



# SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

## 2016-2017 SPS Annual Chapter Report Template

Please remember to update your Chapter Information at [membership.spsnational.org](http://membership.spsnational.org)  
Login with username spschapter####

Note this version has been revised from previous years. Please read the directions carefully.

School Name

**University of California, Berkeley**

Chapter Advisor

Zi Qiu

Name and Title of person(s) responsible for preparing the report

Katherine Latimer, Acting President for Fall 2017

Links or handles to chapter social media accounts (Facebook, Instagram, Snapchat, Twitter)

Website: <https://sps.berkeley.edu/>  
Facebook: <https://www.facebook.com/groups/474568829304662/>  
Twitter: n/a  
Instagram: n/a  
Snapchat: n/a  
Other: n/a

Incoming SPS Leadership for 2017-18 Academic Year

President, Fall 2017: Katherine Latimer ([klatimer@berkeley.edu](mailto:klatimer@berkeley.edu))  
President, Spring 2018: Sabrina Berger ([sabrinaberger@berkeley.edu](mailto:sabrinaberger@berkeley.edu))  
Vice President: Mayia Vranas ([mvranas@berkeley.edu](mailto:mvranas@berkeley.edu))  
Vice President: Emily Glazer ([emilyglazer@berkeley.edu](mailto:emilyglazer@berkeley.edu))  
Secretary: Jonathan Jackson ([jonathanj@berkeley.edu](mailto:jonathanj@berkeley.edu))  
Secretary: Yasmeen Musthafa ([yasmeenm@berkeley.edu](mailto:yasmeenm@berkeley.edu))  
Treasurer: Adrien Stejer ([a\\_stejer@berkeley.edu](mailto:a_stejer@berkeley.edu))  
Outreach Coordinator: Nicholas Rui ([nrui@berkeley.edu](mailto:nrui@berkeley.edu))  
Student-Faculty Lunch Coordinator: Samuel Weismann ([sam.weismann@berkeley.edu](mailto:sam.weismann@berkeley.edu))  
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Student-Faculty Lunch Coordinator: Agustin Rosero ([agustinf18@berkeley.edu](mailto:agustinf18@berkeley.edu))

Barbeque Coordinator: Richard Pan ([rpanman@berkeley.edu](mailto:rpanman@berkeley.edu))  
Snack Shack Manager: Jacob Bryon ([jakebryon1995@berkeley.edu](mailto:jakebryon1995@berkeley.edu))  
Webmaster: Andrew Hsu ([andrewihsu@berkeley.edu](mailto:andrewihsu@berkeley.edu))  
Club Historian: Ned Tsui ([tsuined@berkeley.edu](mailto:tsuined@berkeley.edu))  
Transportation Manager: Grant Choy ([grantchoy@berkeley.edu](mailto:grantchoy@berkeley.edu))  
Projects Team Lead: Dana Zimmer ([danazimmer@berkeley.edu](mailto:danazimmer@berkeley.edu))

## Part 1: Our chapter's interactions and participation in SPS National and Regional Programs.

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- One of our vice presidents (Mayia Vranas) was featured in "Singularities" section of the SPS Observer ("Physics Major Receives GoFundMe Scholarship," Winter 2017). This article chronicled her award from the GoFundMe crowdfunding platform as a student who has had to overcome significant obstacles to accomplish their academic goals. Mayia will be serving as vice president again for the coming academic year.
- One of our former chapter presidents (Anastasia Bizyeva) attended the SPS conference in San Francisco this past fall.

Did your chapter vote in the 2017 SPS National Council election? Yes  No

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Mayia Vranas (center) with Maccallum Robertson and Victoria Sosnovtseva posing for UC Berkeley's "Big Give" fundraiser. Photo courtesy of Keegan Houser.

**Mayia featured in SPS Observer (Winter 2017).**

## Part 2: Our chapter's interactions in our campus community

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**Student-Faculty Lunches:** We organized a series of hour-long lunches where undergraduates could chat with professional physicists in an informal setting over pizza. We invited professors from the physics department and scientists from Lawrence Berkeley National Lab. These were held roughly once a week, for a total of 21 lunches over the past two semesters. Pizza expenses were reimbursed by the Berkeley Physics department. We discussed topics ranging from dark matter detection experiments and biophysical studies of organismal development to textbook piracy and the American Physical Society. In addition, professors frequently explained the paths that led to their current positions, their advice for undergraduates, what to expect with graduate school, and the differences and similarities between careers in industry, national labs, and universities. Overall, the lunches were both an excellent opportunity to learn about professors' work and background, as well as to ask for advice concerning our future paths.

