

WAKE FOREST UNIVERSITY · DEPARTMENT OF PHYSICS

2024 Physics Alumni Newsletter

The complete web newsletter, collected from its original articles.

ARTICLE 1 OF 5

2024 Homecoming Event

[View this article on the Wake Forest Physics website](#)



The Physics Department faculty and staff invite you to our **Homecoming demo show on Saturday, September 14**. We will join the Festival on the Quad again this year. We will have a table near the steps of Wait Chapel. Due to the duration of the event, many of the demonstrations will be continuous and some will be “hands on”. The demonstrations are designed to be of interest to everyone including children. Please stop by, we would love to chat with you and have you check out the demos.

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What's New in the Physics Department

[View this article on the Wake Forest Physics website](#)

According to College Factual, the Physics Department now ranks 7 out of 50 colleges and universities in the Southeast US for our Bachelor of Science degree and 2 out of 22 in the Southeast for our PhD program (tied with the Georgia Institute of Technology). We are continuously striving to provide the best education for our students.

Our Academic Coordinator, Candace Ring, moved on to another position within the University last spring. Our new Academic Coordinator is Carrie Munson. Prior to starting at WFU, Carrie was a teacher for 13 years most recently in Massachusetts. After graduating from Wake with a biology degree, she and her family lived in 11 different states before ending up where it all started. Carrie has two sons who are studying at Montana State University. She enjoys hiking with her two dogs and husband, reading, playing tennis, and powerlifting.



Wake Forest physics professor George Holzwarth (May 7, 1937 – March 13, 2024)

We are sad to report that George Holzwarth passed away on March 13, 2024. George joined the physics faculty of Wake Forest University in August 1983. While he officially retired in 2004, he remained active in his biophysics research to the very end. Before joining WFU, George earned a BS degree in physics from Wesleyan University in 1959 and a Ph. D. in biophysics from Harvard University in 1964. He served as a faculty member at the University of Chicago 1967-1974 and on the Research staff at Exxon Corporate Research 1974-1983. Throughout his long career, George enjoyed finding ways in which physics concepts and methods can be used to address interesting and challenging biological questions. George would have been very happy to learn that his last paper, "Directional change during active diffusion of viral

ribonucleoprotein particles through cytoplasm” in collaboration with his students, Doug Lyles from the medical school, and others has now been published. The family is arranging for an annual biophysics colloquium as part of the physics colloquium program in George’s honor.

<https://www.legacy.com/us/obituaries/winstonsalem/name/george-holzwarth-obituary?id=54682>



George Holzwarth 1937-2024

Shown here in April 2023 with collaborating students Ryan Oglietti and Kate Smith

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2024 Awards Received by Faculty, Staff, and Students

[View this article on the Wake Forest Physics website](#)



Professor Keith Bonin was awarded the Richard T. Williams Faculty Chair in Physics, effective July 1, 2024. This endowed chair position is designated to go to an excellent faculty member who is engaged in interdisciplinary scholarship, teaching, and student mentorship.

Richard Williams was the first WFU Department of Physics Speas award recipient and returned to the faculty as the Reynolds Professor of Physics. Dr. Williams passed away in 2021 and we are grateful for his having established a Chaired position and for all he did for the department.



Steve Winter

Professor Steve Winter was named the Gale Family Faculty Fellow last spring. The Wake Forest College Faculty Fellowships are fellowships that honor our best teacher-scholars. Steve Winter has excelled as a teacher in the classroom and as a mentor for members of the excellent research group he has built.

Professors Ajay Kandada and Steve Winter each won a CAREER Award from the National Science Foundation. These grants are awarded to junior faculty who exemplify the role of teacher-scholars through research and education, and together they total over \$1 million.

Both Kandada and Winter work within WFU's Center for Functional Materials, which aims to connect a broad range of materials-focused research through research, education and outreach. Professor Kandada's research uses ultrafast optical spectroscopy to observe light-matter interactions within materials, while Professor Winter uses theory and computation to classify and predict the behavior of quantum materials.



