

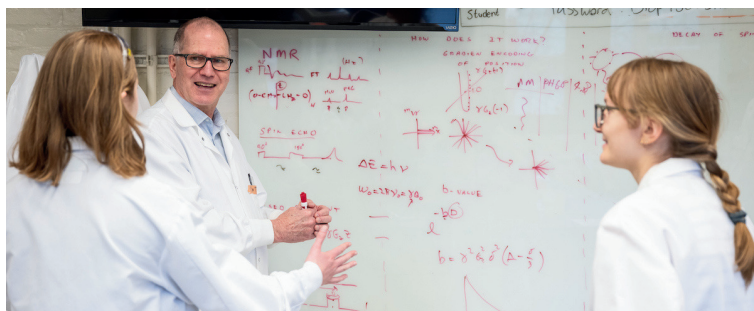
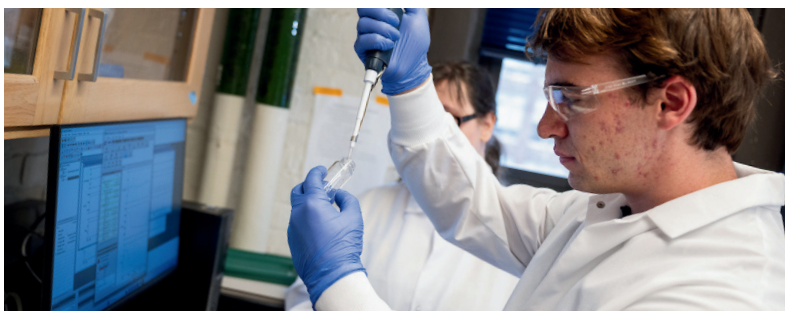
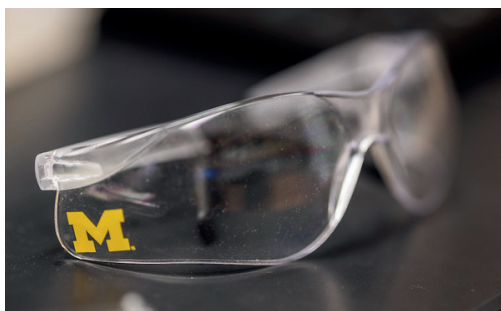
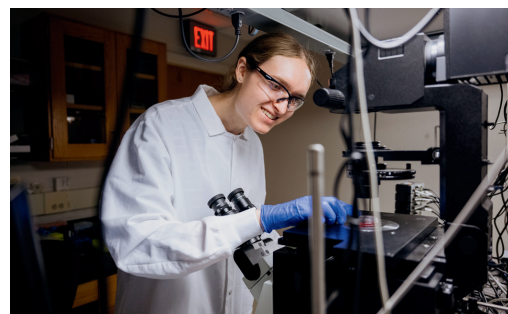
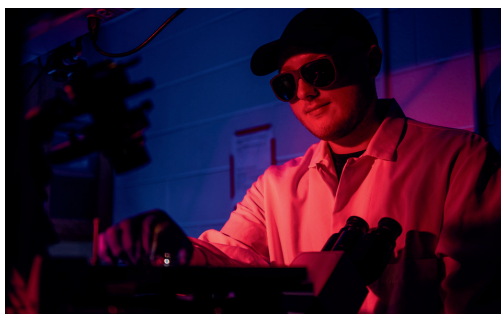


LSA BIOPHYSICS

UNIVERSITY OF MICHIGAN

BIOPHYSICS NEWS

FALL/WINTER '24-25



Welcome From The Director

Greetings Alumni, Friends, and Prospective Students:

I hope this message finds you well. Once again, I am delighted to speak to you in the latest edition of the Biophysics Newsletter. We are very grateful for your continued support of the Program in Biophysics. I am excited to share the recent news and events from Biophysics.



I am enthusiastic about sharing some significant news regarding the transition in leadership within our Biophysics program. After serving as Director since 2015, my term is coming to an end, and I am thrilled to announce the appointment of our new Director, Professor Sarah Veatch. Professor Veatch, an outstanding scholar with exceptional leadership and service to the unit, has been a key contributor to Biophysics. She has been the Associate Director and Director of Graduate Studies for the past 7 years. She has transformed our graduate program and worked to expand the role of Biophysics within the undergraduate curriculum in LSA. While Professor Veatch will formally introduce herself to you in this newsletter, let me note that I am looking forward to the evolution of Biophysics under her leadership.

