

The Wisconsin Physicist



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On the Cover

Conference for Undergraduate Women in Physics (CUWiP) on Jan 13-15, 2017 in Chamberlin Hall, UW-Madison.

Photo Courtesy: E. Leonard Jr

Stay Connected!

Please continue sending us your professional and personal news!

We will be happy to include updates from alumni and friends in the Wisconsin Physicist.

- Do you receive email from the department? Sign up to receive our weekly seminar emails:
<https://www.physics.wisc.edu/twap/>
click on "Subscribe to receive email announcements of events"
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Inside this Issue

Table of Contents

Vol. 22

Fall 2017

Greetings from the Chair 2

Selected Highlights of 2017..... 3

Endowed Chair 5

New Physics Faculty Profiles
Shimon Kolkowitz 6

Development of AM Radio, 1917-1919..... 7

Badgerloop.....10

CUWiP.....12

Mike Juda..... 15

2017 Physics Award Banquet
Undergraduate Awards16
Graduate Awards18
Department TA Awards19
Alumni Awards.....19

UW Physics Degrees Awarded
Undergraduate 20
Doctoral.....21

2018 Fall Admissions..... 22

Support Physics via the UW Foundation 23

Support Physics 24

Greetings from the Chair



Dear Alumni and Friends

Sridhara Dasu - Department Chair

The Physics Department continues to be a vibrant place for education, research and outreach in a wide range of areas. This new edition of the Wisconsin Physicist will give you an opportunity to get a glimpse of our department in 2017.

I begin by thanking Prof. Albrecht Karle who led the department skillfully the past three years. During Prof. Karle's term much was accomplished, including the hiring of wonderful new faculty, formulation of a well-received strategic plan for the department outlining our priority areas for future hiring, and a more structured department organization. Of particular note is his achievement of a substantial increase in physics teaching assistant stipends, putting us back in the competitive zone amongst our

peers.

Secondly, I would like to welcome our three Associate Chairs: Prof. Mark Rzchowski for Undergraduate Studies, Prof. Alex Levchenko for Graduate Studies and Prof. Robert Joynt for Alumni Affairs. We devolved the duties and responsibilities to increase our effectiveness, but we share the goal of sustaining the best practices in the department and improve wherever possible.

We are eagerly awaiting the arrival of Assistant Prof. Shimon Kolkowitz in January 2018, and Assistant Prof. Keith Bechtol in September 2018. Setting up of Kolkowitz laboratory with advanced optics experiments is underway and his exciting program of research is described in this newsletter by Prof. Thad Walker. Bechtol is helping complete the installation of multi-giga-pixel camera at the new Large Synoptic Skysurvey Telescope (LSST) in Chile. When fully operational the LSST will produce the deepest, widest, image of the Universe, hopefully enabling discoveries of great significance.

For 2017 we have been authorized to search for two tenure-track or tenured faculty members. Following the 2016 Strategic Plan for the Department described last year, we are focused on hiring in the areas of accelerator based neutrino and collider physics. For the remaining priority areas outlined in the strategic plan, we have banked on the cluster-hiring competition, submitting four strong proposals in collaboration with other departments across the University. Additional targets of opportunity are also being pursued.

The 16th Annual Awards Banquet was held on April 28th 2017. The continued generosity of our Alumni and friends allows us to present many awards to outstanding students. You can read more about the Awards Banquet on p. 16. We are pleased to maintain our tradition to recognize Distinguished Alumni. Awards were given to Babara Wilson and Raymond Fonck.

The Physics Department Board of Visitors met twice in 2017. The Board of Visitors continues to help in a number of ways, by providing feedback to the Department, recruiting of graduate students, and not the least with fundraising. Of particular note this year is the beginning of a new initiative to fund the first gift funded professorship in the name of Prof. Bernice Durand. Prof. Durand served the University in various capacities and was a well-liked and recognized teacher especially noted for promoting Physics 107, The Ideas of Modern Physics.

Whether you are an alum, friend, employee, or student, we appreciate your interest in, and loyalty to, the University of Wisconsin-Madison Physics Department. All of the awards given out are based on donations. As an example Physics Alumni Graduate Support Fund, allows us to give fellowships and supplement to the stipends of incoming graduate students. Donations also help in other ways, for example with the Ingersoll museum for which we are making plans for the 100-year celebration in 2017. The Newton fund helps the Department to help in many. You can donate to the Physics Department online by going to <http://www.physics.wisc.edu/giving>. Please see page 23 for more ways to give.

I sincerely thank our generous alumni and friends who have financially supported the Department. This support is truly our margin of excellence.

Selected Highlights of 2017

2017 CUWiP at UW-Madison!

Friday, January 13, 2017 (Photo Courtesy: E. Leonard Jr.)

The UW–Madison Department of Physics hosted a meeting of the Conference for Undergraduate Women in Physics (CUWiP) the weekend of Jan 13-15, 2017 at Chamberlin Hall, UW–Madison. This event was one of ten 2017 CUWiP conferences held simultaneously around the US and in Canada.

UW-Madison team wins Innovation Award in Hyperloop competition

Tuesday, January 31, 2017 (Photo Courtesy: Badgerloop.)



SpaceX and Tesla Motors co-founder Elon Musk, who is the driving force behind the Hyperloop competition, took the opportunity to sit in the Badgerloop pod while touring the various team's booths. The team purposefully built its pod to fit Musk, who is 6 feet 2 inches tall.

The department mourns the passing of Emeritus Prof. Marv Ebel

Monday, February 6, 2017



Marv passed away January 28, 2017. Prof. Ebel was the 2016 recipient of the department's Distinguished Service Award, recognizing his years of service in the Department and as an Associate Dean in the Graduate School.

Jim Lawler Awarded 2017 LAD Laboratory Astrophysics Prize

Tuesday, January 17, 2017 (Photo Courtesy: Jeff Miller)



The Laboratory Astrophysics Division (LAD) of the American Astronomical Society (AAS) is pleased to announce that its 2017 Laboratory Astrophysics Prize, given to an individual who has made significant contributions to laboratory astrophysics over an extended period of time, goes to James E. (Jim) Lawler (University of Wisconsin, Madison) for his contributions in atomic physics to advance our understanding of galactic nucleosynthesis and chemical evolution. His spectroscopic work has opened a new era of stellar chemistry by advancing our ability to compare nucleosynthesis predictions with accurate relative elemental abundances.

Selected Highlights of 2017

The department mourns the loss of Professor Marj Corcoran of Rice University



Monday, February 6, 2017

Dr. Corcoran was killed in a bicycle accident on February 3, 2017. Dr. Corcoran was the 2008 recipient of UW Physics Department's Distinguished Scientist award in recognition of her work at UW-Madison with Prof. Albert Erwin.

Visiting Prof. Jenny Thomas elected a Fellow of the Royal Society



Thursday, June 8, 2017

Jenny Thomas, Senior Scientist with the IceCube group and Prof. at University College London, has been elected to a Fellow of the Royal Society in recognition of her outstanding contributions to science.

Three physics majors win Hildale Undergraduate/Faculty Research Fellowships

Thursday, July 13, 2017

Roger Waleffe (working with Prof. Forest), Matthew Frazier (working with Prof. Gilbert), and Colin Adams (working with Prof. Vandenbroucke). The Hildale Undergraduate/Faculty Research Fellowships support undergraduate research done in collaboration with UW-Madison faculty or research/instructional academic staff. Approximately 97 – 100 Hildale awards are available each year.

