July 15, 2016

Dear Wellesley Physics Alumnae,

This is my second annual letter to the department’s alums, though I’ve managed to add an additional six months to the meaning of “annual”. This year, winter break seemed to be no break at all, and then the Spring semester took over, and…and…and. “Season’s greetings” is no longer remotely appropriate. So I wish you a fine mid-July. Many thanks again to the Alumnae Office at the College for handling the logistics of reaching you. They advise me that this letter is being sent to about 300 physics alums; graduates of the classes of 1945 through 2015.

In last year’s letter I provided an overview of the department circa 2015. There have been a few changes in our staffing in the last year; perhaps I’ll start there. Entering the 2016-17 academic year, we are: Professors James Battat, Robbie Berg, Ted Ducas, Yue Hu, Bill Quivers, and Glenn Stark; Senior ISL’s (Instructors in Science Lab) Lauri Wardell and George Caplan; Lecturer Jerome Fung, and Visiting Lecturer Tracy McAskill. Ted Ducas and James Battat were on sabbatical this past year; Ted worked with colleagues at MIT on intro physics pedagogies that take advantage of electronic resources and James continued his research in the fields of dark matter detector development and lunar ranging as a test of general relativity. Bill Quivers will be retiring in 2017. Bill taught his last courses at Wellesley in the Fall semester (2015). He is finishing his time at Wellesley with a well-deserved sabbatical in 2016-17. The department and Bill’s students (and Bill!) had an impromptu celebration at the end of his last lecture (PHYS 104 for those keeping score) last December. The College will formally celebrate Bill’s retirement next year.
Kaća Bradonjić completed four years as a Visiting Lecturer in our department, the college’s limit for visiting faculty positions. Kaća is moving on to greener pastures in western Massachusetts, where she will be teaching next year at Hampshire College. We’re grateful to Kaća for her excellent teaching, her good humor, and her good citizenship these past years, and we wish her the best at Hampshire.

Jerome Fung is our newest hire; he came to Wellesley this past fall from Brandeis University, where he was completing a postdoc in experimental biophysics. Jerome received his bachelor’s degree from Swarthmore and his PhD, in the field of soft condensed matter, from Harvard. Jerome was hired as a Lecturer after a national search for a Ph.D. physicist with a strong commitment to undergraduate education, an interest in participating in the introduction of teaching innovations in our introductory sequences, particularly in the arena of blended course structures, and the background and interest to teach in other areas of the curriculum. In Fall 2015, Jerome and Robbie Berg taught our first “blended” versions of PHYS 107 (intro mechanics). In a blended teaching format, the lecture and lab sections are components of an integrated course structure without sharp instructional distinctions.

In Spring 2015 the department hosted an External Visiting Committee (many thanks to Liz McCormack, Wellesley Physics 1984, and Professor of Physics at Bryn Mawr, for participating!). In preparation for that visit we conducted a pretty thorough curricular review and assessment. Armed with that assessment and the recommendations of the Visiting Committee, we worked hard this past year to begin implementing some changes to our program. Most significantly, we developed an alternative path through our major that we are calling the Interdisciplinary Option. The option provides students with a strong foundation in physics supplemented with coursework in related scientific fields. It will bring flexibility to our program, allowing students to design an intellectually coherent academic program that combines physics studies with training in fields such as applied science, biological science, geoscience, environmental science, computational science, and mathematics. The Interdisciplinary Option will have slightly fewer course requirements within the Physics Department and additional elective requirements chosen from courses offered in other departments, at MIT, and at Olin College. This option will be open to students beginning next year, and we're looking forward to seeing how students respond to this broader conception of the physics major. In a related development, the Physics and Chemistry Departments established an Interdepartmental Major in Chemical Physics. The goals of the Chemical Physics major are (1) to provide an organized academic program for students interested in pursuing studies at the interface between chemistry and physics; (2) to provide consistent and clear counsel to students early in their academic careers regarding the field of chemical physics; and (3) to foster closer links between the two departments. As more students enter Wellesley with an eye toward interdisciplinary science, we determined that now is the time to provide a clear academic route to Chemical Physics that is visible to, and validated for, our introductory students. The Chemical Physics Interdepartmental major will appear in
the Wellesley catalog next year; we expect that it will bring clarity to students’ training in this growing interdisciplinary area of study.

2015-16 was truly a banner year for the department in terms of numbers of majors and their accomplishments. In 2016, our sixteen graduating seniors (including Astrophysics and Chemical Physics majors) constituted the largest cohort of majors in our history (at least that I’m aware of – if you know differently, please let me know). Seventeen juniors and fifteen sophomores are declared Physics, Astrophysics, or Chemical Physics majors. These are exciting times for the department.