Near the beginning of the last Fall semester, our Biophysics community faced a profound loss with the unexpected passing of Professor Kevin Wood—our dear friend, colleague, scholar, mentor, and educator. Kevin made a profound impact on our program, serving as the Associate Director of Undergraduate Studies and playing a pivotal role in our collaborative curriculum with Physics. He was instrumental in spearheading efforts to establish a new Quantitative Biology major in partnership with the Program in Biology. In tribute to Kevin, we came together to honor his legacy through the establishment of the Kevin Wood Memorial Graduate Student Fund, honoring his vision by offering critical support to graduate students in biophysics. We received a record number of gifts for his fund during Giving Blueday this past March, and I extend my heartfelt thanks to all who contributed. Despite our loss, Biophysics remains committed to engaging our community, including undergraduate and graduate students, postdoctoral fellows, faculty, and staff, in ongoing activities and endeavors.

The undergraduate program in Biophysics remains robust, with a steady number of students declaring it as their major. This May, we graduated the second-largest class of undergraduates in the program's history with 13. We congratulate our undergraduate students and wish them the best in their future pursuits. I'm excited to share that the collaboration with our Physics partners on the Physics for the Life Sciences curriculum continues to yield innovative approaches. We also maintain our longstanding partnership with the Program in Computing in the Arts and Sciences (PCAS), which enriches students' learning experiences in computer skills across the Arts, Social Sciences, and Natural Sciences. Professor Sarah Veatch continues to play a pivotal role in the development and instruction of this curriculum. Equally noteworthy is the launch of our new entry-level course for the emerging Quantitative Biology major, Introduction to Quantitative and Computational Biology. This course, shaped by Professor Kevin Wood, serves as an introduction to advanced coursework focused on quantitative approaches in biology and stands as a testament to his impactful contributions.

We strive to provide undergraduate students with experiential learning through research and internships beyond the research opportunities in our laboratories. This summer, we hosted seven undergraduate students for 10 weeks of research experience at Michigan through the NSF-sponsored summer REU program, directed by Professor Zochowski. The graduate students in Biophysics are at the core of the outstanding research conducted in our laboratories. We commend their contributions and celebrate the recognition they continue to receive for their achievements, which are highlighted later in this newsletter. Last fall, we hosted our "Preview Program" for prospective graduate students with diverse backgrounds, offering them the opportunity to explore Michigan Biophysics as they consider applying for graduate school. During our annual retreat at the Matthaei Botanical Gardens, we welcomed this outstanding group of students who learned about our program, the graduate application process, and connected with our current students, faculty, postdocs, and staff. The event was a great success. We are eagerly anticipating the arrival of our incoming class of four new graduate students and look forward to sharing their accomplishments in a future newsletter.

The research efforts of the Biophysics faculty continue to define the forefront of research at the interfaces of biology, medicine, physics, and chemistry. We are delighted to welcome our newest faculty member, Professor Anna Maurer, who joined us in January. Professor Maurer's work in Adeno-Associated Virus (AAV) gene technology focuses on improving the safety and efficacy of gene delivery. Her research has already generated significant interest among undergraduate and graduate students since her lab opened. Additionally, we are pleased to announce that two of our assistant professors, Sarah Keane and Markos Koutmos, have been promoted to Associate Professor with tenure. Both are outstanding experimentalists dedicated to advancing our understanding of RNA and protein structure and dynamics. I applaud all our faculty for their accomplishments and am privileged to call them colleagues. More achievements by our faculty are highlighted throughout this newsletter. I encourage you to read about their incredible work.

In closing, I want to express my deep gratitude for the opportunity to serve as the Director of our Biophysics Program over the past 10 years. I am constantly amazed by the developments made by my faculty colleagues and their coworkers, as well as the achievements of our students. It has been an honor to witness many of my younger colleagues develop the scientific prowess we recognized when recruiting them to Michigan Biophysics, and to observe the genuine scholarship that permeates our program. And to our alumni, your support and engagement have been invaluable to our success, and I encourage you to continue sharing your work with us. As we look forward to a new year, I am confident that we will exceed our expectations from the last. If you find yourself in Ann Arbor, please take a few minutes to visit us.

Charles L. Brooks III

Director and Professor of Biophysics
Cyrus Levinthal Distinguished University Professor of Chemistry and Biophysics
Warner-Lambert/Parke-Davis Professor of Chemistry

Letter written on May 7, 2025



@UMBiophys



@umbiophys

Meet Our Next Director



We are thrilled to announce that **Professor Sarah Veatch** will assume the role of Director of Biophysics for a five-year term beginning July 1, 2025!