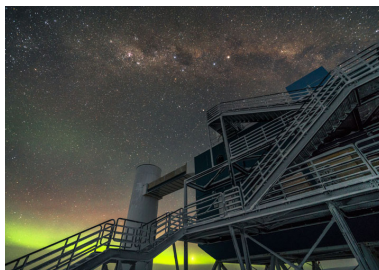
Geoff and Josie Fox



Tuesday, July 25th 2017 (Photo credit to Katie Vaughn)

Geoff Fox (Physics PhD 1968), left his physics career in 1974 for his passion for off-road motorcycle racing. Together with his wife, Josie Fox, they launched the Fox brand which initially sold motorcycle parts. By 1985, the Fox brand changed their focus almost entirely to motocross clothing, and it only grew from there.

Cross section for neutrino energies between 6.3 TeV and 980 TeV measured by IceCube



Wednesday, November 22, 2017 (credit to M Wolff/ ICECUBE NSF)

The new measurement determines the cross section for neutrino energies between 6.3 TeV and 980 TeV, energy levels more than an order of magnitude higher than previous measurements.

Endowed Chair



The Physics Department Board of Visitors has set up a fund for alumni and friends to step forward and take on the challenge to endow a faculty chair. The endowed chair is to be named after our own highly recognized and respected Emeritus Professor Bernice Durand.

An endowed professorship aids the University and Department by providing a permanent funding source that supports a faculty member who does not have to be paid entirely out of the limited State operating budget. It allows the Department to attract and retain the highest level of scientist, reduces the student-to-faculty ratio, and because our physics faculty are so very effective in securing research funds, the endowed chair will

almost assuredly generate, each and every year, funding for multiple graduate students as well as educational opportunities for undergraduates. An increased demand for physics education has resulted from the renewed emphasis on STEM education. This demand spans the range of guiding students through highly specialized advanced degree programs to teaching the foundational service courses for students pursuing degrees outside of physics. Emeritus Professor Bernice Durand has exemplified the role of a gifted researcher and devoted teacher inspiring physics and non-physics majors across the University. With State support shrinking more and more it becomes the role of alumni and friends to recognize a debt we owe for our education and to help provide critical educational support for continued generations. Our goal is to fund the chair within the upcoming year. We recognize \$2M is a large amount but with your support, we can and will get there.

Emeritus Professor Bernice Durand has been a gifted educator within the Department and reached out far beyond to the University, the community and the State. We feel that it is most fitting to name the chair in her honor.

Donating to the fund is easy on line at:

<https://secure.supportuw.org/give/?id=a0e1d941-6b49-4710-a5fa-e9a2abdb8efa&>

The endowed chair name and number are:

Physics Board of Visitors' Endowed Chair Fund - # 132540056

Because an endowed chair will continue year after year, gifts will keep on giving both to the Department and to students who will greatly benefit from the educational experience and the secondary financial support the chair generates.

Shimon Kolkowitz



Shimon Kolkowitz

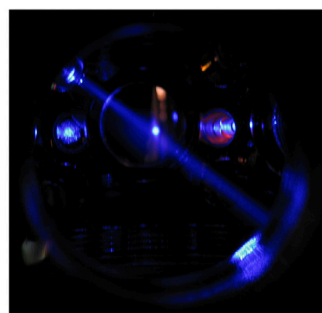
Wisconsin Physics is excited to announce the arrival of Assistant Professor **Shimon Kolkowitz** in January 2018. Prof. Kolkowitz is a highly accomplished young researcher in AMO (Atomic, Molecular, and Optical) physics. He comes to us having received his PhD at Harvard under Mikhail Lukin doing nanoscale sensing using diamond NV centers, followed by a postdoctoral fellowship on Sr optical clocks with Jun Ye at JILA (University of Colorado & National Institute of Standards and Technology). You can read about his latest work on many-body physics with spin-orbit coupled fermions in an optical clock at <https://arxiv.org/abs/1708.02704>.

Prof. Kolkowitz is planning exciting new experiments to implement on the 5th floor of Chamberlin. His primary effort will be the first

implementation of a multiplexed pair of Sr optical clocks. These are the best clocks in the world, being stable at the 10^{-18} level. At such incredible sensitivities, the clocks are very sensitive to gravitational clock shifts which are $1.1 \times 10^{-18}/\text{cm}$ at the earth's surface. The center of gravity of the two clocks will be displaced, as shown in the Figure, and the gravitational clock shift directly read out from the different rates of the two clocks, allowing an atomic test of the equivalence principle by comparing falling clocks to accelerated clocks. Kolkowitz's two clock approach will allow the cancellation of a number of important systematic errors that can hound experiments whose signals only vary in the 17th decimal place!

Long-term, Prof. Kolkowitz has a number of research directions he is interested in, illustrated at the right. He is interested in entangling the Sr clock atoms using Rydberg interactions, using spin-squeezing to "beat" the uncertainty principle in Sr clocks, and even making entangled clock networks for such things as space-based gravitational wave detection.

All of this, plus an NV-center experiment as well, will be coming to a new laboratory that is being prepared on the 5th floor. Prof. Kolkowitz also has ideas for implementing NV-center microscopy in advanced undergraduate lab courses, offering "prospects for especially talented students to engage in cutting edge research with publishable results".



The Sr1 strontium optical lattice clock at JILA.

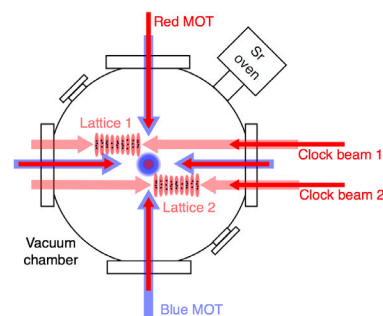
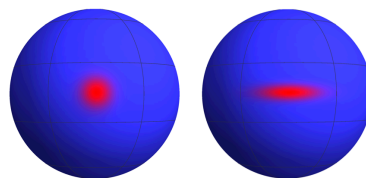
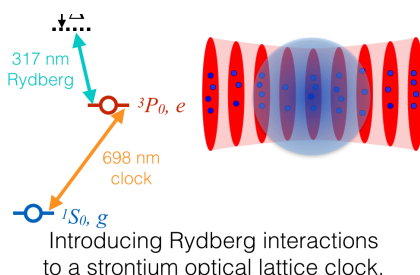


Diagram of the multiplexed Sr clock at UW-Madison.



Spin squeezing a Sr optical lattice clock using Rydberg interactions.

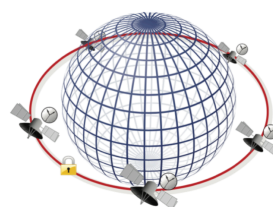
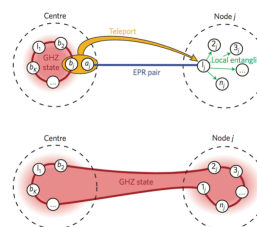


Diagram of a world network of entangled clocks.



