Physics at Wabash

Welcome!

Welcome to a new edition of our annual newsletter! Students are arriving on campus, and we can feel the excitement of the coming academic year building. There is a huge hole next to Goodrich where the Sparks Center once stood. Workers are now busy preparing the foundations for the new Community Center.

As you'll see, this past year was quite eventful as our staff and students were quite productive. We continue to have strong interactions with our alumni that help strengthen the connections across generations. As the new academic year unfolds, be sure to follow us on Facebook and stay in touch.

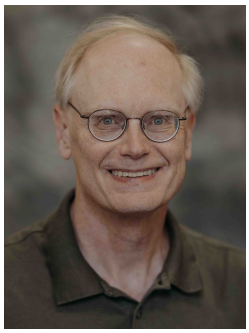
Faculty & Staff Update

Jim Brown was glad to get back to running experiments at the Facility of Rare Isotopes Beams (FRIB) at Michigan State this summer, spending two weeks measuring the structure of several neutron-nuclei and gamma-emitting states in their daughter nuclei. These two experiments were the first two run by the MoNA collaboration since the FRIB upgrade. Jim was impressed with the reliability and stability of the beam from the LINAC, and it is a great step forward for rare isotope science. Kudos to the people at DOE, NSF, and MSU for making this a smooth transition while maintaining a world-class facility.

Jim was fortunate to have Tim Smith ('26) continue his research on the Next Generation Neutron Detector (NGn) project. Tim was able to get single-photon resolution from our prototype detector tiles' silicon photomultiplier (SiPM) based system and examine coincidences between individual SiPM modules as a way to determine hit positions and timing. This work was part of his Advanced Laboratory coursework. The AdLab experience has become a real hallmark of our program, and Jim is sure that recent alumni remember their efforts fondly. James Szalkie ('25) joined the project in the Spring and brought real expertise in simulation and machine learning to the mix. He was able to use simulated data for a full detector tile to optimize SiPM placements and machine learning methods in tandem. He then took those skills to a summer internship with Pacific Fusion, a fusion energy startup company, and this Fall, he will be heading to Florida State University for graduate studies.

Jim is looking forward to teaching the introductory sequence PHY 111/112 this year and trying the low-cost OpenStax University Physics series, which will help to lower the cost of books for our students. With Dennis on sabbatical, Jim is excited to be teaching Quantum Mechanics (PHY 315) for the first time in many years.

Rachel Hassler joins us as the academic administrative coordinator for Physics and also for the Math and Computer Science Departments. She is happy to be returning to campus after serving previously as Program Coordinator for the Lilly Endowment-funded Wabash Pastoral Leadership Program from 2015 until 2022. Rachel and her husband Chad Hassler are the parents of one young adult son and are dedicated to creating a haven for pollinators and wildlife on their eight-acre smallholding in rural Montgomery County. Rachel is a lifelong reader, singer, and gardener.



Dennis Krause completed his term as department chair this year. In the fall, he taught PHY 111 (Physics I-Calculus) and PHY 315 (Quantum Mechanics). For the latter, he added new "4th hour" classes and activities. In the spring, he continued with PHY 112 (Physics II-Calculus) and PHY 314 (Electrodynamics). Normally, he would be done teaching at the end of the spring semester, but this summer, he taught PHY 315 to a single student via Zoom since the student wishes to be a triple major and participate in a 3-2 engineering program. In addition, Dennis wanted the motivation to work on his quantum text, which underwent substantial revisions this summer. It is now up to 426 pages, but there remains a lot more to be done this coming year.

This year, Dennis joined the graduate committee of a Ph.D. student at Purdue whose research topic, constraining models of ultralight axion-like particle (ALP) dark energy using astrophysical and laboratory observations, mirrors Dennis's research program, constraining models of ultralight axion-like particle (ALP) dark matter. The student's dissertation used X-ray spectra from the Type Ia supernova 1991T obtained using the Compton Gamma Ray Observatory to set limits on dark energy model parameters and the time variation of the pion mass. The student received his Ph.D. in May, and he and Dennis are now completing a paper on this work.

Dennis had one publication, co-authored with Nikolai Jones ('24), this past year: "How Can a Quantum Particle be Found in a Classically Forbidden Region?" D. E. Krause and N. Jones, *The Physics Teacher* **63**, 16–19 (2025). It is a contribution to a special collection of papers on Quantum Science and Technology in the Introductory Physics Classroom, celebrating the 100th anniversary of the development of quantum mechanics.