Professor Veatch joined the University of Michigan in 2010 as the first tenure-track assistant professor in LSA Biophysics. Her research program applies the statistical physics of phase separation to understand how the collective behaviors of lipids and proteins help cells sense and respond to their local environments. Her lab develops and applies a variety of experimental techniques to further these research goals, including single-molecule and super-resolution fluorescence imaging. Since joining Michigan, Professor Veatch has been recognized with numerous awards, including an

Alfred P. Sloan Fellowship in 2010, the Margaret Oakley Dayhoff Award from the Biophysical Society in 2014, and the Henry Russel Award from the U-M Rackham Graduate School in 2017. In 2024, she was elected as a Fellow of the American Physical Society, and beginning this fall, she will become the Daniel Axelrod Collegiate Professor of Biophysics.

Since 2018, Professor Veatch has served as Biophysics' Associate Director of Graduate Studies. In this role, she restructured many aspects of the graduate student experience and played a significant part in guiding the program's overall leadership. Now, she is eager to build on this foundation as she steps into the role of director. "Michigan Biophysics is a truly unique place that has given me the freedom to focus on my science without needing to appease either the physics or biological communities," she says. "My main goal as director is to preserve and enhance this environment so it can be shared with the next generation of students and researchers."

It is an exciting time for Michigan Biophysics. Thanks to the hard work of outgoing director Charles Brooks and other faculty members, the program has begun to build bridges to other departments and programs across campus. Professor Veatch looks forward to strengthening these connections—leveraging the program's expertise in communicating across traditional disciplines to enrich LSA's educational mission. As director, she is committed to supporting the program as it continues to evolve and explore new directions within the ever-changing scientific landscape. We look forward to a new chapter of growth and excellence under Sarah's leadership, dedicated to fostering an environment where both students and faculty can thrive.

Please join us in welcoming Sarah Veatch as our new Director!

New Associate Director of Graduate Studies



Sarah Keane has been named the Biophysics Associate Director for Graduate Studies!

In this role, she will oversee the Biophysics PhD Program to develop and implement unit policies and best practices to help graduate students

stay on track and make progress towards their degrees. Additionally, the Associate Director for Graduate Studies acts as a liaison with the Rackham Graduate School and coordinates both admissions goals and graduate student advising.

Professor Keane says she is excited to work closely with the Biophysics graduate students to ensure that they are well-supported and able to thrive during their PhD studies.

New Associate Director of Undergraduate Studies



James Penner-Hahn has been named the Biophysics Associate Director for Undergraduate Studies!

In this role, he will manage the scheduling of courses and teaching assignments, coordinate curricular changes

with academic committees, and oversee the undergraduate advising function of the Biophysics Program. Additionally, the Associate Director for Undergraduate Studies collaborates with other departments in the continued development of the new major in Quantitative Biology, liaises with other units on course offerings, and mentors lecturers.

Professor Penner-Hahn says he is excited to play a role in helping to continue the dramatic growth that the Biophysics major has seen over the last decade.

Program News



Last year's **Annual Biophysics Retreat** was held at the Matthaei Botanical Gardens on November 8, 2024. The day's programming consisted of six presentations from the Yang, Penner-Hahn / Sension, Verhey, Mosalaganti, and Keane labs, followed by an engaging poster session and group trivia game conducted by the Graduate Student Council. The day concluded with interactive activities at the gardens, such as guided nature walks and activity sheets. It was a great opportunity to gather as a program off-campus!

Save the Date!

The Krimm Lecture is a distinguished event established to honor the legacy of Professor Samuel Krimm. It is an opportunity to bring together the biophysics community to celebrate innovation, collaboration, and excellence in the field. This year's lecture will be given by Dr. Sujit Datta from Caltech. We invite you to join us for this special occasion as we continue the tradition of recognizing outstanding contributions to biophysics and fostering connections across our scientific community. The details for this year's lecture are below!

2025 Krimm Lecture with Sujit Datta

Friday, November 7, 2025

3 PM Reception in CHEM 1706 | 4 PM Lecture in CHEM 1210

2024 / 25 Biophysics Seminar Series



Zhiyue Lu
UNC-Chapel Hill



Michael Feig
Michigan State
University



Alaji Bah
SUNY Upstate
Medical University



Shalini Lo-Nam
Purdue University



Catherine Eichhorn
University of
Nebraska-Lincoln



Raquel Lieberman
Georgia Institute of
Technology



Andrew Mugler
University of Pittsburgh



Bo Huang
University of California,
San Francisco



Shenghong Chen
Academia Sinica



In Memoriam: Kevin Wood

Kevin B. Wood, Associate Professor of Biophysics and Physics and Biophysics' Associate Director for Undergraduate Studies at the University of Michigan, sadly passed away on September 28, 2024. Known for his profound contributions to science and his deep commitment to his students, Kevin leaves behind a legacy that will continue to inspire future generations.