Development of AM Radio, 1917-1919

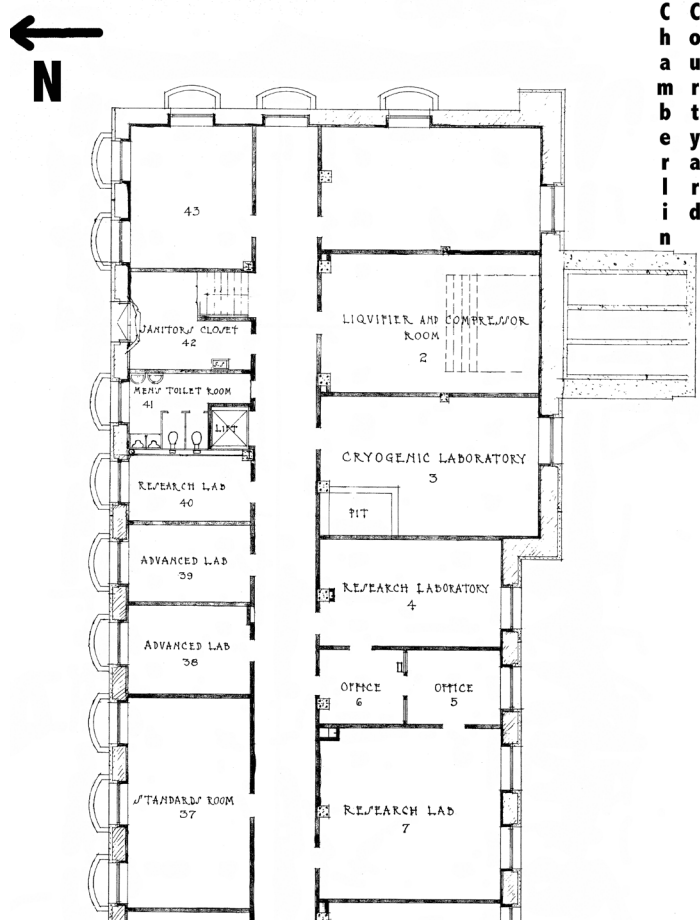


Fig. 1: SE Corner of Sterling Hall basement, showing Earle Terry's office (room 5) and glassblowing shop (room 6), and the location of the 9XM transmitter (room 38). Courtesy of UW FP&M.

Contribution of 9XM to the Development of AM Radio, 1917-1919

by James Reardon

The visitor had chosen an inopportune moment to call on Prof. Terry, for the immediate response from inside Room 6 of Sterling Hall was "Shut the damn door!"

Earle Terry had taught himself glassblowing in order to make high-power triode vacuum tubes. He was known as a patient and generous teacher—"so cheerful, so friendly, so ready to help," in the words of one of his graduate students—but a gust of cold air through an opened door could collapse the hot glass walls of a tube, and ruin a week's work. Legend has it that after this incident, he would be affectionately known to the students working on his radio project as Earle "shut the damn door!"

The visit might have happened around 1918. Terry had already built a spark-gap transmitter, operating in Science Hall with the call sign 9XM, which could broadcast Morse code intelligible throughout the state of Wisconsin to those with suitable receivers and training. Unfortunately, spark-gap transmitters could not transmit voice reliably, and as long as radio transmissions were limited to Morse they would be heard only by a few professionals and hobbyists.

Terry wanted more. According to another of his graduate students: "it is safe to say that Terry viewed the medium of radio communications as an instrumentality capable of bringing knowledge and understanding to all persons in all places." He became interested in vacuum tubes.

Three-element vacuum tubes had appeared in 1908; by 1912 it was realized they would oscillate at kHz or even MHz frequencies in a wide variety of circuits; and by 1914 a low-power vacuum-tube-based AM radio transmitter with a claimed range of one to three miles was being marketed by Lee de Forest. By late 1916 de Forest (a student of J. Willard Gibbs) had demonstrated a range of 200 miles for his radio station 2XG, located in Manhattan; he was an entrepreneur, and called his tubes "Oscillions". It was claimed one could dissipate 500 W.

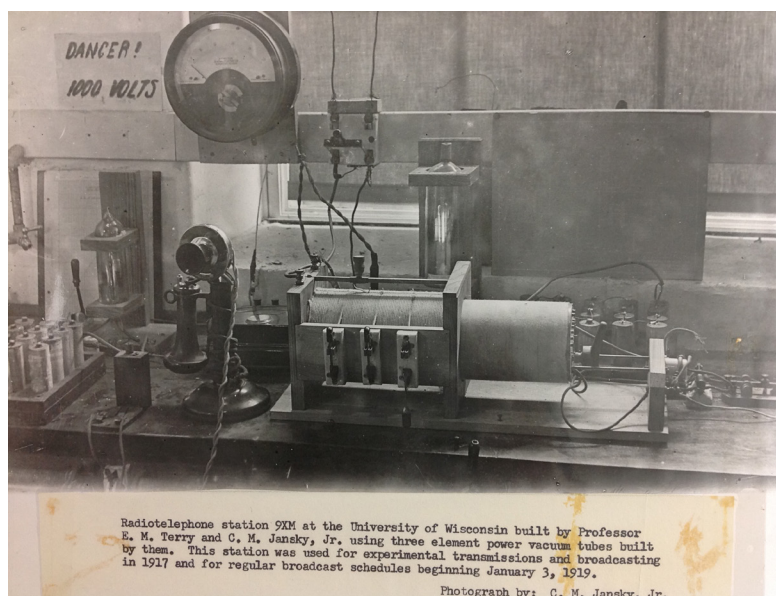
Terry had apparently been following these developments. In the fall of 1916 he started working with student Cyril Moreau Jansky, Jr., whose MA thesis, appearing in 1919, would be entitled "The Construction of High Power Vacuum Tubes and Their Uses in Radio Telephony". Jansky's summation of his progress the first year: "no completed vacuum tube was obtained during this year."

Development of AM Radio, 1917-1919

Outside UW, events were moving rapidly. On April 6, 1917, the US declared war on Germany. That same day, to guard against propaganda and espionage, President Woodrow Wilson issued Executive Order 2585—Taking Over Necessary and Closing Unnecessary Radio Stations. This criminalized not only radio transmitters, but also receivers. All non-military radio transmission immediately ceased.

Fortuitously, Terry's graduate work at UW (M.A. "The Magnetic Properties of Cement", 1904; Ph.D. "The Effect on Temperature on the Magnetic Properties of Electrolytic Iron", 1910) had brought him friendship with A. Hoyt Taylor, and Taylor was now Director of Communications for the Ninth Naval District of the U.S. Navy, headquartered at Naval Station Great Lakes, in North Chicago, IL. On May 8, 1917, Taylor authorized U.W. to resume both reception and transmission of radio signals.

Meanwhile, the Physics Department was planning to move to its new home: Sterling Hall. Terry's office would be room 5 (see Figure 1), and he would choose to use the windowless room 6 as his glass-blowing shop (hence his nickname). The new vacuum-tube based radio transmitter (see Figure



2) was housed in room 38 across the hall (room assignments as given in a letter written by Julian Mack, dated 11/19/58).

Jansky's second year must have been more productive than his first. He writes that by fall of 1918, not only had he and Terry constructed vacuum tubes capable of dissipating more than 70 W (plate current of 120 mA at plate voltage of 600 V; see Figure 3), but he had also devised a circuit for using them in radio transmission of voice (see Figure 4). Voice transmissions from Madison could be heard in Beloit "with the receiver resting on the table".

Fig. 2: 1917 9XM vacuum-tube transmitter. Image courtesy of UW Archives.

By March of 1919, Terry was ready to go public. On March 5, 1919, the UW issued a press bulletin in which Terry is quoted: "Wireless telephonic communication with Great Lakes Naval Training Station is now carried on by the University of Wisconsin wireless station after some months of experimentation. The first clear speech was transmitted last week." The bulletin continued: "A vacuum power bulb which is said to be better than any commercial bulb for use as oscillator or modulator in regulating the aerial waves has recently been devised by Prof. E. M. Terry, of the University".

