# College Chemistry Achievement Awards

March 14, 2024

The College Chemistry Achievement Awards are presented annually by the Chemical Society of Washington to outstanding seniors majoring in chemistry and biochemistry from each of the area colleges and universities.

## Anna Hasker

The Catholic University of America

Greg Miller

Anna Hasker is a member of the Catholic University's Honors Program and a senior in our chemistry program. Anna is also a member of the Phi Eta Sigma National Honor Society and on the Dean's list throughout her undergraduate career. This spring, she will be inducted into the Phi Beta Kappa Honors Society. Anna has participated in two research projects during her undergraduate program. Anna has investigated the structural basis for protein kinase inactivation using an all-atoms approach to characterize known structural switches and to identify conformational changes that may be targeted to therapeutically control kinase activity. This research was performed with Dr. G. Miller. More recently, Anna has been working with Dr. K. Havanki to investigate the use of polylactic acid, a biodegradable polymer, as a potential alternative to non-biodegradable polymers currently in use. Anna has been investigating the chemical synthesis of this polymer, the chemistry of its degradation, and its co-polymerization with other materials to create novel materials with improved properties. Anna is an avid hiker and active with our CUAdventures club. From simple hikes to challenging rock scrambling, Anna has participated with this club since her 3rd year.

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## Noah Hornstein

University of Maryland College Park

Lyle Isaacs

Noah Hornstein has been working with Prof. Lyle Isaacs for the past two years on the synthesis and molecular recognition properties of “molecular clips” that bind guest molecules. After starring in Dr. Isaacs Chem 247 majors organic class, Noah joined the Isaacs lab. He mastered the basic tools of organic chemistry rapidly. He is now engaged in qualitative monitoring of host•guest recognition processes by 1H NMR, and he is beginning quantitative measurements of Ka values using UV/Vis, fluorescence, and calorimetry techniques. Dr. Isaacs states that Noah is the top undergraduate he has worked with in 25 years at Maryland. Last year, Noah was invited to present his work to a visiting Nobelist, David MacMillan of Princeton, who remarked that he was similarly impressed. Noah and Dr. Isaacs intend to publish Noah's work with him as first author later this year.

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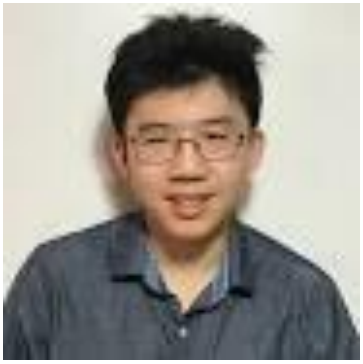
## Erin E. Hurley

St. Mary's College of Maryland

Troy Townsend

It is our great pleasure to nominate Erin Hurley for recognition by the Chemical Society of Washington. Our department's emphasis on novel research in the academic laboratory is challenging for many students, but not for Erin. Armed with her inherent knack for experimental design and her endless curiosity about chemistry, biology, physics, art, or really anything, Erin excels in the classroom, in the lab and also in her independent research. Erin has the ability to pull upon her interests in other fields to tackle scientific problems, which will serve her well on her next professional adventure. Erin enrolled in directed research at SMCM in three labs (one in biology, one in chemistry and one in materials science) where she learned about topics ranging from ozone nanobubbling to small molecule synthesis. She began summer research as a 2nd year undergraduate in our lab funded through the a campus fellowship where she constructed and tested printed photovoltaic devices. The following summer she landed a REU at Johns Hopkins identifying protein interactions with a novel labeling method. Erin will be presenting her senior thesis research engineering the work function of thin film electronic materials at the National American Chemical Society Conference in New Orleans this Spring. I think it is safe to say that Erin exemplifies the liberal arts approach to science that we hope all of our graduates might achieve. Erin is also very active in our student chemistry and biochemistry clubs as a volunteer for events, as a chemistry tutor, and as a science fair judge. She is the president of the college's βββ Biological Honors Society. Erin sets the standard for our graduates as someone who is down to earth, kind and respectful to all people and always super curious, and we are pleased to nominate for this award.



## YuJai Lin

Georgetown University

Jennifer Swift

YuJai Lin is a Biochemistry major at Georgetown University. He has distinguished himself both in the classroom and in the research laboratory. A member of the Swift lab since January 2022, YuJai has been investigating structure-property relationships in synthetic and biogenic crystal forms of uric acid, a natural product of purine catabolism. His studies directly contributed to the development of an improved structural model for ammonium urate uroliths (see DOI: 10.1021/acs.cgd.3c00789). This work, and additional studies still in progress focused on the mechanical properties of a variety uric acid hydrate and anhydrate forms, will serve as the basis for an impressive Honors thesis to be completed this spring. After graduation, YuJai plans to work for a year and then apply to medical school.