Born on January 11, 1979, in Lexington, Kentucky, Kevin was a lifelong learner with a love for math, science, sports, and family. He earned his bachelor's degree in Chemical Physics from Centre College in Danville, Kentucky, before going on to complete two simultaneous Ph.D.s—one in Theoretical Physics and the other in

Physical Chemistry—at the University of California, San Diego. His postdoctoral research at Harvard University solidified his reputation as a brilliant physicist and educator. He joined the University of Michigan faculty in 2013.

Kevin's research at the University of Michigan combined his expertise and love of theory with novel experiments to explore how multidrug resistance manifested in bacterial communities. In his lab at the University of Michigan, Kevin combined theoretical and experimental tools to investigate spatiotemporal dynamics of multi-cellular communities, where collective population dynamics emerge from local interactions between cells. He and his trainees applied his unique perspective to the pressing practical application of antibiotic resistance, exploring how spatial organization and cooperativity in bacterial communities impact growth in stressful environments, and by developing proof-of-principle strategies for steering evolution using currently available drugs to slow the emergence of resistance. His multi-pronged approach to studying this phenomenon led to new discoveries regarding the spatial pattern development within bacterial colonies that informed potential therapeutic treatment strategies in cancer.

Kevin was not only a visionary scientist but also a deeply respected mentor, creating a supportive environment for his students to develop into independent researchers. He went out of his way to support graduate students, including those outside of his laboratory, as they navigated difficult transitions in their scientific and personal lives. As Associate Director for Undergraduate Studies, he was a trusted guide to countless biophysics majors, significantly shaping their academic journeys. In efforts to build a new interfacial major in Quantitative Biology, Kevin worked with colleagues in UM Biophysics and the Program in Biology to design new courses and curricula moving toward this goal.

Kevin Wood was a cornerstone of the Biophysics community at Michigan, and he is deeply missed by colleagues, students, and friends. His dedication to both science and his students' well-being leaves an enduring legacy that will continue to shape and inspire the field of biophysics for years to come.

Kevin Wood Memorial Graduate Student Fund & Giving Bluesday 2025

In honor of Professor Kevin Wood's commitment to supporting students as they pursue their academic and life goals, we have established the **Kevin Wood Memorial Graduate Student Fund**. Created in recognition of Professor Wood's collegial spirit, scholarly achievements, and dedicated mentorship of both graduate and undergraduate students, this memorial fund will provide financial support to expand educational opportunities for biophysics graduate students.

During Giving Bluesday in March 2025, the university-wide annual day of giving, we raised a biophysics record \$4,490 for the Kevin Wood Memorial Graduate Student Fund from more than 40 unique donors. Additionally, we were awarded over \$3,000 in matching funds from LSA for winning an LSA "Power Hour" (most unique donors on the hour), placing 13th across LSA for most unique donors on Giving Bluesday, and achieving the highest year-over-year percentage increase in gifts across all of LSA. These results are a testament to the profound impact Kevin had on our community.

We extend a heartfelt thank you to all our generous donors for honoring Professor Wood's legacy by investing in the bright minds that will drive scientific discovery forward. If you missed Giving Bluesday, it's not too late to support Kevin's fund. You can visit <https://myumi.ch/P3pP7> or scan the QR code to the right.

GIVING BLUEDAY



Core Faculty News

Core Faculty Highlights



Charles L. Brooks III has been honored by the Journal of Physical Chemistry B with a special Festschrift issue, "Charles L. Brooks III Festschrift: Biomolecular Dynamics and Interactions," recognizing his contributions to the field of biomolecular dynamics and interactions. The papers by his colleagues presented in this Festschrift issue span a wide range of topics, including biomolecular dynamics, protein interactions, ligand studies, lipid membranes, and developments in force fields. This breadth illustrates his role in providing foundations for research that has branched off in many different directions. His close collaboration with experimentalists to ensure that computational efforts remain directly relevant to laboratory findings has had a far-reaching influence in the community.



