For further information on any of the items included here or if you would like to contribute to the next newsletter, send email to Daphne Klemme.

During the summer months the newsletter will be produced every two weeks.

Please note that this is the last newsletter you will receive in this format. Starting with the August 23rd issue the newsletter will be sent out using the Yale Messaging System. If you are a member of the physics department you do not need to do anything.

People outside of the physics department who are interested in the physics department news please subscribe by going to https://subscribe.yale.edu/browse?search=physics+department and enter your email, if your email is not in the system you will get a confirmation email with login information, please search for the “Physics Department Weekly Newsletter”.

Out-of-Pocket Expenses
When entering an out-of-pocket expense in Workday you need to add the Merchant name, this is necessary as that information is not automatically added.

Climate and Diversity Committee News
A Note from the Climate and Diversity Committee (CDC).

The CDC convenes once a month. If interested in joining please contact Helen Caines (helen.caines@yale.edu, Chair of CDC). You may contact the whole committee at physics-cdc@mailman.yale.edu

News
Summer is upon us and I need items to keep our Facebook (http://www.facebook.com/YalePhysicsDept) page busy. Please send me a photo and brief statement of your summer research projects so that I can post them – it is exciting to see where everyone goes and what they are doing!

Graduate Student Prize winners incoming class of 2019
The Leigh Page Prize is offered to first year graduate students in recognition of their fine academic record and for the promise of important contributions to the field of physics. This year’s winners are Ryan Mescall, Alex Reda, and Arina Telles.

Save the Date

Seminars
Wednesday, August 14
2:00pm in Leet Oliver Memorial Hall 206. Department of Mathematics Colloquium. Ivan Contreras Palacios, Amherst College, “Quantum Mechanics and the Shape of Graphs”.

For more seminars see: http://physics.yale.edu/calendar

Samantha Pagan is a recipient of the Dean’s Emerging Scholars Fellowship which is awarded to graduate students who exhibit outstanding academic promise and achievement and meet at least one of the following criteria:

- they come from backgrounds that have been underrepresented in their chosen fields of study, including historically underrepresented minority students, first-generation college graduates, students from economically disadvantaged backgrounds, or women in STEM fields;
- they plan to pursue research related to issues of diversity and identity, including but not limited to race, ethnicity, gender, socio-economic status, religion, sexual orientation, and ability;
- they have previously been or are currently involved in diversity-related initiatives by volunteering for community service or outreach on a college or university campus.

Peter Schiffer named the Beinecke Professor of Applied Physics

Peter E. Schiffer, recently appointed the Frederick W. Beinecke Professor of Applied Physics, is an international leader in experimental condensed matter physics, specializing in the study of magnetic systems.

Click here for the complete Yale News (August 5, 2019) article
Shelly Lesher, Ph.D.
Associate Professor of Physics,
University of Wisconsin-La Crosse

Biographical Sketch
Shelly Lesher is an Associate Professor of physics at the University of Wisconsin-La Crosse (UWL) with an active research program in experimental low-energy nuclear physics and developing the next generation of scientists. At an undergraduate institution, she has developed a course to educate scientists and non-scientist on the topics of nuclear weapons, energy, and policy in society using a multidisciplinary approach. She is the Director of the American Physical Society’s (APS) Conference Experience for Undergraduate Students for the Division of Nuclear Physics and Chair of the APS Committee on International Freedom of Scientists. Previously, Lesher has held positions at the Katholieke Universiteit Leuven in Belgium and Lawrence Livermore National Laboratory in Livermore, CA.

Planned Activities
From the physics side, I will work on data analysis from a series of (p,t) experiments performed at the Q3D at TU Munich and finish analysis on lifetime measurements in 168Er. I would like to teach students about nuclear weapons and their impact on society and to start conversations with the whole community about the broader implications of science, including current events and human rights. I am interested in collaborating with the Yale Center for the Study of Globalization to learn more about the pathway toward nuclear disarmament.