Dennis will be on sabbatical this coming year, working on his quantum textbook, exploring models of dark matter, and trying to figure out how A.I. will affect his teaching.

Jessica McClamroch served as the academic administrative coordinator for Physics, and also the Math and Computer Science Departments this past year. Besides doing an outstanding job keeping our department running smoothly, she left her mark throughout Goodrich using her exceptional creativity. She redesigned the Goodrich bulletin boards, including adding a Sudoku bulletin board near the lower-level classroom and upgrading the display cases with more professional student photos and interesting notes about each student. She also created a new alumni bulletin board in the first-floor hallway with flip cards for several alumni containing photos and answers to survey questions regarding their careers and memories of Wabash.

At the end of the spring semester, Jessica decided to move on to bigger things. In addition to becoming an executive assistant for the Crawfordsville/Montgomery County Chamber of Commerce, she is also serving as co-chair of the Crawfordsville Strawberry Festival. We wish her well with her new positions!

Matt Roark has dedicated a significant amount of time to spending with his family. However, he still found time for some camping and Ultimate Frisbee. He also raced in a 5k fundraiser for the Ladoga library. Matt has also been busy with his 3D printer. He disassembled it for a 5,000-hour overhaul and tune-up. With more expertise in designing multi-part projects, he placed in a Printables competition with one design and cracked the top 30 with another.

Matt also built a selection of catapults for a workshop at the Carnegie Museum. The models were used to teach different ways that catapults can store and release energy. Despite its modest size, the leaf spring-powered catapult is exceptionally powerful and fun. How much fun? It needs a piece of $2'' \times 6''$ lumber to keep it from jumping off the table. It will surely appear at more Physics-sponsored community events—be sure to stop in and visit.

Gaylon Ross is beginning his 8th year at Wabash and his 19th year of college teaching overall, after a 14-year interlude in the manufacturing world.

Last fall, Gaylon taught Classical Mechanics (PHY 310) for the first time, the only course in the standard physics curriculum that he had not previously led. It was also the first course he conducted in which students were entirely responsible for presenting all new material, with Gaylon filling in the gaps and helping them correct misconceptions and work through problems in class. All of these students had been in Astrophysics with Gaylon and had become comfortable speaking in front of their classmates and the instructor.

With these higher expectations, the students rose to the occasion, and the course was very successful. Gaylon will teach the class again in fall 2025 and has high hopes for similar outcomes.

Also in fall 2025, Gaylon will begin teaching the two-semester algebra-based physics course (PHY 109/110) for pre-health and other science majors. This has traditionally been one of his go-to classes over the years, but he expects to integrate some interactive teaching methods used by his colleagues to achieve better overall learning by the students, especially those who tend to struggle in the beginning with their first physics course.

In the area of service to the department and college, Gaylon coordinated and emceed our local Sigma Pi Sigma banquet on April 22, 2025, with the Wabash chapter inducting one new student member into the national honor society. He served as a senior member of the Lilly Scholarship Committee on campus, which selected three incoming freshmen to receive full scholarships to Wabash. Gaylon also joined the Visiting Artists Planning Committee to select talented groups to give performances, present lectures, and/or host workshops on campus during the 2025-26 year. As such, he is part of the Visiting Artists Implementation Team this academic year, serving as the point person for KAIA, an all-female string quartet that will perform at the college on March 5, 2026. Locally, he currently serves as treasurer on the board of the Montgomery County Free Clinic and treasurer at First United Methodist Church in Crawfordsville, where he leads hymns and sings in the choir.

Nate Tompkins finished his eighth year as a member of the Physics Department, enjoyed a sabbatical in the spring, and will be starting as Department Chair in the fall. In the previous fall, he taught Physics I - Algebra and Advanced Laboratory I/II. In the spring and summer, he worked with students in the lab, finished a manufacturing project, and collected data for a research project..

Recently, Nate has worked on a new method for creating microfluidic devices in one day, which was published as "Same Day Microfluidics: From Design to Device in Under Three Hours" in the journal *Nanomanufacturing*. The work includes Raymond Arebalo ('25) and Gus Sanchez ('26) as authors. This paper was presented at the 2025 American Association of Physics Teachers Summer Meeting in Washington, DC. Nate used these devices to study the formation of cobalt hydroxide, nickel hydroxide, and iron hydroxide membranes and the electric potential generated during their growth. This work with Matthew Moran ('27) and Gabe Brandenburg ('28) was recently submitted for publication. In addition to the lab work, Nate also recently published a paper on "Scaling Mentoring for Graduate School: An Algorithm to Streamline the Formation of Mentoring Circles for the GradTrack Scholars Program" with his wife, Jackie McDermott of Purdue University. Their joint paper was presented at the 2025 American Society for Engineering Education Summer Meeting in Montreal, Quebec.