Congratulations to Sarah Veatch on her selection for a Collegiate Professorship, an honor that not only recognizes her contributions to biophysics but also connects her legacy to that of Daniel Axelrod, the distinguished emeritus faculty member whose name her professorship now bears. Professor Axelrod was one of the founders of our biophysics program and is renowned for his pioneering work in developing novel microscopy techniques, especially total internal reflection fluorescence (TIRF) microscopy, a method that Professor Veatch's lab, and many others across the world, rely on daily to push the boundaries of cell and molecular imaging. Separately, Sarah Veatch won the 2025 Thomas E. Thompson Award from the Biophysical Society's Membrane Structure & Function Subgroup this year!

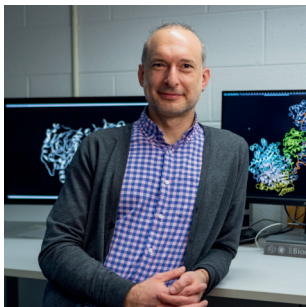


Congratulations to Jordan Horowitz for being awarded a Visiting Miller Professorship at the Miller Institute for Basic Research in Science at UC Berkeley! The competitive fellowship aims to bring promising and eminent scientists to the Berkeley campus for short-term stays. During his time at Berkeley, Jordan will be developing new biophysical theories underlying the mechanisms of gene regulations in living cells with his host Hernan Garcia in the Molecular & Cellular Biology Department and Physics Department. Together, they aim to test those theories in Hernan's lab using the early fruit fly embryo.

Promotions



Sarah Keane has been promoted to the Associate Professor with tenure ranking, effective September 1, 2025. Professor Keane joined our faculty in Biophysics and Chemistry at the University of Michigan in 2017. She works in an interdisciplinary area that combines structural biology, chemical biology, and biophysics to study the structures, dynamics, and functions of RNA molecules. The Keane Lab is particularly interested gaining molecular level insights into the biogenesis of microRNAs (miRNAs), which are important in the control of gene expression in humans, and in the structures and mechanisms of temperature- and metabolite-sensing RNAs in bacteria. Her promotion seminar was titled "Structural and molecular investigation of regulatory non-coding RNA molecules."



Markos Koutmos has been promoted to the Associate Professor with tenure ranking, effective September 1, 2025. Professor Koutmos joined our faculty in Chemistry and Biophysics at the University of Michigan in 2018. He is a chemical biologist who studies structure using X-ray crystallography to observe how biomolecules are arranged and organized in three-dimensional space, providing insight into how enzyme reactions occur. He also integrates biophysics, biochemical, chemical biology, and cell biology approaches to investigate structural dynamics of complicated biomolecules. His promotion seminar was titled "Unraveling the Dynamics of Enzymes and RNAs: A Structural and Chemical Biology Approach."

New Core Faculty Members

Welcome Anna Maurer!



In January 2025, we welcomed Anna Maurer to the Core Biophysics faculty as part of the Michigan Program for Advancing Cultural Transformation (M-PACT) Faculty Initiative!

Professor Maurer is a Michigan native, first-generation college student who transferred from Macomb Community College to the University of Michigan and completed her Bachelor of Science in Cellular and Molecular Biology in 2012. She completed her doctoral studies under Luk Vandenbergh on host and viral factors of adeno-associated viral (AAV) capsid assembly at Harvard Medical School in 2019. For her postdoctoral work, she studied cellular regulation of AAV-delivered DNA under Robert Tjian at UC Berkeley. Her passion for science is matched by her passion for raising awareness about research careers among community college students and mentoring them through transfer to a four-year institution to pursue STEM degrees. Outside the lab, Anna enjoys music, dancing, flow arts, hiking, running, shooting pool, yard games, eating all kinds of cuisine, and college football.

The Maurer lab continues to study recombinant AAV vectors through the lens of their host cells to identify targets for improving the safety and efficacy of gene delivery. We are excited to have Anna as part of our faculty!

Welcome Lauren McCormick!



We are excited to announce the hiring of Lauren McCormick, who will start as a professor in the Core Biophysics faculty in January 2026 as part of the Michigan Program for Advancing Cultural Transformation (M-PACT) Faculty Initiative!

Professor McCormick completed her undergraduate work in the prestigious University Scholars program at Baylor in 2016, with her senior thesis on the ecological ramifications of resurrecting extinct organisms (e.g. woolly mammoths or *Tyrannosaurus rex*). As a PhD student, she studied clinically-relevant membrane proteins in the labs of Pia Vogel and John Wise at SMU, where she was the second-heaviest user of the Maneframe II supercomputer until she graduated in 2021. Her secondary projects, focused on drug discovery, piqued her interest in the cytoskeleton and motivated her to do her postdoc work in Luke Rice's lab at the

University of Texas Southwestern Medical Center (UTSW), where she was the first postdoc at UTSW to win the Postdoctoral Research Fellowship in Biology from the National Science Foundation (NSF PRFB). At UTSW, Lauren elucidated fundamental mechanisms of microtubule dynamics using simulations and biophysical experiments.