Website
https://www.uwlax.edu/profile/slesher/

Sarah Veatch, Ph.D.
Associate Professor of Biophysics and Physics, University of Michigan

Biographical Sketch
Sarah Veatch obtained her bachelor’s degree in physics from MIT, her PhD in physics from the University of Washington, and conducted her postdoctoral work at Cornell University in the department of chemistry and chemical biology. She is currently an Associate Professor of biophysics and physics and is the Associate Chair of biophysics at the University of Michigan. Sarah Veatch’s PhD work focused on mapping a then newly defined miscibility phase transition in purified lipid bilayers. In her postdoc, she identified that fluctuations observed near miscibility critical points in this system are consistent with belonging to the 2D Ising model Universality class. She also found that bilayer vesicles isolated from living cells exhibit similar critical behavior, indicating that cells biologically tune their membrane composition such that they reside near a critical point under growth conditions. The Veatch lab at the University of Michigan experimentally investigates roles for criticality in signaling pathways initiated within the plasma membranes of cells. She also uses and has developed super-resolution fluorescence localization microscopy methods to probe membrane mediated interactions in cell membranes.

Planned Activities
While visiting Yale in the Fall of 2019, Professor Veatch will work with her long-time collaborator Ben Machta on two recently funded projects. The first explores how ion channel function is modulated by heterogeneous membranes. The second explores coupling between 2D phase transitions in membranes and 3D phase transitions in polymers. In addition to working with Machta on theoretical aspects, Sarah looks forward to establishing new connections with experimentalists in other departments and programs.

Website
https://sites.lsa.umich.edu/veatch-lab/

Second annual Granville Academy explores diversity and inclusion with undergraduate researchers

The second annual Granville Academy, a week of diversity and inclusion workshops for undergraduate students doing summer research in astronomy and physics, was held at the Sloane Physics Laboratory during the week of July 15 to 20, 2019.

Designed by Israel Munson professor of physics Meg Urry and former Yale lecturer Louise Edwards as part of their National Science Foundation program on the “Accretion History of Active Galactic Nuclei,” this year’s Granville Academy was co-hosted by the Yale Center for Astronomy and Astrophysics (YCAA), Wright Laboratory (Wright Lab) and the departments of astronomy and physics at Yale. Wright Lab program manager Victoria Misenti and YCAA senior administrative assistant Geriana van Atta assisted with the logistical coordination of the week.

The workshops were led by Urry, physics graduate student Charles Brown, and associate professor of physics Reina Maruyama. In a survey taken at the end of the program, the eighteen attendees reported that they had learned a lot and were glad to have participated in this kind of program.

The daily workshops were as follows:

July 15: Introductions, goals for the week (Urry)
July 16: "Demographics of under-representation" (Brown)
July 17: "Fostering inclusivity 1: Implicit bias, stereotype threat, privilege" (Urry)
July 18: "Fostering inclusivity 2: Strategies for dealing with micro-aggressions or implicit bias, how to be a better ally, etc." (Maruyama)
July 19: “How NOT to give a talk” (Urry), followed by catered lunch and the movie, Hidden Figures
The Granville Academy is named for Evelyn Boyd Granville, who obtained her Ph.D. in mathematics from Yale in 1949 and was the second African-American woman to receive a Ph.D. in mathematics in the United States. Granville’s long career in research and teaching, including work in celestial mechanics digital computer techniques for the Apollo program, was recognized in 2000 with the Yale Graduate School Alumni Association’s highest honor, the Wilbur Lucius Cross medal.

Granville Academy in Yale News (September 5, 2019)

Thomas Langford awarded 2019 Sambamurti Memorial Lectureship at Brookhaven National Laboratory

Associate research scientist Thomas Langford was awarded the 2019 Sambamurti Memorial Lectureship at Brookhaven National Laboratory (BNL) on July 25, 2019, where he presented his lecture “Fingerprinting a nuclear reactor with neutrinos”.