The following month (April 15, 1919) the government ban on radio receiving was lifted; the transmitting ban would be lifted on October 1. Radio stations like 2XG resumed operations. Military experience had proved there was great potential in AM radio. It would take another year before the commercial possibilities were fully apparent.

Development of AM Radio, 1917-1919

The story of how Terry, his associates, and successors kept station 9XM going, how it evolved into WHA, and thence to Wisconsin Public Radio, and how, against all odds, a corner of the airwaves was preserved for educational broadcasting, as Terry had dreamed back in 1917, is told in the book *9XM Talking*, by Randall Davidson.

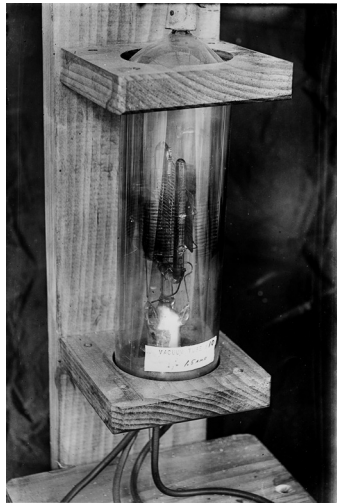


Fig. 3 Power vacuum tube (Cyril M. Jansky, M.A. thesis, 1919). Archives.

Cyril Jansky successfully defended his thesis on March 19, 1919. His committee included Prof. L.R. Ingersoll, who had founded the world's first Physics Museum in Sterling Hall the preceding year.

In honor of the hundredth anniversary not only of 9XM, but also of the Physics Museum, a working replica of the 1919 9XM transmitter (Fig. 5) is scheduled for installation in Physics Museum in January 2018. Glassblowing was done by Tracy Drier, of the Chemistry Department; tube plates and grids were fabricated by physics graduate student Avirup Roy, with guidance from Paul Nonn, using a spot-welder lent by Tom Wise; tube conditioning was accomplished by Steve Oliva; Steve Narf wound the coils, and did the woodwork; Jim Morin and Dan McCammon guided assembly, and advised on operation of the circuit; Brett Unks helped with the coil winding; Billy Gates located hard-to-find parts for the prototype; Sara Yaeger did the machining. See <http://radio.physics.wisc.edu> (created by physics graduate student Josh Karpel) for more information.

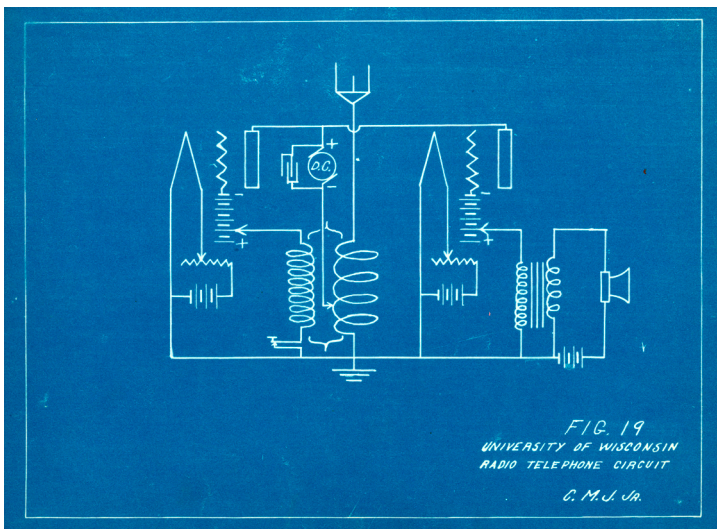


Fig. 4. 9XM circuit diagram (Cyril M. Jansky, M.A. thesis, 1919).



Fig. 5. 9XM replica on display at WHA centennial, 11/3/17. Bright spots are vacuum tubes in operation.

Badgerloop

BadgerLoop

by Duncan Carlsmith



In 2013, Elon Musk proposed a new method of transportation called Hyperloop, a system in which pods efficiently travel through depressurized tubes at 700+ miles per hour. In 2015, he initiated the open-source SpaceX Hyperloop competition for student design teams. An interdisciplinary team of UW undergraduates now called BadgerLoop responded. BadgerLoop's goal is to design and fabricate competitive prototype pods for HyperLoop competitions that lay the foundation for what could be the next major transportation industry.

In Jan. 2016, with startup support from a Garage Physics/Venturewell minigrant for innovation and entrepreneurship, awarded by Prof.

Carlsmith, the first BadgerLoop team placed 3rd in an international field of 125 student teams in the first SpaceX Hyperloop Design competition in College Station, TX. The Pod I design featured Halbach wheel acceleration and levitation with permanent magnetics. It included a sophisticated sensor and wireless control system as well as a virtual reality experience and was accompanied by a preliminary study of HyperLoop transport between Chicago and the Twin Cities. The BadgerLoop technical pod design was one of 25 approved for fabrication and test.

Roughly 150 UW-Madison undergraduates subsequently contributed to completing BadgerLoop's Pod I with R&D and construction space provided in Chamberlin Hall by the Physics Department, management advice and financial support provided by Physics Board of Visitors members, and additional mentorship through voluntary effort by College of Engineering professors. The team successfully raised over \$100,000 in additional sponsorship funding and acknowledged support from Physics in their first public REVEAL event at WID.

In January 2017, BadgerLoop competed with Pod I at SpaceX headquarters in Hawthorne CA to be amongst three pods selected to run in a just-completed above-ground 1.25 km evacuated pipe test facility. The event was a media frenzy and attended by Prof. Carlsmith and BOV members Lloyd Hackel and Craig Heberer of CA. The Delft Hyperloop team (Netherlands) received the highest overall score. Technical University of Munich (Germany) secured the award for the fastest pod. MIT (US) placed third overall in the competition while BadgerLoop received an Innovation Award and was honored by a photoshoot with Elon sitting in the pod.

Badgerloop

Within the next 7 months, BadgerLoop successfully transitioned management, created an entirely new design featuring cold gas thrusters, obtained design approval from SpaceX, constructed Pod II ultimately in space provided by the UW College of Engineering, and participated in Competition II at SpaceX, making the top 10 list and again bringing home an Innovation Award, being the first team to be twice so recognized. WARR Hyperloop (Technical University of Munich) clinched the win again after its pod reached a top speed of 324 kilometers per hour (201 mph).

BadgerLoop is heading into Competition III and is currently working on a fresh design. BadgerLoop plans to submit a Pod III design concept for approval by SpaceX engineers in fall 2017 in anticipation of a January 2018 competition at SpaceX. New subsystem team leads are in place while prior team leads have moved on, some to internships with Tesla Motors, Boeing, and APPLE.

The Hyperloop concept and competitions have grabbed the attention of national and international media and inspired students and even investors world wide. In recent news, Elon Musk has launched the Boring Company to provide subsurface Hyperloop transport leveraging planned innovation in tunneling technology, while Richard Branson has announced that he is investing in Hyperloop One, a commercial competitor.

Pod II BadgerLoop president Zuf Wang, now at Tesla Motors, kindly provided photos of the Pod II and the core team at SpaceX. New BadgerLoop president communications major Kali Kinziger has kindly provided the following statement:

“First, we thank our sponsors because without their support we would not have been able to compete. My team has learned so much from not only the design process but mostly from building and assembling our systems. As we continue forward in Competition III we have a more ambitious design which we are very excited about, however this makes us in need of more funding. Our Sponsorship Packet is very detailed with benefits but Badgerloop would love to have a personal relationship and exchange of ideas so that we both can benefit.