At the University of Michigan, Professor McCormick's lab will study how cytoskeletal mechanisms are tuned by protein isoforms and modifications (the "tubulin code"), altered by evolution, or perturbed by mutations that give rise to human disease. Lauren is also passionate about science outreach, particularly about teaching young students to explore the world with a microscope or to empower themselves by learning to code. She greatly enjoys mentoring young scientists as they navigate their careers. In her free time, Lauren enjoys playing video games, causing chaos in *Dungeons & Dragons*, bird-watching with her family, gardening with low-maintenance plants, k-pop, and knitting her own sweaters (which she is excited to get more use out of in Michigan).

Biophysics is additionally conducting a faculty search in Fall 2025 for a tenure-track faculty position. We are excited about the expansion of our Core Faculty!

Affiliated Faculty News

Affiliated Faculty Highlights & Awards



Zhan Chen, the Michael D. Morris Collegiate Professor of Chemistry, Macromolecular Science and Engineering, Biophysics, and Applied Physics, gave his Collegiate Professorship Inaugural Lecture on May 8, 2025. The LSA Collegiate Professorship is the college's highest faculty honor. It is awarded to those who demonstrate a sustained record of excellence in research and scholarship, in teaching, in service, and in other contributions to the university. Collegiate Lectures commemorate this significant milestone in a professor's career. His lecture, open to the public, was titled "Probing Polymer and Biological Molecules at Buried Interfaces in Situ in Real Time."



Nicolai Lehnert is a recipient of the American Chemical Society's 2024 Stanley C. Israel Award for the Central Region. This award recognizes individuals and/or institutions who have advanced diversity in the chemical sciences and significantly stimulated or fostered activities that promote inclusiveness within the region.



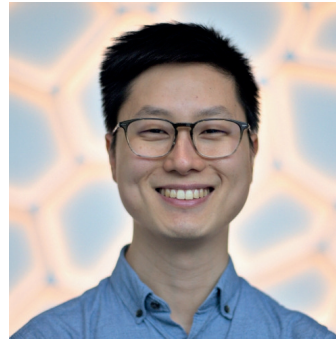
Idse Heemskerk has been promoted to Associate Professor of Cell and Developmental Biology, with tenure, and Associate Professor of Biophysics, without tenure. His research focuses on how human pluripotent stem cells interpret chemical and physical signals to self-organize into multicellular structures in vitro, and how these processes relate to embryonic development in vivo.

New Biophysics Affiliated Faculty



Suraj Shankar has joined our ranks as a Biophysics Affiliated Faculty member, with a joint appointment in Physics. His research focuses on understanding and controlling emergent collective phenomena in soft materials and living systems by

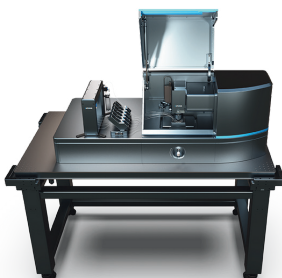
integrating theoretical modeling, computational analysis, and experiments to uncover general principles in both biological and engineered contexts. Through interdisciplinary collaboration, his work spans molecular to organismal scales, aiming to unravel how complex patterns form and function across various systems. He presented his research to Biophysics faculty, students, and postdocs in a seminar titled "Active and living solids - Physics, Physiology and beyond."



Herman Fung has joined our ranks as a Biophysics Affiliated Faculty member, with joint appointments in LSI, CDB, and Biological Chemistry. His research leverages structural and cell biology techniques, including cryo-electron tomography (cryo-ET) and cryo-

electron microscopy (cryo-EM), to study chromatin's 3D organization and its role in gene activation, cellular differentiation, and development. By combining imaging, labeling, and biophysical analyses, his research aims to uncover the molecular mechanisms underlying chromatin dynamics and gene regulation. He presented his research to Biophysics faculty, students, and postdocs in a seminar titled "Looking inside the cell: technological advances in cryo-electron tomography."