In the summer of 2025, the demolition of Sparks began as part of the construction of the new Community Center, but thanks to the vibration isolation platform from Minus K Technology, lab work was able to continue uninterrupted. If only there were a vibration isolation platform for the human researchers!

The microfluidic fabrication facilities within the Physics Department have continued to grow, adding the Minus K vibration isolation platform, an infrared laser module to the Snapmaker A350, and a homemade optical profilometer. The Microfluidics Lab already includes a LulzBot Mini 3D printer, a Snapmaker A350 combination CNC mill/laser cutter, a Leica Emspira 3 automated inspection microscope, both Leica S9 and Zeiss 508 data collection stereo microscopes, a Diener ZEPTO plasma chamber for PDMS bonding, a Pico 24-bit data acquisition system, three Chemyx Fusion 200 rate controlled fluid injectors, a custom pressure controlled fluid injector system, a Thinky ARE-310 planetary mixer for PDMS casting, a vacuum chamber for degassing, and a PDMS curing oven.

This upcoming year, Nate is looking forward to getting back to teaching with the sophomore physics sequence, the Advanced Lab courses, and the Senior Seminar. Doubtlessly, he'll be working in the laboratory with students as well.

Great Comet of 2024

Professor Brown took this photo of Comet C/2023 A3 (Tsuchinshan-ATLAS) in October.

Student News

Graduating Seniors

This year, four majors (Ray Arebalo, Spencer Phillips, James Szalkie, and Nick Tipton) and two minors (Ethan Johns and Arvid Ullah) graduated. Ray will be studying mechanical engineering at Washington University in St. Louis. Spencer has gotten married and is employed by Tri-Tech Construction Services Inc. This summer, James has been working as a nuclear diagnostics intern at Pacific Fusion. In the fall, he's entering the physics Ph.D. program at Florida State University to study nuclear physics. Nick is attending Purdue's Polytechnic Institute. Ethan will be starting medical school at the Indiana University School of Medicine in the fall. Arvid will be teaching middle school students with Success Academy Charter Schools in Queens, NY. Finally, Tim Smith ('26) will be studying mechanical engineering at Purdue University as a 3-2 dual degree student.

On the Goodrich steps after graduation: Front Row: Nick Tipton, James Szalkie, Spencer Phillips, Arvid Ullah, and Ethan Johns. Back Row: Professors Brown, Krause, and Ross.

Awards Chapel

Physics students were prominently featured at Thursday evening's Awards Chapel. Gus Sanchez was this year's winner of the Fuller Prize for the most outstanding junior physics major. In addition, Gus was inducted into Phi Beta Kappa as a junior, and was given the Class of 1990 Lewis Salter Memorial Award, which is "given to that member of the junior class who best exemplifies the characteristics of scholarship, character, leadership, and service Dr. Lewis Salter H'57 embodied as a Wabash faculty member and as Wabash's 12th president." Salter was also a physicist!

Senior major Ray Arebalo was given the Norman E. Treves Science Award for being the Division I student who made the greatest academic progress during his junior year. Senior physics minor Ethan Johns was awarded the George E. Carscallen Prize in Mathematics for his outstanding work, the Wabash Club of Indianapolis Scholar-Athlete Award, and received distinction on his math comps. Physics minor Abdul Tonmoy was a co-recipient of the J. Crawford Polley Mathematical Writing Prize. Finally, senior major James Szalkie received a Mackintosh fellowship for graduate study in nuclear physics at Florida State University.

Junior Gus Sanchez receiving the Fuller Prize from Prof. Krause (left) and the Salter Prize from David Hovath (right).

Ray Arebalo ('25) receiving the Treves Science Award from Division I Chair Amanda Ingram.

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https://www.facebook.com/WabashCollegePhysics

Senior Dinner

Most of the students wrapping up their time at Wabash were able to gather during finals week at the Creekside Lodge for the annual senior dinner. They are, starting at the lower left and going clockwise: Spencer Phillips, Jame Szalkie, Prof. Ross, Tim Smith, Ray Arebalo, Prof. Brown, Prof. Krause, Prof. Tompkins, and Mr. Roark.