According to the BNL website, “the Sambamurti Memorial Lectureship is a prize lectureship established in memory of Aditya Sambamurti, a young high energy experimentalist working on rare kaon decays at the BNL Alternating Gradient Synchrotron (AGS), who died in 1992. It is to be awarded yearly to a young (under 40) high energy or heavy ion experimentalist of outstanding achievement. The lecture, which should describe the work for which the lecturer is being honored, is to be delivered to students working at BNL during the summer.”

The abstract of Langford’s lecture follows:

Neutrinos have been the most consistently surprising particle of the last few decades. The onset of high-precision experiments has lead to the discovery of neutrino oscillations, possible evidence for beyond the Standard Model sterile neutrinos, and the beginnings of neutrino-based geophysics. Recent measurements of antineutrinos from nuclear reactors have observed flux and spectral discrepancies compared to leading theoretical models. Experiments like Daya Bay and PROSPECT are able to observe the small differences of neutrino emission from different mixtures of nuclear fuel, which may illuminate the origin of this disagreement. These neutrino finger-prints can also be used to investigate the mixture of fuel inside an operating reactor, rekindling interest in neutrino-based reactor monitoring. I will present recent advances which have demonstrated how small-scale experiments utilizing new technologies can advance both fundamental and applied science.

Click here for further information.

Announcements

Please click here for updates on the Yale Science Building, including a new logistics plan. The project encompasses the construction of a new state of the art sciences laboratory at the approximate location of the demolished J.W. Gibbs building, a comprehensive renovation of the KBT Plaza, a lecture hall, and a common area at the south end of KBT Plaza.

Opportunities

The 14th WiML Workshop will be co-located with NeurIPS, the premier international machine learning conference, in Vancouver, Canada on Monday, December 9th, 2019.

TL;DR:

- Everyone is invited to attend
- Everyone is invited to volunteer as a reviewer (https://t.co/NiSoXwpMMq?amp=1)
- If you identify as female or nonbinary:
  - submit your 1-page contributions (https://cmt3.research.microsoft.com/WiML2019) by August 15th, 2019 for a chance to present (poster or oral)
  - apply to become an area chair (https://t.co/RF537mmGI?amp=1)

The Workshop for Women in Machine Learning is a one-day event with invited speakers, oral presentations, and posters. The event brings together members of the academic and industry research landscape for an opportunity to connect and exchange ideas, and learn from each other. There will be a mentoring session to discuss current research trends and career choices in machine learning. Underrepresented minorities and undergraduates interested in pursuing machine learning research are encouraged to participate. While all presenters will identify primarily as female or nonbinary, all genders are invited to attend.

IMPORTANT DATES

- July 15th, 2019 – Abstract Submission Open on CMT
- August 15th, 2019 11:59pm PST – Abstract Submission Deadline
- September 1st, 2019 – Visa-Friendly (Early) Notification of Acceptance and Travel Funding
- September 21st, 2019 – Regular Notification of Acceptance
- October 15th, 2019 – Regular Notification of Travel Funding
- November 21st, 2019 – Registration Deadline (or earlier, if we sell out)
- December 9th, 2019 – WiML Workshop Day

This year, WiML is introducing a Visa-Friendly (Early) notification of acceptance and travel funding on September 1, 2019. If you need to apply for a visa to travel to Canada, we encourage you to select this option in the submission page in CMT. If you do not need to apply for a visa to travel to Canada, please do not select this option.

SUBMISSION INSTRUCTIONS
We strongly encourage students, postdocs, and researchers who primarily identify as women or nonbinary in all areas of machine learning to submit an abstract (1 page PDF) describing new, previously, or concurrently published research. We welcome abstract submissions in theory, methodology, as well as applications. Abstracts may describe completed research or work-in-progress. While the presenting author need not be the first author of the work, we encourage authors to highlight the contribution of authors who identify primarily as female or nonbinary—particularly the presenting author—in the abstract. Authors of accepted abstracts will be asked to present their work in a poster session. Authors with multiple accepted posters will be asked to select only one poster to present. A few authors will be selected to give spotlight or oral presentations. There are no formal proceedings.