Badgerloop prides itself on having students with diverse areas of study, working on projects outside their own curriculum. We have physics, AMEP, and astronomy students working with our Analysis, Structural, Feasibility, and Electronics teams, and all have unique tasks that are significantly helping Badgerloop make progress. We are looking forward to seeing what each team produces and seeing what everybody will learn in the process. Feel free to check out our YouTube videos, Facebook albums and website!”

To stay informed of BadgerLoop progress, visit BadgerLoop.com.



Conference for Undergraduate Women in Physics (CUWiP) at UW-Madison

by Lisa Everett

The Department of Physics hosted a Conference for Undergraduate Women in Physics (CUWiP) on Jan 13-15, 2017 in Chamberlin Hall, UW-Madison. The UW-Madison CUWiP is one of ten CUWiPs that were held simultaneously around the U.S and in Canada. The purpose of the UW-Madison CUWiP is to encourage undergraduate women and gender minorities to pursue careers in physics by giving them the experience of a professional conference.



UW-Madison CUWiP 2017 Photo by Edward Leonard, Jr.

CUWiP had its inception over a decade ago. The conferences were initially localized to a few individual campuses in the U.S., but the series has grown tremendously over the years to include yearly regional meetings across the country and in Canada. According to estimates by the American Physical Society (APS), which has co-sponsored and helped to coordinate the CUWiP series as of 2012, nearly all U.S. undergraduate women physics majors attend one or more CUWiPs during their undergraduate careers.

In attendance at the UW-Madison CUWiP were 142 registered undergraduate participants from Wisconsin, Minnesota, Illinois, Iowa, and Michigan's Upper Peninsula. The participants included undergraduates from UW-Madison, UW-Milwaukee, UW-Eau Claire, UW-La Crosse, UW-Platteville, and UW-Stevens Point. Also present were a diverse set of UW-Madison graduate student volunteers and presenters from Physics, Medical Physics, Biophysics, Engineering, and Astronomy, as well as faculty and staff volunteers from the Physics Department and elsewhere on campus, resulting in a total of approximately 200 conference participants. The meeting included presentations from prominent women in physics, workshops and panel discussions, opportunities for networking, career advice and support, lab tours, brief research presentations by current graduate students, and a student poster session that included over 40 posters.

The CUWiP presenters included our department's own Sau Lan Wu, the Enrico Fermi and Vilas Research Professor of Physics; Pupa Gilbert, Professor of Physics, Chemistry, Geoscience, and Materials Science; Kimberly Palladino, Assistant Professor of Physics; Dr. Olivia Castellini, of the Chicago Museum of Science and Industry and a former member of our department's Board of Visitors; and Kerry Kresse, our Physics Librarian.

Outside speakers and panelists included CUWiP keynote speaker and LIGO researcher Nergis Mavalvala, Professor of Physics at MIT; soft-matter theorist Monica Olvera de la Cruz, the Lawyer Taylor Professor of Materials Science and Professor of Chemistry at Northwestern University; Eileen Pollack, Professor of Creative Writing of the University of Michigan and author of *The Only Woman in the Room: Why Science is Still a Boy's Club* (Beacon Press, 2015); Dr. Kawtar Hafidi, the current Physics Division Director at Argonne National Laboratory (and the first woman to hold this position at Argonne); Robin Bjorkquist, a Ph.D. student at Cornell University working at Fermilab on the Muon g-2 Experiment; Viktoriya Golovkina, of Prism Computational Services, Inc. in Madison; Minh-Dan Tran, a high school physics teacher at The Chicago High School of the Arts; Rachael Lancor, Associate Professor of Physics, Edgewood College; and Dr. Monica Plisch, Director of Education and Diversity at the APS. The NANOGrav Physics Frontier Center also provided an informational table staffed by UW-Milwaukee volunteers Kristina Islo, Sarah Vigand, and Laura Sampson.

The meeting also greatly benefited from several fantastic UW campus representatives who are experts on issues for women and underrepresented minorities in academia. These speakers, panelists, and workshop leaders are Dr. Jennifer Sheridan, the Executive and Research Director of the Women in Science and Engineering Leadership Institute (WISELI) at the UW-Madison; Creanna Cote, a UW-Eau Claire Academic Advisor and Advisor for the UW-Eau Claire Women in STEM Student Organization (WiSTEM); Dr. Audra Hernandez, Assistant Scientist in the UW-Madison Astronomy Department and active volunteer with the McNair Scholars Program; Maya Holtzman, Associate Director of the McNair Scholars Program at the UW-Madison; Maureen Muldoon, a Career and Internship Specialist

with the UW-Madison Letters and Science Career Initiative and Career Services; Dr. Amber Smith, the Director of Mentor and Mentee Training at the Wisconsin Institute for Science Education and Community Engagement (WISCIENCE) at the UW-Madison; and Dr. Hazel Symonette, Program Development and Assessment Specialist in the UW-Madison Division of Student Life and founding director of the Student Success Institute. UW-Madison Provost Sarah Mangelsdorf also joined us to provide opening remarks that gave the CUWiP attendees an enthusiastic welcome to Madison.



Photo by Edward Leonard, Jr

Fassnacht and Vilas Research Professor of Physics; Lisa Everett, Professor of Physics; Laura Fleming, Associate Instrumentation Specialist, Department of Physics; and Pupa Gilbert, Professor of Physics, Chemistry, Geoscience, and Materials Science.

The lead organizers of CUWiP@UW-Madison are Susan Coppersmith, Robert E.

The lead organizers are grateful to key organizing team members Susan Nossal of the Physics Learning Center, Silvia Bravo Gallart of WIPAC, Megan Madsen of WIPAC, and Aimee Lefkow of the Department of Physics for their invaluable help and expertise. The lead organizers also acknowledge the helpful support of the Physics Department Chair, Professor Albrecht Karle, the UW-Madison Physics Department's Board of Visitors, and Professor Matt Evans of the UW-Eau Claire Physics Department.

The conference also greatly benefited from the many wonderful student and staff planners and volunteers, both at the UW-Madison and other UW campuses. The lead organizers are particularly grateful to the wonderful UW-Madison graduate students in Physics, Medical Physics, Biophysics, Engineering, and Astronomy who contributed their time, enthusiasm, and expertise to the meeting. Special acknowledgements go to the members of the Gender Minorities and Women in Physics (GMAWiP) group in the UW-Madison physics department, as well as the many fantastic undergraduates from UW-Madison, UW-Eau Claire, and UW-La Crosse, who also helped with the conference logistics and contributed great program ideas.

The CUWiP meetings are co-sponsored nationally by the American Physical Society, the National Science Foundation, and the Department of Energy. Local funding was provided by the UW-Madison Physics Department, the Wisconsin IceCube Particle Astrophysics Center (WIPAC), the UW-Madison Graduate School, and the UW-Madison Letters and Science Division. Critically important conference support was also provided by a generous grant from the Brittingham Family Foundation, as coordinated through the UW-Madison Office of the Provost. The Provost's office has been a great source of support for our initiative to host CUWiP in Madison from the start.

Based on the enthusiastic response from the participants, as well as pre- and post-conference survey data from the APS, the UW-Madison CUWiP was tremendously successful in its mission to encourage participants to pursue their educational and career goals in physics and more broadly, in STEM fields. The conference was particularly effective in creating and enhancing networking opportunities for the undergraduate participants. Based on APS survey data, the UW-Madison CUWiP had the highest numbers of all the ten 2017 CUWiP meetings for the number of connections made by the student participants with each other and with conference speakers and volunteers. The UW-Madison CUWiP was a dynamic and exciting event that provided inspiration and support to the next generation of young physicists.