Sigma Pi Sigma

This year, Gus Sanchez ('26) was inducted into Sigma Pi Sigma, the physics honor society, for his exceptional academic achievement and participation in the department. Below, Gus receives his certificate from Prof. Ross, who organized the banquet at the Crawfordsville Country Club and emceed the induction ceremony.

Physics at the Day of Giving

For this year's Day of Giving, two physics majors decided that the festivities in the Allen Center needed some physics demonstrations.

Evan Baldwin ('26) found a singing Tesla coil online, which we purchased. He then programmed it to play "Old Wabash" for the attendees.

Gus Sanchez ('26) designed and built a PVC xylophone. After he had everything set up in the Allen Center, passersby were able to play stop and play their favorite tunes.

Did you know…

"In 1964, Wabash was one of the five undergraduate schools of the nation selected by the A.A.P.T. Committee on Physics Faculties in Colleges to feature as 'detailed case studies of institutions where the quality of physics teaching is outstanding.' "

H. F. Henry, "Physics: Its Development in Indiana," *Proceedings of the Indiana Academy of Science*, Vol. 76, 129-141 (1966).

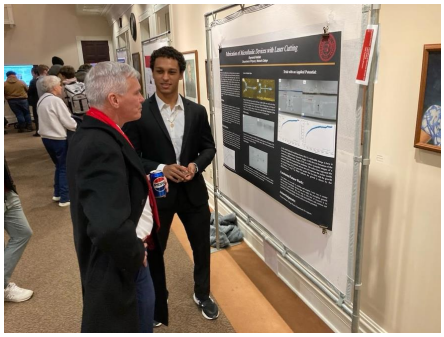
Celebration of Student Research, Scholarship, and Creative Work

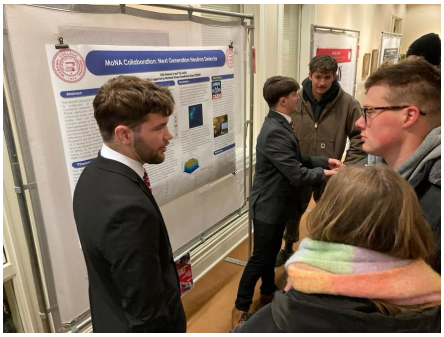
This year was the 25th anniversary of the annual celebration of student work. To kick off the festivities, Wabash brought back to campus distinguished alumni, including our own Suniti Karunatillake (’01), to discuss their work and Wabash’s impact on their careers.

Suniti Karunatillake (’01) Presentations

Suniti Karunatillake (’01) gave two talks during his visit to Wabash. First, he gave a physics colloquium (left) on GANGOTRI, Louisiana State University’s Mars Mission concept that he is leading. Then, he gave a talk for the celebration (right) on how Wabash prepared him for where he is today. Suniti is a professor in the Geology and Geophysics Department at LSU: https://www.lsupsl.org/team.

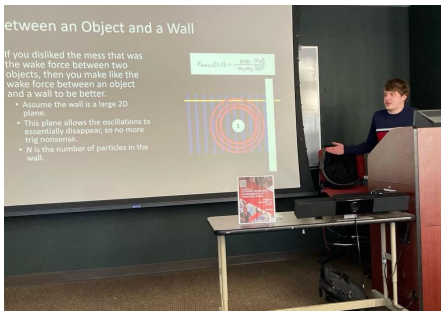
Student Poster Presentations

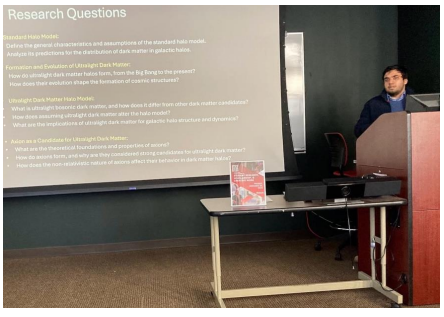


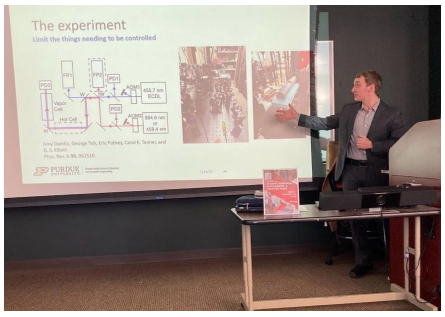


During the poster session, physics students presented three posters of their research. From left to right, Ray Arebalo (’25), "Fabrication of Microfluidic Devices with Laser Cutting"; Tim Smith (’26) and Arlie Benson (’26), "MoNA Collaboration: Next Generation Neutron Detector"; Evan Baldwin (’26), "Saving Ships—Detecting Steel Corrosion on Naval Ships using Acoustic Impulses".