This past May, five seniors shared the annual Phyllis Fleming Award for excellence in physics. We extend congratulations to Carina Belvin, Wanyi Li, Hikari Murayama, Emma Regan, and Hannah Sim. Four of our seniors completed honors thesis projects, two in physics and two in chemical physics. The College awarded Carina Belvin and Hannah Sim Schiff Fellowships to support their thesis work (supervised by Robbie Berg and Megan Nunuz (Chemistry Dept), respectively). Emma Regan (’16) was the first author(!) on a paper published in ACS Photonics that describes some of her work with MIT Professor Marin Soljacic’s “modern electromagnetics” group. Catherine Nicoloff (Davis Scholar, ’18), was a co-author on a paper in Physical Review C describing work completed while she was on leave from the college and working in the Nuclear Science Lab at Notre Dame. Jyoti Campbell (Chemical Physics, ’18), was the presenting author of a paper titled “The Role of Low-Energy Electrons in Astrochemistry: A Tale of Two Molecules”, delivered at the American Astronomical Society meeting in San Diego last month. Remarkably, seven of our graduating seniors are entering PhD programs next year: Carina Belvin – MIT (Physics), Hannah Sim – Harvard (Chemical Physics), Emma Regan – Berkeley (Applied Physics), Wanyi Li – Stanford (Operations Research), Rose Gibson – Columbia (Astrophysics), Gillian Beltz-Mohrmann – Vanderbilt (Astrophysics), and Cayla Fromm – Rochester Institute of Technology (Applied Optics). I’m pretty confident that our recent record in graduate school placements is unmatched by any other science department at Wellesley.

We’ve been working hard to create a departmental culture that emphasizes student involvement in research and independent projects. In 2015-16, four students completed honors theses and faculty mentored 18 additional semester-long for-credit projects. In 2015 the department also had a significantly enhanced presence in the Science Center summer research program; students completed projects under the supervision of Robbie Berg, Yue Hu, Kača Bradonjić, and myself. One project of special note this past semester was Caroline Martin’s (’18) design, construction, and installation of a “science for the public” apparatus in the Science Center – a “Pendulum Wave Machine” that beautifully illustrates beat patterns in the periods of 15 pendulums. Caroline produced a very clever video that shows the Wave Machine in action. Check it out at https://vimeo.com/166353862. Here is a photo of our summer 2015 students on the last day of that program:
Our Society of Physics Students chapter was very active in the past year. Seven students attended the APS Conferences for Undergraduate Women in Physics (CUWiP). Among other highlights, SPS organized a “Young Alumnae Panel” in October 2015 that featured Susan Tse ('07), Catherine Lee ('11), Yoonji Choe ('13), Hannah Herde ('14), Helena Qi ('14), and Elena Shaw ('15). Mara Prentiss ('84), Professor of Physics, Harvard, gave a wonderful seminar in the Spring semester titled “Energy Revolution”, based on her research underlying her recently published book, Energy Revolution: The Physics and the Promise of Efficient Technology (Belknap Press, 2015).

Speaking of alumnae, Nergis Mavalvala ('90), Professor of Physics at MIT, has again been in the news for her central role in the LIGO project that announced the discovery of gravitational waves earlier this spring. Nergis gave a wonderful seminar on LIGO in the Observatory in December. Gretchen Campbell ('01), who holds a joint faculty position at the University of Maryland and NIST Gaithersburg, won the prestigious 2015 Maria Goeppert Mayer Award from the American Physical Society that recognizes outstanding achievement by a woman physicist in the early years of her career. Gretchen’s citation reads:

“For her pioneering contributions to the study of superfluidity in atomic gas Bose-Einstein condensates using ring-shaped condensates, realizing atomic analogs to superconducting and superfluid liquid circuitry, including the use of weak links to create the first closed circuit atomtronic devices.”

We've moved into social media, at least a little bit. The department now has a Facebook page, mostly maintained by SPS members and by yours truly. I invite you to “like” our page (or to at least visit it now and again!) – it’s easy to find, just go to
Facebook and enter “Wellesley College Physics Department” in the search box. There are lots of photos on the page from the past year, including a few from the 2016 Wellesley College reunion, for which the department hosted an Open House. We've also established a LinkedIn group titled "Wellesley College Physics Alumnae Network". There are currently 98 members. The primary goal is to provide a resource for our current students to connect with alums pursuing a variety of careers (and, less ambitiously, to simply give our students a better sense of their post-graduate options). If you are interested in joining the group, I'll first need to send you a LinkedIn invitation to connect with me. Once that connection is established, I then send you a second invitation to join the group. I do hope that you'll consider joining me in this effort to develop a working network for our students, and for our alums.

I remain very interested in continuing to develop closer ties between the department and you. You are a natural resource for our majors; your personal and professional advice, the examples provided by your diverse career paths, and your encouragement can be invaluable for students trying to find their way. I’m open to your thoughts and advice – please consider dropping me an email. One simple way of staying connected is for you to suggest an update to your “Post Wellesley” description that is part of the listing of alums that we maintain on our department website: http://www.wellesley.edu/physics/. To view the listing, in the left-hand menu select People, then Alums. You should find yourself listed, possibly along with a description of your whereabouts or your post-graduation plans. If you're interested in updating your “Post Wellesley” description, please consider sending a brief account to either Yue Hu (note the link just above the listing – yhu@wellesley.edu) or directly to me (gstark@wellesley.edu). The alum listing is a testament to the extent of your accomplishments and the breadth of your interests. Please keep us posted!

It’s been a pleasure writing this letter. I hope that it finds you well.

Very best regards,
Glenn