More information about the meeting can be found at <https://cuwip.physics.wisc.edu>.



Photo by Edward Leonard, Jr

Mike Juda

by Dan McCammon



Michael Juda (Ph.D. 1988) died on December 3, 2016. As a graduate student, Mike was instrumental in the design and construction of a sounding rocket instrument to make the first measurements of the diffuse X-ray background at energies of 100 eV and below. His careful preparation and calmness in stressful situations became legendary, and even though a scientist, a postdoc, and other graduate students were also involved with the experiment, there was never any question that Mike would be the one to handle and install the large-area 0.5 μm thick beryllium filters. Three highly successful flights of the instrument provided measurements that have been central to our understanding of the hot interstellar medium, and 30 years later are still the only reliable data in this energy range.

Mike stayed on as a postdoc for another five years and married his coworker Jiahong Zhang (Ph.D. 1992). Together

they pioneered much of the early development of X-ray microcalorimeters, an entirely new type of detector that is now the mainstay of future X-ray observatories, and developed the 50 mK refrigerator needed to successfully fly them on a sounding rocket.

They both went to the Harvard-Smithsonian Center for Astrophysics in 1993 to work on preparing NASA's flagship X-ray observatory for launch. Mike started out as an instrument scientist responsible for trouble-shooting and calibrating one of the focal plane instruments. His broad knowledge of instrumentation, attention to detail and dependability were quickly recognized here as well, and a year after the launch of Chandra he was named as one of the three flight directors with responsibility for approval of all commands sent to the spacecraft. In 2004, he was appointed lead flight director and mission operations manager, with final responsibility for all operations and the safety of the observatory, a position he held until his death.

In 2016 Mike was nominated for the NASA Exceptional Public Service Medal, in recognition of his many important contributions to the Chandra mission. The medal was awarded posthumously, and presented to Jiahong at a NASA ceremony this year.

2017 Physics Awards Banquet

The 2017 Physics Physics Banquet & Awards Ceremony to honor the Department Award Recipients and Alumni Fellows was held on Friday, April 28, 2017 at the The University Club. We honored our award winners with a reception, dinner, and an awards ceremony for their family and friends.

Undergraduate Awards

Fay Ajzenberg-Selove Award



Celeste Keith

This award is presented to undergraduate women majoring in Physics, Astronomy, or Physics/Astronomy to encourage them to continue their careers in science. Dr. Ajzenberg-Selove, who received her Ph.D. in Physics in 1952, is currently a Professor Emerita the University of Pennsylvania.

Dr. Maritza Irene Stapanian Crabtree Award



Oliver Hitchcock

This fund was established by William Crabtree to honor his wife, Dr. Maritza Crabtree, who graduated with a Physics degree in 1971. This annual award benefits undergraduate students in physics based equally on merit and need.



Bernice Durand Undergraduate Research Scholarship

Jozef Trokan-Tenorio

This award was established by Emerita Physics Professor Bernice Durand to promote meaningful undergraduate research and to support and encourage women and ethnic minorities as undergraduate majors in Physics and Astronomy.

L. R. Ingersoll Prize

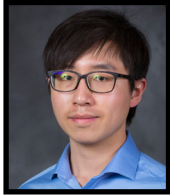
Spring 2015–2016: Yang Hao-Yu (202) | Cooper Goss (103) | Justin Laridaen (104) | Weidi Dai (201) | Kangbo Li (202) | Jack Nuckles (207) | Isaac Mades (208) | Jonathan Stensberg

Fall 2016–2017: Logan Yeager (103) | Marcus Voigt (104) | Jimmy Soeherman (201) | Severin Deng (202) | Alex Blair (207) | Kayla Bauhs (208) | Jeff Wade (241) | Oliver Hitchcock (247)

This prize is given for distinguished achievement in introductory physics. It is underwritten by a fund established by the family and friends of the late Professor Ingersoll, a distinguished physicist and teacher at the University who served as Department Chair for many years.



Justin Laridaen



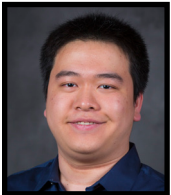
Kangbo Li



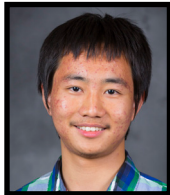
Isaac Mades



Jonathan Stensberg



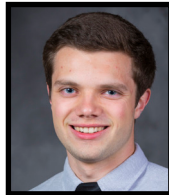
Jimmy Soeherman



Severin Deng



Alex Blair



Jeff Wade



Oliver Hitchcock



Kayla Bauhs

Liebenberg Family Research Scholarship



Kevin Langhoff

This scholarship is awarded is for Physics, AMEP, or Astronomy/Physics majors. This scholarship opportunity was initiated by the Liebenberg family for the purpose of promoting undergraduate summer research opportunities.

2017 Physics Awards Banquet

Graduate Awards

Joseph R. Dillinger Award for Teaching Excellence



Nick Brewer

This Award for Teaching Excellence was made possible by the family of Joseph Dillinger in honor of their father. The award provides recognition to an outstanding teaching assistant in undergraduate-level Physics. Prof. Dillinger was a faculty member of the department with a special interest in improving undergraduate education.

Henry & Eleanor Firminhac Scholarship Award



Hyunsue Kim

The Fund was established by former UW graduate, the late Ralph Firminhac (BS '41, MS '42). He created this scholarship in memory of his parents, Henry & Eleanor Firminhac.

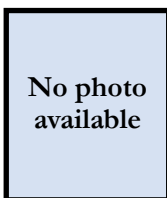
Charles Elwood Mendenhall Award



Edward Jr. Leonard

This award was made possible through the generosity of the Charles Elwood Mendenhall estate. Mendenhall received his Ph.D. from Johns Hopkins in 1898. He was a faculty member in the Department of Physics from 1901 until his passing in 1935.

Allan M. and Arline B. Paul Physics Award



Justin Walker

The late Mrs. Arline Borer Paul (1914-2012) created this endowment fund, for graduate scholarships in memory of Walter Max Borer. Walter was Arline's brother and received an MS degree in 1937

Emanuel R. Piore Award



Rishabh Khandelwal



Benjamin Hokansen-Fasig

Rishabh Khandelwal (Spring 2017)

Benjamin Hokansen-Fasig (Fall 2016)

The award is made possible through the generosity of the Piore family. It is awarded to the graduate student with the highest score on the qualifier examination.

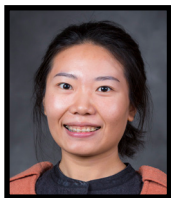
Karl Guthe Jansky and Alice Knapp Jansky scholarship



Chad Bustard

This award will alternate annually between an outstanding student in the Physics Department and an outstanding student in the Astronomy Department who is pursuing an advanced degree.

Phyllis Jane Fleming Graduate Student Support Award



Zhenyi Qi

This Award is made possible through the generosity of Linda B. Miller and Dr. Fleming. Phyllis received her Ph.D. in 1955 under Professor Dillinger. This fund provides support for a female doctoral candidate in physics.