SMART Center Update



Installation of the LUMICKS C-Trap optical tweezers and fluorescence microscope is now complete at the SMART Center, a CRB core facility run by affiliated faculty member Nils Walter. Funded by a \$1.6 million NIH grant, this state-of-the-art instrument—the only one of its kind in Michigan—enables researchers to observe and measure single molecules with extraordinary precision using both optical trapping and super-resolution fluorescence imaging. The C-Trap offers user-friendly controls, real-time experimental flexibility, and is available to investigators campus-wide. This major technology upgrade promises to accelerate discoveries in RNA biomedicine and beyond.

Graduate Program News

The Biophysics Graduate program currently has 33 students who are doing research in 17 different labs within the departments of Chemistry, Physics, MCDB, CDB, Mechanical Engineering, Life Science Institute (LSI), and Medicinal Chemistry. This year, we are welcoming a first-year graduate student cohort of **four new students**. These students join us with a variety of scientific backgrounds, including Physics and Engineering. **We also congratulate our Fall '24 and Winter '25 graduates:** Keanu Alexander, Roman Alvarado, Guoming Gao, Minjun Jin, Franco Tavella, and Zhijian Hu!



Our Graduates!



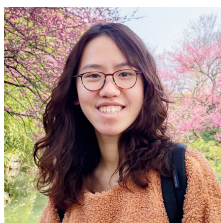
Our New Students!

Rackham Predoctoral Awardees

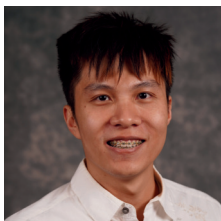


Congratulations to Biophysics Graduate Student **Thanh Lai** for being awarded a **Rackham Predoctoral Fellowship** in this year's competition! This fellowship supports outstanding doctoral students who have achieved candidacy and are actively working on unusually creative, ambitious, impactful dissertation research and writing. It is one of the most prestigious awards granted by Rackham Graduate School.

Annual Award Winners



Ruochuan Huang and **Andrew Scheck** were selected to share this year's **Krimm Outstanding 1st Year Student Award** for their outstanding performance in both first-year coursework and the Checkpoint 1 Exam. Both students met the criteria for the award through their hard work during the past year!



The Krimm Dissertation Award recognizes a graduate student who defended their dissertation within the past year. The 2025 Krimm Dissertation Award goes to **Guoming Gao** for his dissertation titled "Probing the Impact of Biomolecular Condensates on RNAs with Single-Molecule Tracking *in vitro* and *in cellulo*." Guoming made many innovative contributions to the Walter group while contributing to the academic community via teaching and mentoring.



The Krimm Outstanding Graduate Student Award recognizes mid-career graduate students who are actively working on dissertation projects. The 2025 Krimm Outstanding Graduate Student Award goes to **Megan Westwood**. Megan's work in the Keane group involves structural and mechanistic studies of precursor microRNAs. She is also preparing a manuscript for publication describing how to incorporate NMR analysis of RNAs into a biophysics/biochemistry course.

Graduate Student Alumni Spotlight - Roman Alvarado

Roman Alvarado, PhD, was inspired to study decompression sickness by his fascination with how rapid pressure changes trigger nitrogen bubble formation in the spinal cord. His ex vivo experiments using bovine spinal tissues revealed that repeated pressure cycles cause irreversible bubble expansion, challenging conventional assumptions about elastic tissue responses. Building on these findings, he developed a tissue-gas mechanics model to explore the interplay between tissue stress and gas diffusion dynamics during decompression. He also engineered an MRI-compatible decompression chamber for live rodent studies, enabling real-time imaging of bubble formation and dynamics within the spinal cord. His work earned the President's Award for Best Poster at the Undersea and Hyperbaric Medical Annual Scientific Meeting. Today, Roman works as a technology development associate at Mayo Clinic's Department of Business Development, where he evaluates emerging technologies and intellectual property in Radiology and Radiation Oncology. He pursued this role to help researchers translate their innovations and apply his scientific background toward advancing global healthcare. Roman's advice to future students: "Sometimes it's best to walk away from a problem. When you come back with a fresh perspective, it might seem almost ridiculous why you couldn't solve it before."



Undergraduate Program News

The Biophysics Undergraduate program continues to experience steady growth, with an increasing number of students choosing it as a major or as part of a double major. This surge reflects a broader interest in the program's cross-disciplinary approach to education at the interface of physics, chemistry, and the life sciences. This past year, the program celebrated its second-largest graduating class to date (13). Many of these graduates are now preparing to begin their next chapter at top-tier medical schools and PhD programs across the country, a testament to the strong academic foundation and research experience they gained during their time in our program.