Submissions will be peer-reviewed in a double-blind setting. After submission, all authors will automatically receive an invitation for the reviewer pool, into which they can opt-in. Many student and postdoc authors who review for WiML will be eligible for travel funding they can opt-in. Many student and postdoc authors who review for WiML will be eligible for travel funding (see further details below).

Submission page: https://cmt3.research.microsoft.com/WiML2019
(Submission is now open!)

**Style guidelines:**

- Abstracts must not include identifying information.
- Abstracts must be no more than 1 page (including any references, tables, and figures) submitted as a PDF. Main body text must be minimum 11 point font size and page margins must be minimum 0.75 inches (all sides).
- Do not include any supplementary files with your submission.

**Content guidelines:**

- Your abstract should stand alone, without linking to a longer paper or supplement.
- You should convey motivation and give some technical details of the approach used.
- While we acknowledge that space is limited, some experimental results are likely to improve reviewers’ opinions of your paper.

**Acceptance criteria:**

All accepted abstracts must be presented by authors who identify primarily as female or nonbinary. Abstracts will be reviewed by multiple reviewers, who will use the following criteria:

- Is this abstract appropriate for WiML? i.e., does it describe novel research or an interesting application in machine learning or related fields?
- Does the abstract stand alone?
- Does the abstract adequately convey the material that will be presented?

Examples of accepted abstracts from previous years can be found here, and advice on writing a one-page abstract can be found here. Due to the volume of submissions anticipated, we are unable to review any submitted materials besides the requested abstract.

**TRAVEL FUNDING**

Registration for WiML is free. Travel funding is available for presenting authors. To qualify, the author must be a student, postdoc, or equivalent position (equivalent positions include unemployed recent grads and early career researchers from underrepresented geographical areas), identify primarily as female or nonbinary, have an accepted abstract, and review for WiML. The amount of the travel funding varies by the author’s geographical location and the total amount of funding WiML receives from sponsors. In the past, funding ranging from $300-$1000 has been given.

WiML travel funding is administered as reimbursements after the workshop and no funding is allocated before the workshop.

If you are attending NeurIPS, we also encourage you to apply for NeurIPS’ volunteering and travel funding opportunities, which are separate and independent of WiML travel funding. Check the NeurIPS website directly for details.

For more info, visit: https://wimlworkshop.org/2019/

Graduate School 101 Workshop @ Harvard for URM Women in Physics & Related Fields

Harvard University Physics in partnership with the Women+ of Color Project (WOCP)-an online classroom dedicated to supporting WOC who are applying to graduate school-will host a Graduate School 101 Workshop Weekend, October 3-5, 2019 on the Harvard University campus. This 3-day workshop will guide participants in the graduate application process as well as how to thrive after matriculation. The workshop will include travel, lodging, and meals for accepted students, with support for the program generously funded by the Heising Simons Foundation.

We plan to accept applications to this program from ALL groups, however priority and focus will be given to competitive Black, Native American/Indigenous/Pacific Islander, and Latina/x women+ applicants who plan to apply for graduate school in the Fall of 2020 and 2021.

To nominate a student or apply yourself fill out this form. Applications are due on Sunday, August 15, 2019 with maximum consideration for students who meet this deadline. Applications thereafter will be accepted on a rolling basis. If you have any questions about the application or nomination process, please feel free to contact us at TheWOCProject@gmail.com and follow us on twitter @theWOCProject for updates. We look forward to seeing your applications & nominations!

Tenure-track Appointments in Science, Mathematics, and/or Statistics, Harvard University
We are looking to appoint tenure-track faculty in any field in any of our science departments at Harvard. Briefly, we are looking for candidates who have a strong record of or commitment to:

1) teaching at the undergraduate and graduate levels
2) to broadening institutional diversity, and
3) scholarly excellence.