Student Oral Presentations







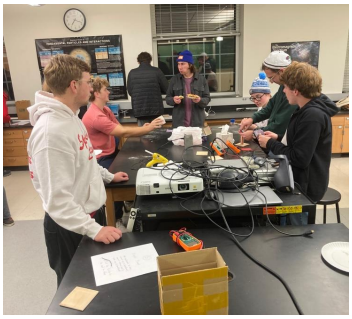
Three physics students gave talks on their summer research. From left to right, Evan Baldwin (’26), "Waves in the Dark—Introducing the Dark Matter Wake Force and Why It’s Important"; Prasun Panthi (’27), "Ultralight Dark Matter Halo Model and Properties"; Gus Sanchez (’26), "Precision Measurements of Atomic Matrix Elements". Prasun was also one of three winners of the Celebration Research, Scholarship, and Creativity Award.

Goodrich Hall Fall Cookout


Students and staff from the Physics and Math/Computer Science Departments enjoyed good food and conversation on a perfect October evening. Then, students from the three majors participated in a three-way tug-of-war. Sadly, the computer science students used their numerical advantage to beat the physics and math teams this year.

Tesla Coil Build Party






Professor Tompkins needed help preparing miniature Tesla coils for next month's Scarlet Honors Weekend physics activity. The Society of Physics students answered the call by organizing a Tesla coil build party. As a reward for their hard work, each student was able to take a Tesla coil home with them.

Summer Research 2025


This summer, Professor Tompkins had two students designing, fabricating, and taking data with microfluidic devices. Chemistry Professor Emeritus John Zimmerman stopped by the lab to capture photos of the interns, Gabriel Brandenburg (left) and Matthew Moran (right), hard at work. In addition, Gus Sanchez ('26) participated in an REU program at the University of Washington, simulating quantum error correction codes to see if using a 3d lattice of qubits offers a speed-up in time versus a 2d lattice. Prasun Panthi ('27) used a Dill Fellowship to support research at Nepal Sanskrit University that resulted in a paper, "Fixed point results via a new class of Ad-contractions." Finally, Arlie Benson ('26) was an engineering and physics intern at the U.S. Air Force Institute of Technology.

Physics at the Museum

This spring, the Physics Department participated in two events at the Carnegie Museum in downtown Crawfordsville.

Pi (Π) Day

In March, Physics faculty, staff, and the Society of Physics students teamed up with the Mathematics and Computer Science Department to present activities at this year's Pi Day event.

Top row (left to right): Ray Arebalo ('25) demonstrates acoustic levitation, Evan Baldwin ('26) helps folks make balancing toys, demonstrating center of mass, and Prasun Panthi ('27) illustrates the warping of spacetime with the fabric black hole model. Bottom row: Mr. Roark assists youngsters in investigating density using Cartesian divers, children play with a tippe top (they each got one to take home) and a rattleback, and Prof. Brown demonstrates standing waves in a string.

Physics of Catapults Workshop

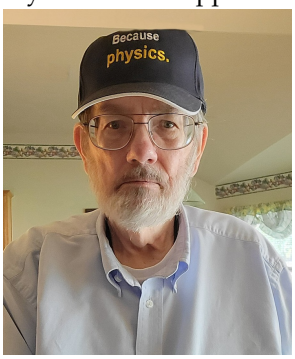
Physics returned to the Carnegie Museum in April. This time, Professor Brown and Mr. Roark presented a workshop on the physics of catapults. The purpose was to illustrate the physics principles of projectile launching to give folks ideas for the devices they might build for a new strawberry launching contest at this summer's Strawberry Festival. Matt 3-D printed several different designs (some of which could toss a small ball a considerable distance!) and then let the kids try them out.