Physics Professor Ajay Ram Srimath Kandada has his portrait taken in the laser lab in the Olin Physics Laboratory

The following Awards were presented at our Annual Physics Department Awards Ceremony in May:



Professor Stephen Winter and Physics PhD Student Sam Griffith work out quantum mechanical equations describing exotic magnets pursued for quantum computing in the Olin Physics Laboratory.

Steven Winter received the Physics Department ***Excellence in Teaching Award***.



Fred Salsbury received the Physics Department ***Outstanding Service Award***.

Arezoo Nameny received the ***Outstanding Teaching Assistant Award***.

Haardik Pandey received the ***Outstanding Graduate Research Award***

Trevor Jenkins received the ***Peer Mentor Award***.

Josiah Brinson, Emily Foley, and Emily Wang were co-recipients of the ***Speas Award***.

Ryan Sullivan and Dizhou Wu were co-recipients of the ***Outstanding Graduate Student Research Award***

Josiah Brinson, Carson Cajka, Addison Crowell, and Ziyang “Skye” Zhang were co-recipients of the *Major Field Tests Achievement Awards*

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2024 Faculty Updates

[View this article on the Wake Forest Physics website](#)



Daniel Kim-Shapiro

This will be my eighth and final year serving as Chair. My goal is to make it the best year yet. Last year was great as we recruited two new amazing faculty members, Emilie Huffman and Alejandro Cardenas-Avendano. We are conducting another search this year so hopefully will do as well.

A lot is happening in the lab as usual. Laxman Poudel finished his PhD and is now doing a postdoc at UAB with Rakesh Patel. Stephen Baker has been doing a great job as a research professor in the lab and Thilini passed her prelim exams so has been in the lab a lot more. We are currently trying to hire a new research technician and recruit more graduate students. We published our paper in Nature Chemical Biology on what I hope will be a new nitric oxide (NO) signaling agent active in normal physiology and effective in treatment of cardiovascular disease. As I write this, we are at the NO Society meeting in Stockholm.

The family is well. Shai is now a 3rd year student at UC Santa Cruz (Go Banana Slugs), my middle son is a 4th year at Reed College, and my oldest is trying to put his computer science degree to work. Lisa is still working as a pathologist, trying not to work too hard. Please reach out and let us know how you are doing.



Paul Anderson

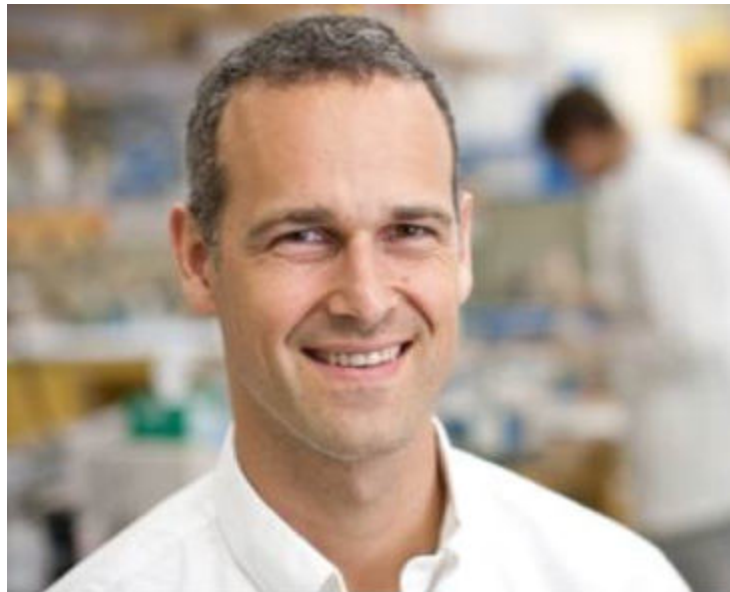
This is my second and final year of phased retirement. I will officially retire after about 35 years at Wake Forest on June 30 of next year. However, I plan to continue to do research and will be a research professor for at least the following three years. During the past year, I continued work with my research students and published a paper related to the effects of quantum fields on models in which the early universe initially contracts to a minimum size and then begins to expand. This was with graduate student Leda Gao who was first author and former undergraduate and graduate student Robert Link. Last year my research group consisted of WFU undergraduates Catherine (Shuyu) Chen, Emily Foley, and Amanda Peake along with two graduate students, Shohreh Gholizadeh Siahmazgi and Ian Newsome. Shohreh finished her Ph. D. last summer and is now working as a teaching postdoc in the Mathematics Department at WFU. Emily graduated last spring and is currently a graduate student in applied mathematics at the University of Arizona in Tucson.