Elizabeth Hirschfelder Scholarship



Rachel Myers

This Award is to assist women graduate students in Physics at UW - Madison

Department TA Awards

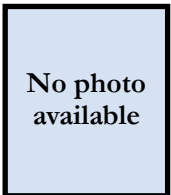
Best Teaching Assistant



Mitch McNanna (Spring 2016)

Alex Scherer (Fall 2016)

Rookie of the Year



No photo
available

Evan Heintz

Alumni Awards

Distinguished Alumni, Distinguished Scientist, & Distinguished Service Awards



Barbara Wilson



Raymond Fonck

UW Physics Degrees Awarded

Undergraduate Degrees



Fall 2016

Burkard, Wesley
Walsh, Eric
Butzen, Daniel
Chen, Weifan
Cherek, Joshua
Ma, Ruochen
Orchard, Alexander
Simpson, Scott
Spankowski, Michael
Stevenson, Corey
Sukumar, Kevinraj
Ziemke, Jacob

Spring 2017

Abitz, Jack
Apfelbach, Peterson
Benitez, Amadeus
Cann, David
Cook, Nicholas
Eggen, Nathan
Gassen, Christopher
Hoscheit, Benjamin
Hough, Austin
Johnson, Noah
Klabunde, James
Kuckelman, Ian
ErikLandry
Longfield, Jr, Jon
Lybert, Sydney

Macdonald, Brent
Mayer, Luke
Meyer, Mackenzie
Milner, William
Penn, Jeremy
Richter, Thomas
Rolette, Trevor
Smail, Greg
Surwillo, Matthew
Tarnowski, Joseph
Tuanqui, Catherine
Tyndall, William
Wallat, Eric
Xie, Ruifeng
Yang, Daeyong

Master Degrees

Fall 2016

Hanson, James Ernest
Irwin, Julian
Kaplan, Laser Seymour
Neyens, Sam
Thorgrimsson, Brandur
Tobin, Moriah Natasha
Wright, Aaron
Zhang, Guodong

Spring 2017

Abhishek, Aman
Fahey, Samuel Joseph
Karimi, Farhad
Ozguler, A. Baris
Peterson, Ethan Eric
Ruchotzke, William

Summer 2017

Winter, Miles Judd

Doctoral Degrees

Fall 2016

Hard, Andrew Straiton | Advisor: Wu | Thesis: Search and discovery with the resonant (diphoton) final state at ATLAS | Employment: Software Engineer at Google

Jonasson, Olafur | Advisor: Knezevic | Thesis: Quantum transport in semiconductor heterostructures using density-matrix and Wigner-function formalisms | Employment: Post-Doc UW-Madison

Vassh, Nicole Suzanne | Advisor: Balantekin | Thesis: Magnetic moments of active and sterile neutrinos in the laboratory, astrophysics, and cosmology | Employment: Post-Doc Notre Dame

Yang, Hongtao | Advisor: Wu | Thesis: Discovery of the Higgs boson, measurements of Higgs boson properties, and search for high mass Beyond the Standard Model scalar particle in the diphoton final state with the ATLAS detector at the Large Hadron Collider | Employment: Chamberlain Post-Doctoral Fellow, Berkeley

UW Physics Degrees Awarded

Doctoral Degrees



Spring 2017

Billie, Zachary | Advisor: Perkins | Thesis: Computer simulations and theoretical studies of complex systems : from complex fluids to frustrated magnets | Employment: Financial Software Developer at Bloomberg LP

Capecchi, William | Advisor: Sarff | Thesis: A critical fast ion beta in the Madison Symmetric Torus reversed field pinch | Employment: Sr. Simulation and Modeling Engineer at Donaldson Co.

Cottrell, William | Advisor: Hashimoto | Thesis: Singularities in 3d gauge/gravity duality | Employment: Post-Doc Amsterdam

Hampel-Arias, Zig | Advisor: Westerhoff | Thesis: Cosmic ray observations at the TeV scale with the HAWC Observatory | Employment: BAEF Postdoctoral Fellow at BAEF

Hu, Weiwei | Advisor: Lagally | Thesis: Lateral charge transport in silicon nanomembranes | Employment: Physics Instructor at Spelman College, Brenau University, and University of North Georgia

Kheirandish, Ali | Advisor: Halzen | Thesis: Particle astrophysics with cosmic neutrinos | Employment: Post-Doc UW-Madison

Lowitz, Amy | Advisor: Timbie | Thesis: Kinetic inductance detectors for CMB polarimetry at 100 GHz | Employment: Post-Doc at Kavli Institute for Cosmological Physics at University of Chicago

Lyon, Timothy James | Advisor: Joynt | Thesis: An investigation of the $[g]$ -factor of graphene | Employment: Process Engineer at Intel

Taylor, Devin Nathaniel | Advisor: Dasu | Thesis: A search for charged Higgs bosons in multilepton final states and a measurement of $[p][p]$ to WZ to $[l][\nu][l'][l']$ with the CMS detector at the LHC | Employment: Post-Doc at UC-Davis

Tirana, Joseph | Advisor: Sarff | Thesis: Measurements of two-fluid relaxation in the Madison Symmetric Torus | Employment: Post-Doc Notre Dame

Wang, Fuquan | Advisor: Wu | Thesis: Search for Dark Matter in events with a photon and missing transverse momentum in pp collisions at $\sqrt{s} = 8$ and 13 TeV with the ATLAS detector | Employment: Software Engineer at Yelp

Zhang, Fangzhou | Advisor: Wu | Thesis: Measurements of the Higgs boson production and decay rates and coupling strengths using $[pp]$ collision data at $[\text{square root}] s = 7$ and 8 TeV in the ATLAS experiment | Employment: Senior Consultant at Ernst and Young

Summer 2017

Anderson, Christopher Joseph | Advisor: Timbie | Thesis: Studying cosmic evolution with 21 cm intensity mapping | Employment: Post-Doc UW-Madison

Brewer, Nicholas Riley | Advisor: Yavuz | Thesis: Progress towards left-handed electromagnetic waves in rare-earth doped crystals

Ebert, Matthew Fitzgerald | Advisor: Walker | Thesis: Neutral atom ensemble qubits and Rydberg blockade | Employment: PPost-Doc UW-Madison

Gardner, Derek Dylan | Advisor: Lawler | Thesis: Interferometric investigations of exospheric hydrogen Balmer emissions | Employment: Post-Doc University of Arizona

Osborne, James | Advisor: Bai | Thesis: Topics in strong dynamics of the Standard Model and beyond

Peng, Tao | Advisor: Balantekin | Thesis: Complementarity of symmetry tests at the energy and intensity frontiers | Employment: Post-doc Data Scientist at Conversant, LLC

Seltzman, Andrew | Advisor: Forest | Thesis: Demonstration of Electron Bernstein wave heating in a reversed field pinch | Employment: Founder at Technical Plasmas LLC

Stefanek, Benjamin Augustin | Advisor: Bai | Thesis: Topics in beyond the Standard Model physics and cosmology | Employment: Post-Doc Johannes Gutenberg Universitat Mainz

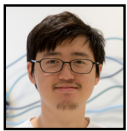
2017 Fall Admissions



Bohorquez, Juan Camilo
University Of Miami -
Astrophysics



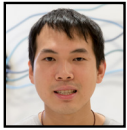
Chan, Chen-Hsun
National Tsing Hua Uni-
versity -
High Energy



Chen, Yinqi
University of Michi-
gan-Ann Arbor -
Condensed Matter



Granger, Maxwell Scott
Univ of California Santa
Barbara -
Biophysics



He, He
Cornell University -
High Energy / Astrophys-
ics



Kras, Jason John
Univ of Illinois at Ur-
bana-Champaign - High
Energy / Astrophysics