**Barbeques:** On Fridays roughly once every three weeks, we organized a Physics departmental barbecue, to encourage inter-departmental socialization and networking for students, staff, and faculty. These barbecues were also our main source of fundraising revenue, along with the SPS Snack Shack, which offers inexpensive snacks for sale to students studying in the Physics building. We also helped the department with their prospective graduate student visit weekend by organizing a barbecue for accepted PhD students. These barbecues were very well-attended and provided a nice break from the Friday homework scramble for our members and the rest of the department.

**"How to get research" Seminars:** In the interest of further engaging the undergraduate physics community at UC Berkeley, as well as helping new students overcome the natural fear of interacting with faculty and researchers, our chapter of SPS developed a seminar series to guide students in obtaining research positions in physics laboratories. During these talks, we highlighted the importance for students to simply put themselves out there, and also emphasized that nobody expects students to have a packed resumé when starting research. One of the most frequently asked questions to upperclassmen was: "How can I get research without any experience?" We attempted to heavily emphasize that everyone needs to start somewhere, and that often all it takes to get research is an impassioned email. In addition to this, we provided information pertaining to useful basic skills and software knowledge that students could add to their research repertoire as a means of both helping them in their future endeavors as well as expanding their skill set on their resumé. Furthermore, SPS put together information of where best to look for researchers and professors, focusing on attempting to contact professors, grad students, and even researchers at Lawrence Berkeley National Labs. The seminars concluded with time set aside for informal conversation about existing programs set up by the school that help students find research as well as programs that will allow students to be paid for their research. The activities of this seminar were extended further with scheduled "Office Hours" in which students could contact SPS officers for individual consultation. Lastly, with the intent of inspiring students with regards to research SPS set up a series of short talks by both members and non members about their own research projects, and how they went about acquiring their positions.

Did your chapter meet regularly this year?

Yes

No

How Frequently?

Weekly

Bi-Weekly

Monthly

Quarterly

About how many people attended? 10 ± 5

What is your Chapter's budget?

Estimated ~\$2000, much of this was for snack shack or barbeque purchases, which were earned back in revenue.

Do you fund raise?

Yes

No

Do you receive funds from your school?

Yes

No

How many people are SPS National members? 5



**Mac regales freshman with stories about his physics research experience.**



**Student research talks inspire pithy conversation.**



**Ben and Joe, assistant grillmasters.**



**Conviviality abounds at another successful SPS Friday BBQ.**





**Adam braves Costco to restock the Snack Shack.**

## Part 3: Our Chapter's interactions with the professional physics community outside the college/university

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**Government Lab Tours:** This year, we coordinated with the Lawrence Berkeley National Laboratory Advanced Light Source to set up our 2nd annual lab tour. The tour was led by Director of ALS, Roger Falcone, who allowed us to take a sneak peek of research conducted at the facility. Through his assistant, Yeen Mankin, we were able to organize shuttle passes for 6 of our club members to tour the lab. Dr. Falcone, a former professor for the Berkeley physics department, introduced numerous teams working with the accelerator, and told us a bit about its structure, design, and history. Having taught several laboratory courses himself, Dr. Falcone was able to relate research done in the lab with current labs taught on campus by detailing the partnerships that research teams have with industry, biotech, and more. All in all, the lab tour was a perfect opportunity to engage undergraduate physics majors with the research community and shed light on possible interests they might have after graduating.

**Member Publications and Presentations:** Several SPS members participated in physics conferences, giving talks and authoring papers and posters.

Christopher James Agostino presented a talk titled *Differential rotation as a model for starspots in magnetically active stars* at the American Astronomical Society, AAS Meeting #229, id.240.23.

Jonathan Jackson authored a poster at SPIE Photonics West 2017 conference titled *Quantitative iterative back-projection algorithm for non-line-of-site image reconstruction from photon time-of-flight* on January 31, 2017.

