski & Mary Emily Visingard

Pasto Award:
Katie Miller & Mya Soto

Outstanding 2nd Yr Award:
Micah Hrubec & Katie Miller (presented by Dr. Mills)

Undergrad Award in Polymer Chemistry:
Joel Salas (presented by Dr. Miri)

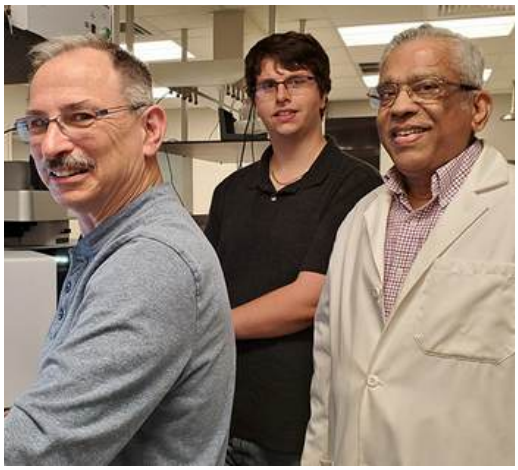
Chemistry Achievement Award for Seniors, Rochester ACS:
Martina Videva (presented by Dr. O'Handley)

Remembering Dr. KSV Santhanam

Dr. Kalathur Sabtham Vangeepuram Santhanam passed away on February 23, 2024 while visiting with family in India. Dr. Santhanam served as a faculty member in the School of Chemistry and Material Science from 2000 until his retirement in 2022.

KSV, as he was known in our school, was born in Tirupati, India on August 19, 1938. From his humble beginnings, he dreamt big and achieved bigger. At a young age, he believed family came before everything and supported his mother and ensured the education and success of his siblings. Through hard work and dedication, he became one of the most brilliant and renowned minds in materials science and chemistry. KSV first made significant strides as a Senior Professor at the Tata Institute of Fundamental Research (TIFR) and later as the Director of Materials Science and Engineering at the Rochester Institute of Technology (RIT). He was an inspiring teacher and motivated his students to achieve their dreams, guiding them to improve the world with cutting-edge research on clean energy, graphene, disease detection, and more. Despite being amongst Stanford University's list of the world's top 2% of scientists, having numerous accolades, patents, and publications, he had profound humility. KSV was also a loving husband to his wife, Komalavalli Santhanam, affectionate father of two daughters, Rohini (Christopher) D'Souza and Shalini (Manish) Damani, and a great role model for his two grandchildren, Nikhil and Akhil Damani.

KSV passed away peacefully in his sleep on February 23, 2024 while on a family vacation in India. He was cremated in Chennai, India and his ashes were dispersed into the Bay of Bengal.