Alumni News

Updates

Since our last newsletter, we've heard from…

- **Bob Kellogg ('55)** started Wabash as a Math major and Physics minor, but graduated with the physics major and math minor in 1955. After graduating, he took a job with the world's largest apparel manufacturer because it offered on-the-job training as an industrial engineer. (In those days, very few colleges offered degrees in industrial engineering.) The company made and sold shirts, blouses, slacks, coats, jackets, and, most notably, Wrangler jeans. (At different times, they also manufactured Army and Navy uniforms and even cowboy boots.) As he became more proficient, his responsibilities increased. He became a chief engineer and trained many young men, including those who had graduated with industrial engineering degrees. Eventually, he was a Vice President in charge of Manufacturing for a portion of the company, and finally retired as an engineer in charge of the research and development engineers. "I credit my education at Wabash for preparing me to handle a diverse range of responsibilities."
- **John Dooley ('63)** spent most of his career teaching at Millersville University in a department that was most like the Wabash department in the '60s: Committed to the discipline and doing whatever it took to help students find the joy in discovering physics. During those years, he also consulted on ultrasonic nondestructive testing for GE Nuclear. John's final physics effort was building a 1-meter Foucault pendulum in his basement 10 years after retirement. You can check it out and other demos at https://www.youtube.com/@johndooley4052/videos?app=desktop.
- **Jim Clynch ('67)** received a baseball cap for Team Physics from the History Center of the American Institute of Physics for his support over the years.



- **Mike Gallagher ('68)** is glad to hear that there were five physics interns working last summer. His summer intern experience with Wabash physics was very helpful in organizing his thoughts around going to graduate school at Stanford in mechanical engineering 56 years ago.
- **Gary Hansen ('71)** is enjoying retirement in his new adoptive hometown of Boston after spending 40+ years as a diagnostic radiologist on the West Coast. His physics background was of some use in radiology, especially during the first few weeks of residency, covering basic physics when biology and other majors were struggling. "But that was long ago. I always wondered how my classmate, M. James Czarniecke, worked for years as the art curator of a Chicago Art Museum, but I never had the chance to ask him. Finally, I just read yesterday that Francis Perkins, from Boston, was a Physics and Chemistry major at Mount Holyoke College (1902), who switched to social work and became the first female cabinet member, served longer than any other cabinet member (under FDR), and was instrumental in establishing Social Security. The point being that one can do lots of things with a physics major. It always helps to be able to think and solve problems."
- **Kerry Wilson ('72)** returned to campus during the last week of classes to speak with our students about his long career that began as a Wabash physics major and dual degree engineering student. He went on to become a professional engineer, project engineer, and entrepreneur with six patents involving medical instruments.
- **Gary Wollenweber ('74)** held a virtual workshop with the Engineering Club.
- **Joe West ('88)** had a paper, "N-body linear force law allowing analytic solutions," published in the May 2025 issue of *American Journal of Physics* on a neat N-body model, and has been working on several spin-offs of this work. He writes that "all of it really is a direct result of taking that first semester of mechanics" at Wabash with Prof. Strax." An arXiv version of the paper can be found here: https://arxiv.org/abs/2407.02358. He followed it up with a note in *AJP*, "A new Hookean Center of Mass Theorem," published in the August 2025 issue.
- **Steve Pfanstiel ('95)** is the CFO for Marinus Pharmaceuticals, a biotech firm in Philadelphia. He met Prof. Brown's daughter, a staffer for Wisconsin Senator Tammy Baldwin, while lobbying in Washington, D.C.
- **Rabin Paudel ('10)** is a research scientist at Intel in Hillsboro, OR, working in the field of computational lithography. At a recent dentist appointment, he mentioned he attended Wabash College. His hygienist's jaw dropped, exclaiming, "You're joking!! My brother is the president of Wabash College!" Thanks to President Feller for forward-

ing the email he received from Rabin to us.