Ramsey Karim presented a poster and a talk titled *Investigating Ammonia Gas in the Jovian Atmosphere Using Centimeter Wavelength Total Flux* at the National Radio Science Meeting 2017.

Katherine Latimer published an article titled *Modeling of Interdigitated Electrodes and Supercapacitors with Porous Interdigitated Electrodes* in the Journal of the Electrochemical Society 2017, Volume 164 Issue 4 (doi: 10.1149/2.0061706jes).

Imad Pasha presented *Discovery and Characterization of Gravitationally Lensed X-ray Sources in the CLASH Sample* at the American Astronomical Society, AAS Meeting #229, id.346.05.

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## Part 4A: Our chapter's interaction with the off-campus public community

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**Community Outreach Events:** Outreach events were again one of the highlights of our chapter's activities this year, often serving as a "hook" to get members engaged and interested in doing more with SPS. A complete list of events is detailed below.

### Bay Area Science Fest (November 5, 2016)

We presented physics-related demonstrations at the Bay Area Science Festival, an annual event hosted at AT&T Park. Our demonstrations included a Van de Graaff generator, a gyroscope, a tornado simulator, and a few others. Approximately 16 volunteers represented our club, 8 in the morning for three hours and 8 in the afternoon for three hours.

### Thousand Oaks Elementary School Science Fair (February 3, 2017)

We presented an electronic circuits demonstration at the science fair at a local elementary school. We had approximately 5 volunteers at this two-hour long event. When students and parents came to our presentation table, we would demonstrate how to close a circuit to turn on an LED, then teach them how to do so with a variety of conducting materials. This was our second consecutive year partnering with Thousand Oaks, and we plan to return next year.

### Cal Day (April 22, 2017)

Our chapter coordinated with administrative members of the physics department to staff an "information market" during Cal Day, a university-wide event geared towards prospective freshman undergraduate students. In addition to engaging with visiting students and providing insights on what it's like to study physics at Berkeley, we also showcased some of the same physics demos from the Bay Area Science Fest (see above), since the event is also open to the general public as a way of connecting to the surrounding community.

### March for Science San Francisco (April 22, 2017)

We coordinated an SPS presence at the March for Science San Francisco. As a club, we brought 12 volunteers to the event, where we carried signs and marched in support of "communication, funding, policy, literacy, and diversity" in science. (<https://marchforsciencesf.com>).

### Kitayama Elementary Science Fair (May 19, 2017)

We were approached by an elementary school science teacher from Union City at the Bay Area Science Fest, asking if we would be willing to bring some of our physics demos to their end-of-the-year science fair. Although this was after the end of our school semester, we were able to pull a small team together and make it out to this great event. In addition to staffing the demos, we also had a blast talking to members from a local high school robotics team at the table next to us, as well as playing giant Jenga.



**Bringing the power of science to the world on Cal Day.**



UC Berkeley SPS scientific delegates at the March for Science in San Francisco.



“What do we want? Evidence-based science! When do we want it? After peer review!”

## Part 5: How our chapter strives to further the SPS Purpose and Mission.

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*SPS MISSION: "The SPS exists to help students transform themselves into contributing members of the professional community. Course work develops only one range of skills. Other skills needed to flourish professionally include effective communication and personal interactions, leadership experience, establishing a personal network of contacts, presenting scholarly work in professional meetings and journals, and outreach services to the campus and local communities."*

**Our chapter's social events serve to promote a sense of community and camaraderie within the department, and offer the opportunity for undergraduates to develop a network of like-minded peers.**