We are committed to building a culturally diverse intellectual community and we particularly encourage applications from individuals who identify as members of historically underrepresented groups.

If you know anyone fabulous, please tell them to apply, and, if you've time, please let us know that you have. Details on how to apply are at https://academicpositions.harvard.edu/postings/9104

The application deadline is October 7, 2019 and interviews will be held November 14 and 15, 2019. If you have specific questions, please feel free to contact Christopher Stubbs (sciencedean@fas.harvard.edu) or Zoe Fonseca-Kelly, Assistant Dean for Science (zoefonseca-kelly@g.harvard.edu)

Sandia National Laboratories, Albuquerque, NM
Postdoctoral Appointee – Materials Growth, Processing, and Characterization

How To Apply
Visit http://www.sandia.gov. Go to Careers. This is Job Opening 668507.

Job Summary
We are seeking a Postdoctoral Appointee to conduct leading-edge experimental research in the areas of:

- Growth and characterization of carbon nanotube arrays for thermal applications
- Study/develop laser surface annealing for innovative post-processing strategies
- Growth and study of highly-disordered carbon films for sensor and energy storage applications
- Growth and characterization of cermet (discontinuous metal films) with unusual transport properties
- Growth and study of thin films to engineer magnetic fields at the nanoscale
- Growth and characterization of superconducting films for advanced electronics

The primary functions of this role include, but are not limited to:

- Performing original studies correlating the growth of controlled material structures and compositions with desired properties (e.g. electronic, magnetic, thermal, and electrochemical)
- Demonstrating leadership and self-motivation within a team-oriented environment
- Publishing findings in leading journals and presenting conferences

Qualifications We Require

- PhD in materials science, physics, applied physics, engineering, or a related discipline and possess a bachelor’s in science, technology, engineering or mathematics (STEM)
- Experience in thin film materials growth and characterization
- Record of original work to include conference presentations and publications in refereed journals
- Able to obtain and maintain a DOE Security Clearance

Qualifications We Desire

- Experience with deposition methods (e.g. sputtering, pulsed-laser deposition, chemical vapor deposition)
- Experience with post-deposition thermal and/or laser annealing, ion beam milling, and electrochemical processes
- Experience with structural measurements (e.g. electron microscopies, x-ray diffraction, stress evaluation, Raman, AFM)
- Experience making electronic and/or thermal transport measurements
- Ability to develop and maintain collaboration with leaders in the scientific community within and outside of Sandia National Laboratories
- Curiosity about the world and a strong interest in connecting one’s research to the larger context of science, society, and national security
- A record of academic achievement as demonstrated by high GPAs for relevant degree(s)
- Effective communication and interpersonal skills that foster effective scientific collaborations with a diverse population of researchers
- Candidates should also have demonstrated creative problem solving and effective time management skills

About Sandia
Sandia National Laboratories is the nation’s premier science and engineering lab for national security and technology innovation, with teams of specialists focused on cutting-edge work in a broad array of areas. Some of the main reasons we love our jobs:

- Challenging work with amazing impact that contributes to security, peace, and freedom worldwide
- Extraordinary co-workers
Some of the best tools, equipment, and research facilities in the world

Career advancement and enrichment opportunities

Flexible schedules, generous vacations, strong medical and other benefits, competitive 401K, learning opportunities, relocation assistance and amenities aimed at creating a solid work/life balance*

Department Description

The Nanoscale Sciences Department conducts collaborative leading-edge research that advances the understanding of materials at the nanoscale and enables the collaborative development of creative solutions for Sandia’s broad and evolving National Security and Energy Missions. Our research activities have broad impact; and typically generate peer-reviewed, high-profile journal publications and presentations at professional scientific meetings. Our main research focus is directed along three thrusts:

1. Electrochemical Materials Science and Applications (including energy storage and corrosion)
2. Magnetic, Dielectric and Electronic Materials Science and Applications (including semiconductors, superconductors, cermets, etc.)
3. Nanostructured Materials Science and Applications (i.e., for thermal transport, energy storage, chemical sensing, etc.)