Natalie Holzwarth

The research of Natalie Holzwarth continues to focus on first principles computer modeling of materials, especially those with ionic conductivity, and on further development of atomic datasets used by several electronic structure codes. The work is still funded by a small NSF grant and a few papers with students and collaborators have been published. Graduate student D. Cory Lynch is making good progress toward completing his Ph. D. degree.

Personally, 2024 has been tough with the passing of George Holzwarth on March 13, 2024. George remained intellectually active and inspirationally thoughtful throughout his life. The intimate demonstration of the relative shortness of lifetime opportunities has perhaps been energizing in some ways to Natalie and to other members of the family. Natalie has officially contracted to retire from Wake Forest University on June 30, 2025, but hopes to continue many projects as a retired research professor. In fact, computer modeling of interesting and technologically useful materials remains an important scientific endeavor. Advancement in this field can best be done by integrating the old established techniques with the many new innovations developed in the recent literature. This seems like a very inviting challenge.



Jed Macosko

With the help of alumni Andrew Barelli and Ryan Melvin, Jed Macosko taught a new course helping STEM students leverage their skills for financial jobs. The course was open only to sophomores, but this spring it will be offered to first-year students. Jed misses his close collaborator, George Holzwarth, whose passing was a

blow to the dynamic (in both senses) cellular transport research that has been unfolding for over 20 years in Olin Hall. Some of this research will continue with a new crop of undergraduates this spring, but George's presence will be sorely missed.



Rick Matthews

Rick Matthews Since retiring in 2020, I have enjoyed spending more time with grandchildren and more time traveling. The highlights of this year's travels were two "sky" events. Carolyn and I went to Paris, TX in April to observe the total eclipse. The weather reports were not promising, and indeed we had complete cloud cover

until only 20 minutes prior to totality. But then the skies cleared completely, and we had a terrific view of totality. Several solar prominences were visible to the naked eye, one extremely bright red.



We were surprised by another opportunity on May 11. My mother passed away in January, and Carolyn and I were at her home in southern North Carolina organizing things. I got a text from my brother that a rare aurora was happening. We jumped in our car, drove out into the country, and witnessed a beautiful display covering the entire sky.



I love keeping up with the exciting things happening in the department. I will again be on the quad with the department for homecoming. Hope to see you there!



William “Bill” Kerr I retired in 2008 but have been a research professor since then. That position has kept me connected to physics and produced a few research items. My wife and I also travelled quite a bit in the initial decade or so of retirement. Recently I’ve had to become a caregiver for my wife, since her health is declining. I still read about topological properties of Bloch electrons, but it is hard to keep up.

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2024 Alumni Updates

[View this article on the Wake Forest Physics website](#)

In 2018 we implemented a new alumni award. The award is given to a Physics Department alumnus for exceptional achievements and/or service. The award is not limited to physics but covers all areas that our alumni excel in.

If you can think of someone to nominate for next year, please send a letter to the Department Chair, Daniel Kim-Shapiro or email (shapiro@wfu.edu) describing why that person is a good candidate for this award. Please send nominations by 12/1/2024. Note that the award will have a modest monetary component.