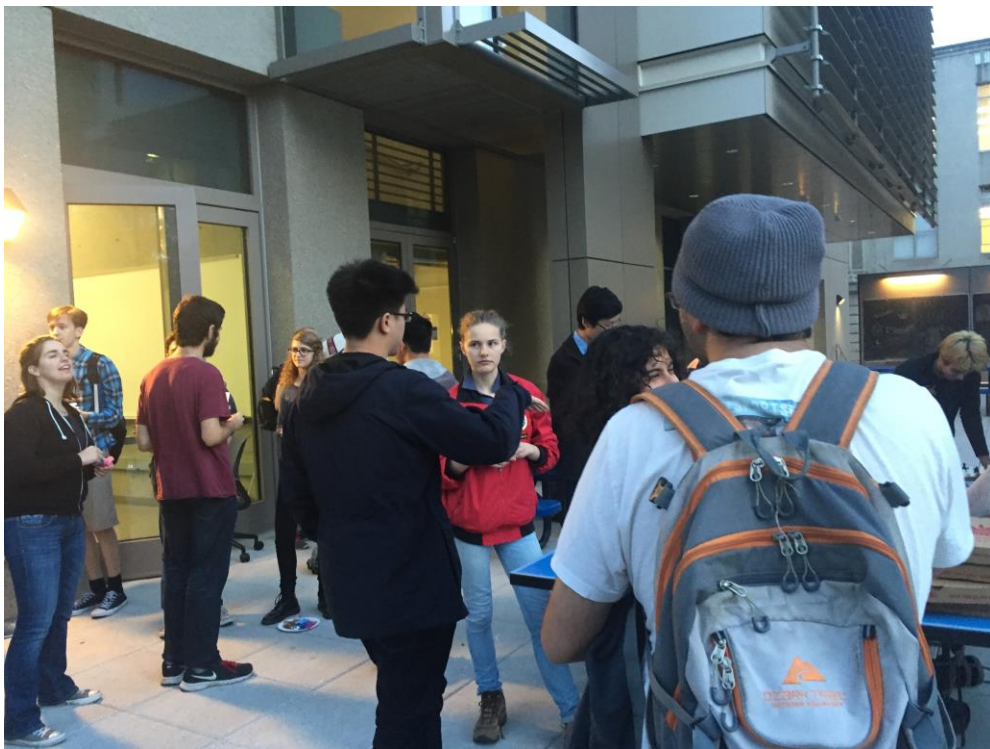
During our social-themed general meetings, we hosted fun and engaging activities like "Paint your favorite professor" day, a "Science Open Mic" night, the ever-popular "Secret Schrodinger" gift exchange, and "SPS Prom." After our general meetings, we usually had a group dinner with both officers and general members, which was a time to informally exchange thoughts on our experiences as physicists – as well as to talk about non-physics related topics, because even physicists have personal lives. Additionally, we held monthly outdoor barbecues in the courtyard of the physics building, to which all were invited. At the end of the 2016 year, we wrote and performed a skit for the department holiday party, wherein our chapter delivered a light-hearted story about the love between an experimentalist and theorist. This diverse assortment of activities provided a chance for people of many different backgrounds to get involved and make friends

**Our chapter provides a range of opportunities to take on leadership positions in preparation for life after graduation, both inside and outside of academia.** SPS at UC Berkeley has greatly encouraged not only regular members of SPS but also newer undergraduates within the physics department (i.e., freshmen, first-year spring admits, and transfer students) to take part in our chapter's activities. This past year, students who did not have the opportunity to participate very much in the previous year had a chance to take on various leadership positions. This worked out well. It gave both newer and older members of SPS the opportunity to be involved in making decisions and organizing our club plans. This additional diversity offered fresh perspectives on what we thought were the best events to host for physics undergraduates at UC Berkeley. For example, one of our vice presidents this year had not attended many SPS meetings the year prior, but she was passionate about helping make the UC Berkeley physics department a more welcoming place. By working closely alongside her co-VP, she was able to implement suggestions that increased our club's inclusivity throughout the year. Due in part to these important efforts, our chapter will be inaugurating our largest and most diverse group of officers in its recent history for the 2017-2018 academic year.

Participating in leadership positions through SPS helps give a broader perspective on the backgrounds and feelings of other physics undergraduates. It provides firsthand experience on ways to best educate and support students pursuing a physics education. This will certainly be an advantage for those SPS leaders who choose to continue along the academic track, but holding a leadership position is also important outside of academia. As a physicist in industry, experience talking in front of people, presenting technical information for instruction and supporting fellow coworkers in their work endeavors are crucial. SPS leadership positions provide a great place to develop and grow these skills that can help physics majors in their careers both inside and outside academia.