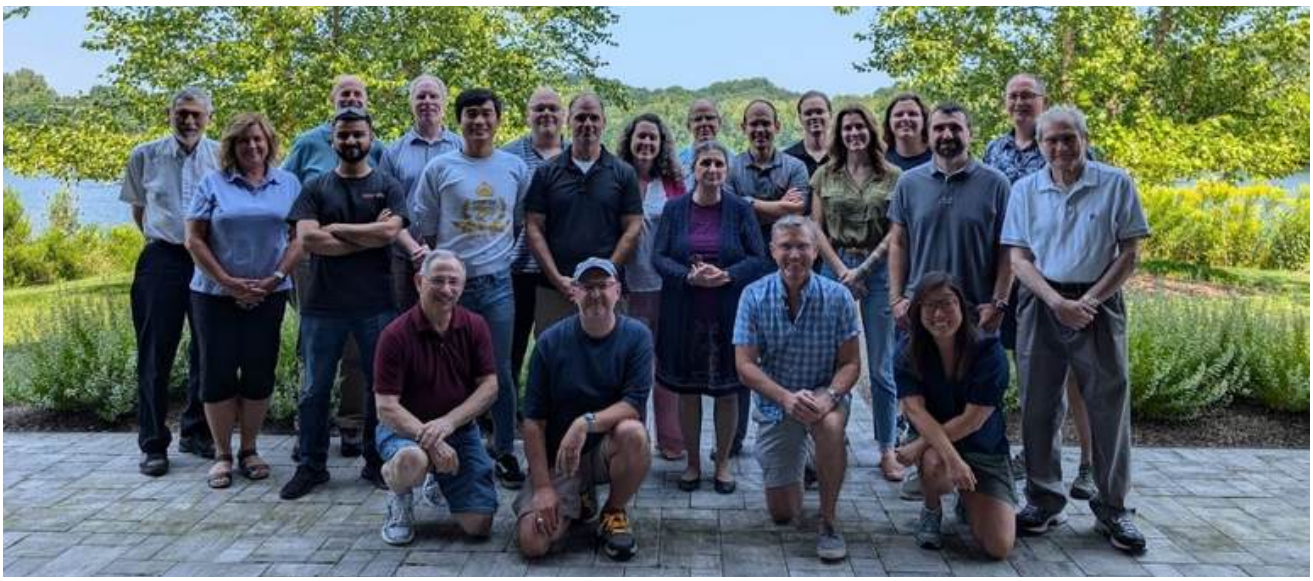
IN MEMORIUM OF OUR ALUMNI

Jonathan Sam died July 26, 2024 in Haverhill Mass. after a four year battle with cancer, he was 55 years old. Jon was born in Dunkirk NY but moved to Westfield Mass. with his family in 1974 as a young child. After high school he attended Rochester Institute of Technology in Rochester NY where he earned a degree in chemistry. After graduating from RIT he went on to serve in the Navy where he attained the rank of Lieutenant. After the Navy he went on to get a master's degree in Paper Technology from RIT. In later years he went back to school at Salem State College earning a degree in Industrial & Organizational Psychology. He was employed by the Resso corporation and then at Analog Devices where he developed training programs to be used to make the workforce more efficient. He will be sadly missed by his family and the large group of friends he made during his lifetime.

Jean Marie Hinton, a resident of Wilmington, NC for more than 30 years, died on August 1, 2024. She was born in Rochester, NY on October 28, 1925, the daughter of Fred S. and Louise A. Belmont. After graduating in 1943 from Madison High School in Rochester, Ms. Hinton enrolled in the Rochester Institute of Technology and earned certification in Chemistry. Her first employment with Eastman Kodak was followed by several positions as a laboratory technician in California, but her marriage brought a change of vocation to the management of her family's principal residences in Pasedena, CA, Athens, GA, Wooster, OH and, in retirement, Wilmington. She also facilitated several temporary relocations of up to a year each to accommodate her husband's academic interests, as well as to fulfill her own lifelong drive to see as much of the world and its people as possible. She was an ardent member of the League of Women Voters. Above all else, she provided for the well-being of her loving and appreciative family.

CHEMISTRY FACULTY
Seated: Verne Simon, Julia Witzel, Homer Imes, David Baldwin, William Hayles, Harry Clemson. *Standing:* Ralph Van Peursem, James Wilson, Theodore Michelfeld, Robert Craven, Nina Sandburg, Charles Allen, Kenneth Hickman.

Wow, has the SCMS faculty changed over the years! At the first SCMS retreat since 2019 before Covid, and inspired by the 1962 faculty photo above, it was time to create an updated picture for posterity. It was a productive and beautiful day at the Tait Preserve in Penfield, NY.



DID YOU KNOW?

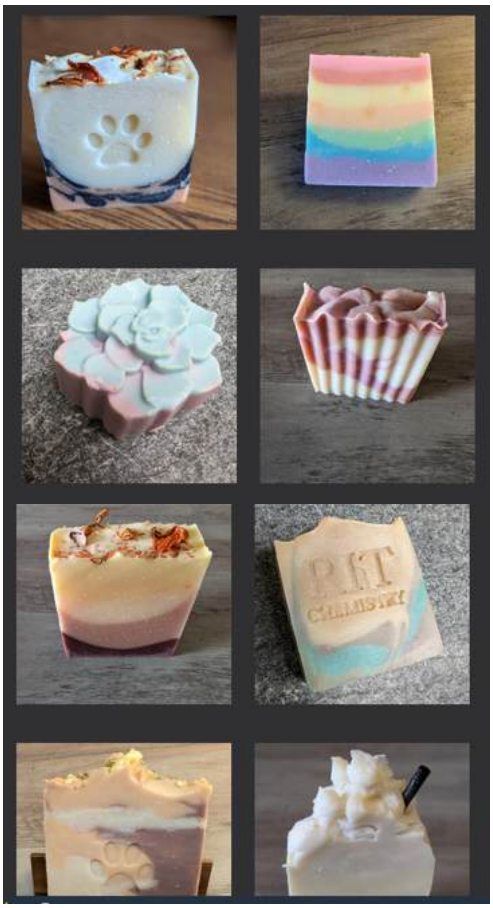
The Library is named for Charles F. and Florence Murray Wallace. A graduate of the Institute's Domestic Science Department in 1907, Mrs. Wallace was also named RIT's Outstanding Alumnus of the Year in 1960.