Alumni News

Richard Whitcomb graduated from WFU in 1988 and 1989 with a BA and an MS working with George Holzwarth. I've been living in Atlanta, GA since 1990. I currently work in a family enterprise with my dad and brother and sister. Almost all of my work is in management, budgeting, looking at financial statements, and considering investment opportunities. I'm sorry that a career in science did not work out, but I've had a fantastic career and raised four kids, and I'm still married. I spend tons of time in Key West Florida. I fish and play golf and still play ultimate frisbee. I keep up with Wake sports through a fraternity group chat, although I haven't been back to campus in ten years!

Jason Howard, PhD, graduated in 2018 after working with Dr Natalie Holzwarth. I teach physics at Wake Technical community college while also working part time as a contractor for Argonne National lab. For the lab I perform advanced simulations of advanced battery materials both solid state and molecular. Another thing I had to share is that, although I am trained as a computational physicist, I have found myself in a strange position that I have hybridized more types of basil than anyone in the world. I am in my second year of getting a start-up business going called Basically about Basil. We cultivate fresh basil for sale, sell seeds from our hybrids, and sell basil clones. I am currently working with a horticultural company to commercialize some of our varieties. I like to think of my basil breeding as experiments in "magic" matter physics. Basil is very interesting biologically speaking. Maybe someone in the biology department there would be interested in collaborating on a basil related biology research project? If you know anyone in the biology department, I'd be grateful if you'd mention it. I certainly wish you all the best there. It was a very nice time in my life to study at Wake Forest.

Yonas Abraham, PhD, Class of 2005. After graduating in May 2005, I worked as a researcher at Targacept LLC, a now-defunct drug discovery company in downtown Winston-Salem. In May 2008, I moved to Houston, Texas, to work as a quantitative analyst at Quantlab Financial. I am still working at the same company as the Director of Quantitative Strategy Management.

We have four boys. Benhur graduated from UT Austin with an Electrical Engineering degree and now works as an engineer at NXP in Austin. Siem is a senior at UT Austin studying Biomedical Engineering. Yaphet is a sophomore at Texas A&M in College Station studying Business. Our youngest is Ezra, who is in the 7th grade.



Picture of Yonas, his wife Azeb, two of their sons, Yonas' sister-in-law and her three children during a visit to Olin. From left to right: Luchea Girmatsion, Azeb Girmatsion, Ezra Yonas, Yaphet Yonas, Aman Birhane, Lewhat Birhane, Haben Birhane, Yonas Abraham.

Rhett Herman, PhD, BS Class of 1985. I've had a blast with my current research in "MacGyver'ing" microcontroller based sensors for my arctic geophysics work. Every other year, I teach the year-long Arctic Geophysics Research Experience and the pinnacle of that experience is the week that the students spend deploying their sensor creations in Utqiagvik, Alaska, in late February/early March. I'm there for 2 weeks since half the class comes up each week (1-2 students with more involved projects will stay the entire 2 weeks).

I'm sending a couple of pictures along from this past year's experience and trip. I snapped this "hammer of the gods" moment when one of my students just couldn't contain himself as he crossed seeing the aurorae off of his bucket list in unfettered fashion. Of course, we get real work done on the sea ice as shown in IMG_6520. And certainly, when all the work is done, we get to take the greatest class picture of them all, right there in 35F-below-zero glory (IMG_6643)! Who woulda thought this as I was sitting in Rick Matthew's intro physics class 4 decades ago, in the relative warmth and comfort of the downstairs of Salem Hall!

Now, as usual, I had already started to plan for the 2025-2026 Alaska Cycle on the plane ride back from the 2024 Alaska trip. Sign-up is this coming April, so I've got to be ready!





Doug Agopsowicz (class of 2003) I am currently working as a Senior Attorney (R&D procurement) at the U.S. Department of Homeland Security, Technology Programs Law Division. Prior to my federal service, I practiced patent law at several law firms in the DC area for over 15 years.

And many other alumni have told us their news. Just go to our [Alumni Profile page](#). Please visit this page to see how people are doing. If you would like to submit your own profile and photo, please contact us. We would love to hear from you!

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