**A full house at the first general meeting!**



**SPS nourishes the spirit and the mind with pizza and candy on Halloween.**

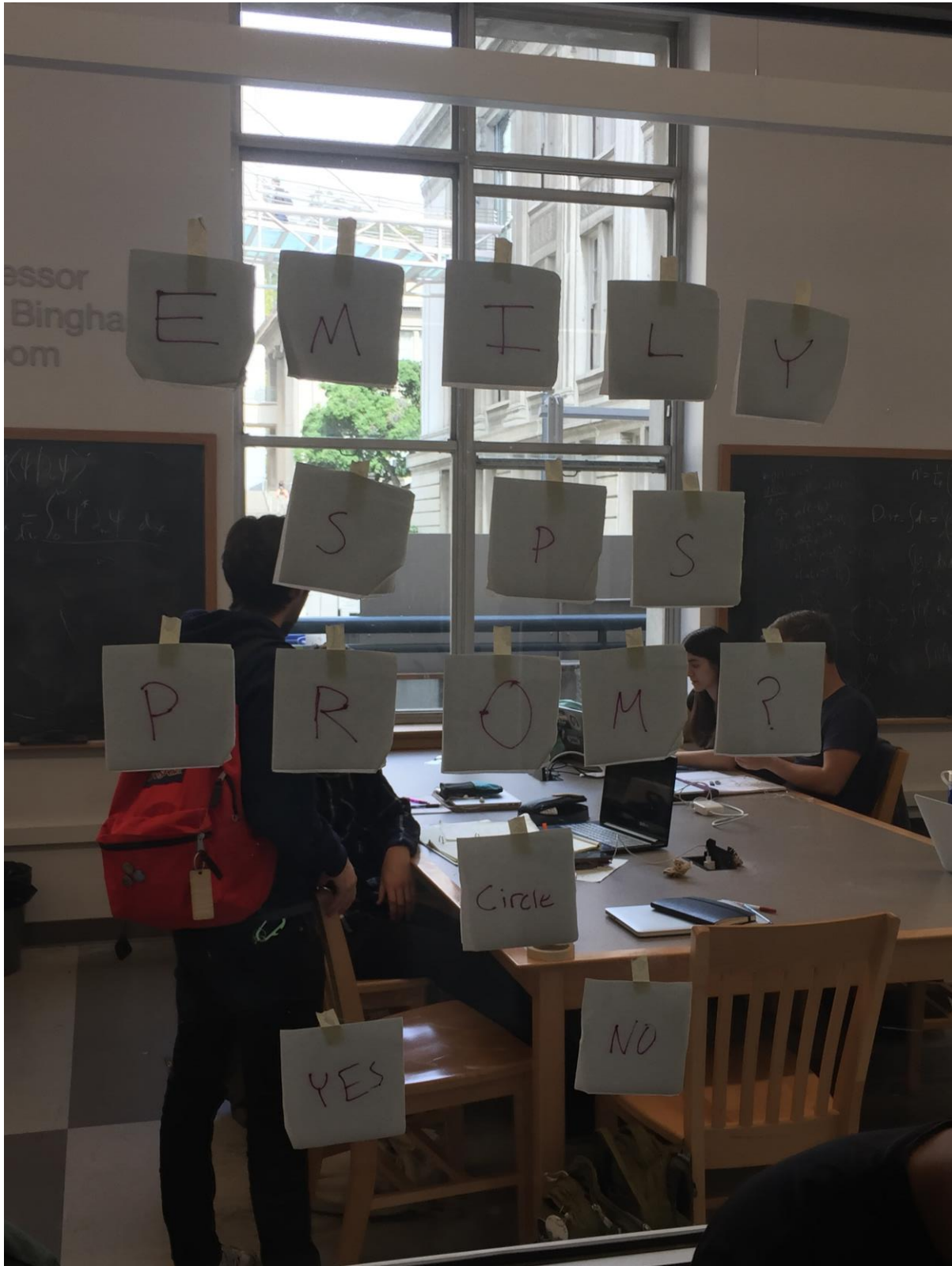


**Secret Schrodinger gift exchange, Feat. Berkeley SPS mascot Dennis the Tree.**



**Meriment and cheer was had by all at the department holiday party.**





**Pulling out all the stops for SPS Prom 2017.**



**"I just might have a problem that you'll understand / We all need somebody to lean on."**