Security Clearance

Sandia is required by DOE to conduct a pre-employment drug test and background review that includes checks of personal references, credit, law enforcement records, and employment/education verifications. Applicants for employment need to be able to obtain and maintain a DOE Q-level security clearance, which requires U.S. citizenship. If you hold more than one citizenship (i.e., of the U.S. and another country), your ability to obtain a security clearance may be impacted.

Applicants offered employment with Sandia are subject to a federal background investigation to meet the requirements for access to classified information or matter if the duties of the position require a DOE security clearance. Substance abuse or illegal drug use, falsification of information, criminal activity, serious misconduct or other indicators of untrustworthiness can cause a clearance to be denied or terminated by DOE, resulting in the inability to perform the duties assigned and subsequent termination of employment.

EEO

All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, or veteran status.

Position Information

This postdoctoral position is a temporary position for up to one year, which may be renewed at Sandia’s discretion up to five additional years. The Ph.D. must have been conferred within five years prior to employment.

Individuals in postdoctoral positions may bid on regular Sandia positions as internal candidates, and in some cases may be converted to regular career positions during their term if warranted by ongoing operational needs, continuing availability of funds, and satisfactory job performance.

Sandia National Laboratories, Albuquerque, NM

Postdoctoral Appointee – Electrochemical Nanosensor Development

How To Apply

Visit http://www.sandia.gov. Go to Careers. This is Job Opening 668505.

Job Summary

We are seeking a Postdoctoral Appointee to conduct leading-edge experimental research to study and develop innovative nanosensors and separation processes based on electrochemical and electrophoretic concepts as part of a multi-disciplinary team of materials, physics, chemistry, and electrochemistry scientists to include experiment and theoretical modeling work. The successful candidate will fabricate, study and optimize nanooarray devices for sensor and/or separation processes for advanced applications, although other opportunities may present themselves based on discovery.

Key functions of this role include, but are not limited to:

- Performing original laboratory studies to develop and fundamentally understand advanced concepts for electrochemical nanosensor and nano-electrophoresis applications
- Demonstrating leadership and self-motivation within a team-oriented environment
- Publishing findings in leading journals and presenting research at scientific conferences

Qualifications We Require

- You have, or are pursuing, a PhD in materials science, chemical engineering, chemistry, or related discipline and possess a bachelor’s in science, technology, engineering or mathematics (STEM)
- Experience in electrochemistry and/or electrophoresis
- Record of original work to include conference presentations and publications in refereed journals
- Able to obtain and maintain a DOE Security Clearance

Qualifications We Desire

- Experience making electrochemical measurements
• Experience with electrochemical processing methods (e.g. anodization, coating, etc.)
• Understanding of electrophoresis concepts
• Experience in physical vapor deposition methods (e.g. RF-sputtering, evaporation, pulsed-laser deposition)
• Experience with structural evaluation methods (e.g. electron microscopy, mass spectroscopies, etc.)
• A record of academic achievement as demonstrated by high GPAs for relevant undergraduate degree(s) and graduate degree(s)
• Ability to develop and maintain collaboration with leaders in the scientific community within and outside of Sandia National Laboratories
• Curiosity about the world and a strong interest in connecting one’s research to the larger context of science, society, and national security
• Effective communication and interpersonal skills that foster effective scientific collaborations with a diverse population of researchers
• Candidates should also have demonstrated creative problem solving and effective time management skills

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4. Electrochemical Materials Science and Applications (including energy storage and corrosion)
5. Magnetic, Dielectric and Electronic Materials Science and Applications (including semiconductors, superconductors, cermets, etc.)
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