Charles F. Wallace was a chemist and inventor, and one of the founders of Wallace and Tiernan, Inc. Mr. Wallace and Martin F. Tiernan invented and produced the Wallace and Tiernan chlorinator which made public water safe to drink.

BRICK CITY SOAP
AN RIT CHEM UNITY PROJECT

Saponification Therapy

Brick City Soap is a ChemUnity Project pioneered in the School of Chemistry and Materials Science at RIT by Dr. Tina Goudreau. The group was started as an initiative to both engage with students outside of class and to showcase the fact that chemistry has a lot to offer in the way of consumer products. The soaps made are cut into “bricks” and showcased online on the brick wall: www.cgcresearch.com/chem-unity



> *I wanted to create a fun way to remind students that not everything we do in lab results in some harsh dangerous chemical. Although students understand that many useful drugs and materials are born from chemistry, it’s rare in a traditional curriculum to make something you can walk away and use at home.* - *Dr. Tina Goudreau*

Soap is simply one example of chemists making stuff! The group meets three times each semester to learn about soap making, and trial some recipes. Brick City Soap has been a great outlet for our students to express their creativity, socialize, explore entrepreneurial endeavors, learn about environmental considerations in soap making, and much more! One evening while the groups were independently working, Goudreau recalls overhearing a stressed out student express to her partner, “I really needed this tonight, it’s like therapy”.

Students enjoy using and gifting their soaps while those made by faculty have been used as gifts for alumni and when speakers give seminars.

Dr. Goudreau poses with the brick loafs at the end of a soap session in the organic chemistry lab.

OUR STUDENTS PRESENT AT ASBMB

Students from the Michel Lab and O'Handley Lab presented their research at the annual ASBMB national meeting in San Antonio, TX last March. Jimmy Hasselbeck and Navi Singh (both SCMS majors) were inducted in the ASBMB Honor Society. Nico Burgado's research project was selected to be featured in the ASBMB Today magazine. The highlight below.

Back row, from left to right: Navi, AJ, Jimmy, Peggy, Nico, Aidan, Tahaara

Bottom row, from left to right: Mya, Martina, Lucas, Gabriela

Nico Burgado, an undergraduate student in the Michel group, has been studying OMVs. "Usually, when doctors are trying to diagnose sepsis, the patients are already on antibiotics so when they take blood samples, no bacteria show up," Burgado said. "We need a way to diagnose sepsis after they give the antibiotics, and a good way to do that is OMV detection." Burgado, Michel and their team explored OMVs in relation to E. coli sepsis. "We can detect biomolecules that are specific to the parent bacteria," Burgado said. "After we isolate the OMVs, these biomarkers can help us determine which bacteria are causing the sepsis."

From the article By Jessica Desamero in ASBMB Today

A MENTOR IS NOW A PEER

Dr. Pepsi Holmquist, (BS biochemistry '12) is an assistant professor at the Rochester Institute of Technology-National Technical Institute for the Deaf. Holmquist's mentor as a biochemistry undergraduate at RIT was Dr. Lea Michel. Now colleagues at RIT, the pair wrote an article entitled, "Accessibility for Deaf and Hard-of-Hearing Scientists" that was published for the American Society for Microbiology. The article outlines many best practices when engaging Deaf and Hard of Hearing students in the research domain.

https://asm.org/Articles/2024/September/Building-Accessibility-for-Deaf-and-Hard-of-Hearin