Krebs, Zachary Joseph
University of Chicago -
Condensed Matter



Lazar, Jeffrey Phillip
Columbia University -
Astrophysics



Leonard, Kayla Ann
University of Texas at
Austin -
Astrophysics



Leonard, Neil
University of Oregon -
AMO



Loges, Gregory Joseph
University Of Rochester -
High Energy



Lucchini, Scott Arthur
University Of Rochester -
High Energy



Mallampalli, Abhishikth
Indian Institute of Technol-
ogy Madras -
High Energy / Astrophysics



Morgan, Robert Ali
Wayne State University -
High Energy-



Oxholm, Trevor M
Northeastern University -
High Energy



Pizzuto, Alexander
Jacob Loyola University
of Chicago -
High Energy



Poole, Cody Alan
Lawrence University -
Quantum Computing



Prado, Maria Veronica
Williams College -
High Energy



Rouhiainen, Adam John
University of Texas at
Austin -
High Energy



Safa, Ibrahim
Univ of Texas at Arlington
Astrophysics



Shang, Victor
Harvey Mudd College -
Quantum Computing



Teague, Dylan Oliver
Vanderbilt University -
High Energy



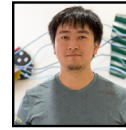
Tom, Leah
Univ of California Berkeley
- Quantum Computing



Vega, Cristian Santiago
Universidad de Buenos
Aires -
High Energy



Zhaksylykov, Azamat
Nazarbayev University -
Plasma



Zhang, Kairui
Univ of Illinois at Urba-
na-Champaign -
High Energy

Support Physics via the UW Foundation

Undergraduate



132691618. Fay Ajzenberg-Selove Undergraduate Scholarship provides encouragement for undergraduate women majoring in Physics, Astronomy or Physics-Astronomy to continue their careers in science.

132693412. Dr. Maritza Irene Stapanian Crabtree Undergraduate Scholarship provides assistance to undergraduate students based on merit and need.

132693561. Bernice Durand Research Scholarship promotes meaningful undergraduate research opportunities, plus supports and encourages women and ethnic minorities as undergraduate majors in the Departments of Physics and Astronomy.

132693645. Henry & Eleanor Firminhac Scholarship provides assistance to students in Physics with financial need. (Undergraduate or Graduate)

132692683. Liebenberg Family Research Scholarship supports Physics, AMEP or Astronomy-Physics majors in summer research experiences.

132697989. Hagengruber Fund provides assistance to undergraduate physics students who are Wisconsin residents with financial need; and who show exceptional promise for a future in physics or a related field.

112697824. Physics Board of Visitors Undergraduate Research Fund provides funding for awards that will assist directed study projects in pure and applied physics; multidisciplinary projects linking physics to such fields as biology; engineering; business; and creative expression; and participation in related conferences.

Graduate

132697960. Allan M. and Arline B. Paul Physics Fund provides support to graduate students in memory of Walter Max Borer (MS 1937).

132697988. Carl and Brynn Anderson Graduate Physics Fund provides support for graduate student recruitment and retention, travel for study and research, materials for study or research; recognizing achievement in scholarship.

132697201. Casey M. Durand Graduate Fund provides support, in memory of Albert R. Erwin, Jr., to graduate students working in experimental high energy physics.

132692082. Cornelius P. & Cynthia C. Browne Endowed Fellowship Fund provides support to graduate students pursuing doctoral studies in the Physics Department.

132693190. Elizabeth S. Hirschfelder Endowment supports women graduate students in Physics research.

132691960. Jeff & Lily Chen Wisconsin Distinguished Graduate Fellowship provides a full year fellowship to an outstanding graduate student in the department.

132691359. Joseph R. Dillinger Teaching Award Fund provides recognition to an outstanding teaching assistant in the Department of Physics.

132693916. Karl & Alice Knapp Jansky Fellowship Fund provides alternate year funding to an outstanding graduate student in Physics and Astronomy.

132696175. Phyllis Jane Fleming Graduate Student Support Fund provides support for a female doctoral candidate in any year of training in physics.

112698294. Physics Alumni Graduate Award Fund provides support to incoming graduate students who hold Teaching Assistant appointments in the department.

132695150. E. R. Piore Award provides support to the recipients of the highest qualifying exam scores each semester.

132692106. Graduate Student Recruiting provides assistance in recruitment expenses of Physics graduate students.

132691808 and 132692368. Ray & Anne Herb Wisconsin Distinguished Graduate Fellowships provides a full year fellowship to one or two outstanding graduate students engaged in materials research in the department.

132697430. Robertson Leach Graduate Student Fund provides support for incoming, first year graduate students in the department.

112696443. L. Wilmer Anderson & Dave Huber Graduate Support Fund provides a number of awards to new graduate students entering the department. This award is in honor of Profs. L. Wilmer Anderson and David Huber.

132695370. Van Vleck Fellowship Fund in Physics provides support to graduate students in the department.

Research

132694421. Barschall Enterprise Fund was established in 2005 in honor of former Professor Heinz Barschall. Provides unrestricted-use fund for Chair in recruiting senior researchers to faculty.

132906418. David Grainger Physics Library Fund provides funding for the acquisition of books and other materials related to physics.

132694069. Friends of the Physics L. R. Ingersoll Museum provides funding for museum display upgrades and student docents.

112694622. Physics Community-Building Fund provides funding for Chair in establishing and reaffirming a sense of community among the faculty, staff, students, and alumni of the Department.

112698078. Wonders of Physics Outreach Fund provides support for the continuation of the Wonders of Physics annual shows as well as the grade school show program.

132692106. Atomic Collision Research Fund encourages

and supports research on atomic collision processes and their application to studies of weakly ionized gases in perpetuity.

112691418. Elementary Particle Physics Institute provides funding for activities of the institute.

132690387. L. R. Ingersoll Fund provides support for colloquia and seminars in the department.

132691720. Physics Newton Fund is a general, unrestricted fund administered by the Department Chair. The purpose of this fund is to aid the Department of Physics in its research, teaching and public service roles.

132697999. Quantum Computing Research Center Fund provides support for research in quantum computing in the physics department.

112696250. Thomas G. Rosenmeyer Cosmology Fund provides support for the Prof. Peter Timbie research group in its teaching, research, and public service roles.

Support Physics

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☐ My gift of \$ _____, payable to the University of Wisconsin Foundation, is enclosed.

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For a description of all UW Foundation Physics Funds, go to: <http://www.physics.wisc.edu/donate/funds>

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To provide for undergraduate student special needs.
- ☐ **Undergraduate Support—Specific**
Indicate fund name and number below.
Select from list of “undergraduate” funds on previous page.
Fund Name: _____ Fund Number: _____
- ☐ **Graduate Support—General (#1269172)**
To provide for graduate student special needs.
- ☐ **Graduate Support—Specific**
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Select from list of “graduate” funds on previous page.
Fund Name: _____ Fund Number: _____
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Indicate fund name and number below. Select from list of “Research” funds on previous page.
Fund Name: _____ Fund Number: _____

Should you prefer to make your donation electronically by credit card on a secure server, please go to: <http://www.physics.wisc.edu/donate/funds>. Click on the fund in which you are interested for information and then complete the UW Foundation secure site form.

If you wish to consult with a UW Foundation Development officer on your gift or other options including estates, trusts, gifts in kind, or planned giving, please call the University of Wisconsin Foundation at 608-265-9952.



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