- **Jia "Alex" Qi ('15)** has been in the tech industry since receiving his Ph.D. in astronomy and astrophysics from the University of Florida in 2022. Currently, he is a machine learning engineer for TikTok, working in the risk control department to build machine learning models to help identify fake accounts. He also continues to collaborate with his graduate school colleagues on galaxy evolution simulations and submitted a paper on this work.
- **Inbum Lee ('16)** received his physics Ph.D. at Indiana University. The title of his dissertation is "Development of Polarized ^{3}He at 4K for Axion Detection." After having spent a long time in the lab, he realized that becoming a researcher in academia wasn't what he really wanted to do. He instead looked for a career path related to his degree, and that was something more meaningful. So instead, he applied to the Department of Radiation Oncology at Seoul National University Hospital, one of the best hospitals in South Korea, for a therapeutic medical physicist trainee position that required a PhD degree in physics. He got the position in December 2023.
  Since March 2024, he has been working and learning the role of a medical physicist at SNUH. "It's a field that I never knew existed and never imagined I would be interested in. What's also amazing is that this hospital is where my mom worked her entire life until she retired a few years ago, and it feels so weird that I am working here now. Of course, this place is my temporary home; after two more years, I need to find another place that will hire me as a real medical physicist, but I like it so far. This is definitely a career path that I would recommend to other physics majors at Wabash."
- **Quan Le Thien ('18)** published two papers in the same issue on the same day in *Physical Review Letters*, the premier physics journal. Quan is nearing completion of his Ph.D. work at Indiana University:
  - Entangled-Beam Reflectometry and Goos-Hänchen Shift, Q. Le Thien, R. Pynn, and G. Ortiz, *Phys. Rev. Lett.* **134**, 093802 (2025).
  - Observation of a Giant Goos-Hänchen Shift for Matter Waves, S. McKay, V.O. de Haan, J. Leiner, S.R. Parnell, R.M. Dalgliesh, P. Boeni, L.J. Bannenberg, Q. Le Thien, D.V. Baxter, G. Ortiz, and R. Pynn, *Phys. Rev. Lett.* **134**, 093803 (2025).
- **Quân Châu ('20)** recently had a small Wabash Physics '20 reunion at Teddy Lupinski's wedding, where he and Spencer Shank caught up. The advanced lab project, where he developed his Schlieren systems, helped him land his first lab job when he transferred to WashU in the 3-2 program. That position taught him a lot about microfluidic science, microfabrication techniques, and thermal system design for electronics. He also collaborated with several people in the lab to publish several papers. Combining that experience with his internship at SharkNinja—where he helped design a new product line of hair dryers—he secured his current job as a Thermal Design Mechanical Engineer for Panasonic.
  "Nowadays, you can find me working on a lot of CFD simulations, but I'm also involved in testing and system design in general, using CAD software. We design infotainment systems for all the major Automotive OEMs in America and Japan. We're also branching out into Automotive High-Performance Computer, and I'm currently developing the liquid cooling system for these units."
  "Looking back, I believe that the Physics degree really opened up many opportunities and provided a broader understanding of the fundamentals of all engineering fields. My three years there really challenged me to keep asking 'Why?' until we reached the fundamentals of physics—which I now apply to solve any of my engineering problems (and honestly, any problems in life). I guess it's a good way to be an engineer and a good problem solver: thinking from first principles."
- **Spencer Shank ('20)** told his classmate Quân Châu ('20) that he is now a software engineer for a company in Ann Arbor. His Swamp-bot ad-lab project with Quân with Arduino taught him basic C/C++, and Dr. Brown's special topics class introduced him to Python. This foundation allowed him to start with basic programming and learn along the way to get where he is today.
- **Chad Wunderlich ('21)** earned his M.E. degree in electrical engineering from WashU in May and has since begun working as an engineer for Bascom Hunter Technologies, a small-scale, custom manufacturer of RF electronics located in the greater St. Louis region. Bascom Hunter will be looking for interns next summer and, although recruitment is targeted at engineering students, Chad encourages physics students who have taken circuits and electrodynamics as well as computer science students to apply.
- **Caleb Powell ('22)** received his M.S. degree in Computer Science and Software Engineering from Auburn University. He accepted a position as a Laboratory Operations Specialist at Purdue's Polytechnic Institute. He then plans to apply to Auburn's Building Construction Ph.D. program to build upon the research he did for the Building Science Department as a graduate student and focus his dissertation on robotics applications for

improving the safety and efficiency of the construction process.

- **Gabe Cowley ('24)** reports that his first semester of graduate school at the University of Colorado went well. He's in CU's Ph.D. program in applied mathematics. "Really enjoying the company of all the curious and motivated peers in my cohort. Also, having the nice view of the Rockies right outside my living room has somehow made the winter more bearable."
- **Nikolai Jones ('24)** is starting his second year of medical school at IU. This summer, he completed a research project, "Associations between Cardiometabolic Comorbidity Burden and Atrial Fibrillation Prevalence," that involved database mining using massive congregated anonymized electronic health records.

We apologize to anyone we missed and for misspeellinggs or other mmistakess made while editing the material sent to us.