Global STEM Sign Language Summit

The Global STEM Sign Language Lexicon Summit was a four day conference at Gallaudet University from March 2-5, 2024. The conference encompassed the development and dissemination of STEM signs, the sustainability of STEM sign language lexicons, and research by deaf and hard of hearing scientists. Dr. Tina Goudreau Collison was excited to present her work on Sign Language Incorporation in Chemistry Education (SLICE) at the conference alongside alumna Asma Sheikh. The cherry on top was that this was the first time she gave a presentation using ASL. “It was the most challenging thing I have undertaken in a while... it actually made me sweat” Goudreau explained. While she signed her presentation, a voice interpreter faced her with a microphone and voiced what she thought Goudreau was signing while the international interpreter beside her, listened to the voice interpreter and signed what she heard. Biggest lesson learned? Bring earplugs to block out the sound of the voice interpreter.

Anna Kasper ‘23 Talks Accessibility

As an undergraduate, Anna Kasper ‘23 (biochemistry) was fortunate to attend multiple scientific conferences locally and nationally. However, she acknowledges that as a deaf scientist, she seemed to encounter barriers to accessibility that were initially difficult to describe. Thanks to attending the STEM Sign Language Summit 2024 at Gallaudet University, she realized she was not alone experiencing these hidden barriers. In collaboration with other hardworking deaf scientists and allies (Victoria Popov, Sara Blick-Nitko Ph.D., Kat Womack, Nikki Cherry, M.Ed., NIC, Kameron Kinast), she published the article "Illuminating the deaf experience at STEM conferences" in Nature Reviews Chemistry. Anna is now a graduate student pursuing her PhD at the University of Pennsylvania Perelman School of Medicine's Neuroscience program.

Catching up with RIT Alumni

Goudreau finding alumni all over! From left with Anna Krauss ‘17, Asma Sheikh ‘19, Morgan Bauer 20 ‘ and Kara Farquharson ‘18

PRE-HEALTH PROFESSIONALS AWARDS

On April 15, a reception was held to recognize and celebrate the 2024 Pre-Health Professionals Awards at the Lobozzo Alumni House. These awards recognized the achievements of pre-health students and showed appreciation to the donors who have provided scholarships and financial support for these students.

The reception included networking time for students to chat with Dr. Douglas Merrill, RIT's past pre-health advisor and our most recent Donor.

Dr. Amber Charlebois, the new Director of Pre-Health Professions, was the emcee for the event which featured comments over Zoom by long-time donor, Jon E. Freckleton. Mr. Freckleton

> *Words do not describe how much this award means, and how much it helps with the application costs to medical school. The sense of relief I felt when I received this was tremendous.*
>
> *- Andrew Seyler*

The 2024 Pre-Health Award Reception underscored the impact of philanthropy in providing for the future of healthcare. Through the generosity of donors students at RIT are empowered to pursue these careers in medicine.

Aidan Lynch, Andrew Seyler, Navraj Singh, and Martina Videva

Dr. Douglas Merrill's Endowed Health Professions Student Fund

Dr. Douglas Merrill's Endowed Health Professions Student Fund was founded by Doug Merrill in 2020 (this year with contributions from COS, CHST and USD Deans) provides support to RIT students pursuing careers in health professions.

Aidan Lynch: Graduate Student in BS/MS in Chemistry
Andrew Seylar: 4th- year Biochemistry
Martina Videva: 4th-year Biochemistry

Doolittle Merrill Endowed Scholarship

Doolittle Merrill Endowed Scholarship in honor of Kathryne A. Freckleton & Karl Staud was founded in 1999. It provides annual awards to one or more students who are in the process of completing their application to medical school.

Navraj Singh: 4th- year Biochemistry
Martina Videva: 4th-year Biochemistry

BRANDY PAPPAS FREITAS '08

Dr. Freitas was a biochemistry and Physics double major while an undergrad at RIT. After earning her PhD from Harvard in 2014, Dr. Freitas has been very busy. Now she is the Director of Data Science and Analytics at syGlass, an innovative company that creates scientific image visualization, annotation, and communication software for virtual reality. Freitas was back on campus in November presenting and demoing the technology at the Frameless XR Showcase. Many COS faculty stopped in to check it out and catch up!