Graduating Seniors



2025 Graduation

Congratulations to our Class of 2025 graduating seniors! This year, we are proud to recognize the accomplishments of Madeline Bell, Qiyin (Holly) Fan, Jacob Firby, Kyle Garcia-Rogers, Sarah Golts, Jacob Hawley, Srinithi Kanakam, Joy Liao, Bella Obioha, Kush Nautiyal, Elaine Qu, Zeel Shukla, and Medha Tripathi. Additionally, the following graduates completed an honors thesis, titled below:

Kyle Garcia-Rogers, "PIKfyve Inhibition Induces Lysosomal Cholesterol Accumulation in Neuroendocrine Prostate Cancer"; **Srinithi Kanakam**, "Evaluating Concordance of the Heat Shock Response across Imaging and Epigenomics Protocols"; **Joy Liao**, "Optimizing XANESNET: a Deep Neural Network for XANES K-edge Predictions"; and **Elaine Qu**, "Characterizing Gai/o in the context of associated pathologies and interactors."

BIOPHYS 450 Class Spotlight



BIOPHYS 450 - "Laboratory Techniques in Biophysics"

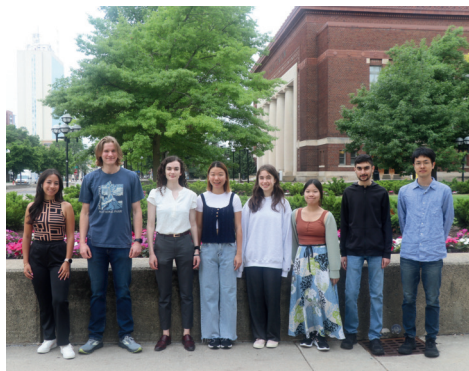
You may have noticed that this newsletter's front cover collage features some new photos! Well, this Winter we did a photo session in BIOPHYS 450, a hands-on laboratory course taught by Dr. Scott Swanson. During our visit, students rotated through different experimental stations, practicing key techniques in biophysics and biochemistry such as sample preparation, microscopy, and calorimetry. Designed for both undergraduates and graduate students, this course bridges the gap between classroom learning and real-world research, giving students practical experience with modern lab methods.

Outstanding Undergraduate Student Award



The Outstanding Undergraduate Student Award recognizes graduating biophysics majors. The 2025 Outstanding Undergraduate Student Award goes to **Joy Liao**. Joy has made significant contributions to research in the Penner-Hahn group while being a mentor to her fellow undergraduate students via the Biophysics Club and other program activities.

2024 REU Program



The Summer REU Program in Biophysics provides selected non-University of Michigan undergraduate students from around the US an opportunity to conduct ten weeks of summer research with some of the country's leading biophysicists in a range of biophysical fields. The program is conducted in concert with the NSF Research Experience for Undergraduates Program and is supported by funds from the National Science Foundation.

During the summer of 2024, we had eight REU students with us in Ann Arbor:

- Molly Abramson: Physics major working in the Zochowski lab.
- Jessica Chung: Physics major working in the Biteen lab.
- Ania Grodsky: Math major working in the Horowitz lab.
- Darianys Hernandez-Rivera: Industrial Biotech major working in the Koutmos lab.
- Sowon Kang: Biomedical Engineering major working in the Liu lab.
- Suhail Patel: Physics & Biological Chemistry major working in the Brooks lab.
- Sam Sooter: Physics & Math major working in the Wood lab.
- Kai Yamagami: Physics & Math major working in the Veatch lab.



Welcome Liz Michalski, Executive Coordinator!



Welcome to Liz Michalski, who joined Biophysics as the new Executive Coordinator in July 2024! Some of you may remember Liz from her time as the Events and Communications Coordinator from 2018 to 2020. She returns to Biophysics after spending the last few years in Michigan Engineering. We're excited to have her back!

Congratulations on Your Retirement, Sara!



After almost 17 years with the Biophysics Program and 24 years of dedicated service to the university, Sara Grosky has announced her retirement. Since joining Biophysics in August 2008, she has served as the Program's Student Services Coordinator, where she became a trusted resource and advocate for many cohorts of students. We thank her for her years of dedication to Biophysics and wish her all the best in her next chapter!

U-M Biophysics Program Newsletter

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Associate Director for Graduate Studies _____	Sarah Veatch
Interim Associate Director for Undergraduate Studies _____	James E. Penner-Hahn
Program Manager _____	Alex Franklin
Executive Coordinator _____	Liz Michalski
Student Services Coordinator _____	Sara Grosky
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