## Annie Liu

University of Maryland College Park

Peter Nemes

Annie Liu is a Biology and Chemistry double major working with Prof. Peter Nemes, who states that she is a rising star: inquisitive, confident, and proactive, with exceptional organizational skills. Annie has worked with graduate student Leena Pande on a remarkable range of experiments, from embryological manipulation on frogs to fluorescence microscopy to sample preparation for advanced mass spectrometry analyses. Ms. Pande states that, "It has been a pleasure witnessing her professional growth and development throughout her time in the lab." Annie plans to do mass spectrometry in graduate school at the University of Wisconsin, Madison.

## Alexa Mehlman

The George Washington University

Ashley Stallworth

Alexa Mehlman is a current senior at the George Washington University participating in a combined degree program where she will graduate with a Bachelor of Science in Chemistry in May 2024, followed by a Master of Forensic Science in Forensic Chemistry in May 2025. Alexa initiated her undergraduate research project at the DC Department of Forensic Science under the mentorship of the Forensic Chemistry Unit. There, she developed a gas chromatography-mass spectrometry-selected ion monitoring method for analyzing adulterated nitazene samples. For her exceptional work, Alexa was awarded the Madeleine Reines Jacobs Fellowship by the GW Department of Chemistry.

This semester, she commenced her Master's thesis research in instrumental seized drug analysis techniques under the guidance of Dr. Ira S. Lurie of the GW Department of Forensic Sciences. Outside of her academic pursuits, Alexa serves as the Philanthropy Chair of the George Washington University chapter of Alpha Chi Sigma, the professional chemistry fraternity. Within this role, she facilitates free chemistry tutoring sessions for the GW community, covering general chemistry, organic chemistry, and biochemistry. Additionally, Alexa spearheads community service initiatives for her organization, contributing to the welfare of the greater DC community. Post-graduation, Alexa aims to pursue a career in a federal crime laboratory, leveraging her expertise as a forensic chemist.

## James Serventi

American University

Dr. Matthew Hartings

Mr. Serventi will graduate with a BS degree in chemistry from American University in May 2024 with Honors in the Department, and a minor in Musical Performance. He has been a tremendous student and active researcher at American University. James has been an ambitious and engaged student who seeks opportunities outside of the classroom. He has worked with Professor Matthew Hartings developing new methods for the preparation of composite materials made from polymers and metal organic frameworks (MOFs). Dr. Hartings expects to have a publication of this work prepared by the end of the semester, due entirely to James' dedication and intellectual contributions. Mr. Serventi has also completed an internship with a laboratory in New Jersey assessing water quality, which is expected to yield an offer of full-time employment post-graduation. After his internship, he spent time in the laboratory learning how to operate the analytical instruments that could benefit his return. And, he has been working with another student on a carbon-dot experiment, generating research ideas and exploring applications on their own. We expect his desire to apply chemistry concepts in the laboratory and expand his expertise will continue as he progresses in his career.

## Bianca Woodward

American University

Dr. Monika I. Konaklieva

Ms. Woodward will graduate with a BS degree in chemistry from American University in May 2024. Ms. Woodward is obviously excited about the field of biochemistry as demonstrated by her choice of a major during her undergraduate studies, as well as her involvement in synthetic projects in my laboratory on the synthesis of fragment-based modulators of lipid enzymes. Ms. Woodward demonstrates the capacity and innate skills necessary for excelling in a graduate research program. She is an independent research student who shows a strong ability to master new material by working well with others and is well accepted and respected by her peers. I expect Ms. Woodward to be an outstanding chemistry graduate student. She will be pursuing a Ph.D. degree in the field in a program of her choice. Some of her other achievements include National Dean's List, Linkis Scholarships award (University-wide), 2023-2024, NIH Summer Research Award, 2023 and the ACS Division of Organic Chemistry Undergraduate Award, 2024 recipient.

## Baiyue Zhao

Georgetown University

Professor Travis Holman

According to his research advisor, Professor Travis Holman: "In my 20+ years at Georgetown, Mr. Baiyue Zhao is the strongest undergraduate student I have ever had the pleasure to know and work with." Beyond having an unblemished academic record, Baiyue's accomplishments in the research laboratory have been exceptional. He began participating in research during his first semester at Georgetown University, among pandemic lockdowns and the days of virtual learning. Baiyue's database-searching work during that time sparked an eventual experimental project on the novel concept of reversibly activating/deactivating heterocyclic aryl halides as halogen bond donors. He established that quantitative N-alkylation of halo-pyridines serves to charge-activate these compounds as strong halogen bond donors and demonstrated their complexation of organic tertiary amines via 1H NMR spectroscopy and single crystal X-ray diffraction. He also discovered that the activated 2-iodo and 4-iodo isomers of these strong halogen bond donors are susceptible to nucleophilic aromatic substitution by tertiary amines, yielding novel chemical compounds. Switching gears entirely, Baiyue's senior thesis research has focused on the use of so-called pillar[5]arene as a highly selective sorbent of linear vs. branched hydrocarbon vapors, applying this property to the direct upgrading of commercial gasoline via removal of low-octane-rating components from its vapor. Ultimately, as an undergraduate student, Baiyue will be first-author on two full-paper articles for publication. Congratulations, Baiyue, and thank you!