In the future, we would be happy to include your news and comments in our newsletter. Not only is it wonderful to hear from you, it is also very useful for us to learn what our alumni are doing and how they got to where they are. Our students wonder what one can do with a physics degree, and it is great to have alumni stories to share with them.

Alumni Colloquia

During the last week of classes, Kerry Wilson ('72) spoke with our students about his long career that began as a Wabash physics major and dual degree engineering student. He went on to become a professional engineer, project engineer, and entrepreneur with six patents involving medical instruments.

In January, Suniti Karunatillake ('01) was invited back to Wabash to speak at the annual celebration of student work. He came a day early to give a physics colloquium on the Mars mission he is planning.

If you are interested in giving a talk, please let us know. Our students are eager to learn what our alumni about what they have done with their Wabash physics degrees. We have limited funds for travel, and sometimes scheduling can be challenging, but rest assured, we do want to hear from you.

All-Goodrich Big Bash Reception

A number of physics alumni stopped by the All-Goodrich Big Bash reception this summer. Hosted by Physics and the Mathematics and Computer Science Departments, they shared their experiences at Wabash and what they have done with their Wabash degrees. We hope to continue this next year, so please keep an eye out for the schedule of next year's Big Bash events.

Physics Demos for Kids

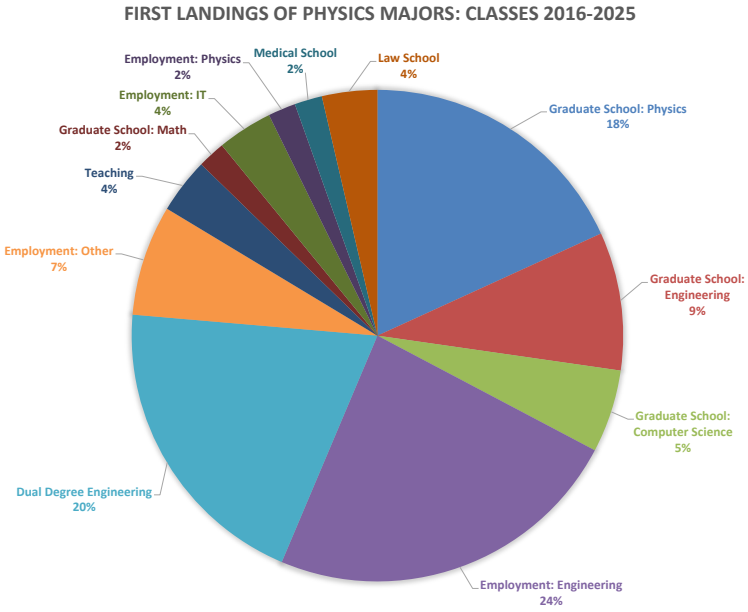
Earlier this summer, our faculty showed off some physics demonstrations to an energetic group of 1st graders from Hose Elementary School. They also visited the Chemistry and Biology Departments during their science field trip.

What can you do with a physics degree from Wabash?

Some Graduate Schools and Companies Accepting/Hiring Recent Majors

Stanford University
University of Colorado
Purdue University
Indiana University
New York University
U. of Oregon
U. of Minnesota
U. of Notre Dame
U. of Michigan
Michigan State U.
U. of Cal., Santa Barbara
U. of Southern California
Carnegie Mellon U.
Auburn U.
U. of Mass.-Amherst
Florida State U.

Amazon
Apparatus
Rahal Racing
ELANCO
Walsh Construction
Epic
Trans-United
Rolls-Royce
Backstop Solutions
Peerless AV
J.P. Morgan Chase
FAAC, Inc.
F. A. Wilhelm
Quest Global
Ontario Systems
RQAW



Thank you for your support!!!

We thank all the alumni and friends who have supported the department over the years. Special thanks go to Jim Clynch ('67), Dennis Henry ('67), Ken Crawford ('69), and the Rippy Family for creating funds to support our students. This aid has become critical since other funding that had been used in the past to support summer internships has disappeared. We thank Michael Lambert for again sponsoring a Physics challenge during the Day of Giving, with additional support from James Szalkie ('25). The College received donations from 38 separate individuals! We also thank Roger Alig ('63), William Havlin ('84), and an anonymous donor for their contributions to our Physics Fund this past year. All of this helps us to support internships, student travel, departmental prizes, library book purchases, and senior dinners. Finally, we apologize to anyone we fail to acknowledge appropriately, since sometimes our information regarding gifts to the Department is limited.

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