



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

2016-2017 SPS Annual Chapter Report Template

School Name

California State University, Fresno

Chapter Advisor

Douglas Singleton

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

Dr. Douglas Singleton, chapter advisor and Tim Evans, chapter VP 2016-2017

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

Website: <https://www.fresnostate.edu/csm/physics/>
Facebook: <https://www.facebook.com/FresnoStPhysics/>
Twitter: [@FresnoStPhysics](https://twitter.com/FresnoStPhysics)
Instagram:
Snapchat:
Other:

Incoming SPS Leadership for 2017-18 Academic Year

Annette Lopez --> President
Christopher Parry --> VP
Kylee Ford --> Secretary
Daniel Hooker --> Treasurer

Thank you very much for submitting your report!

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

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

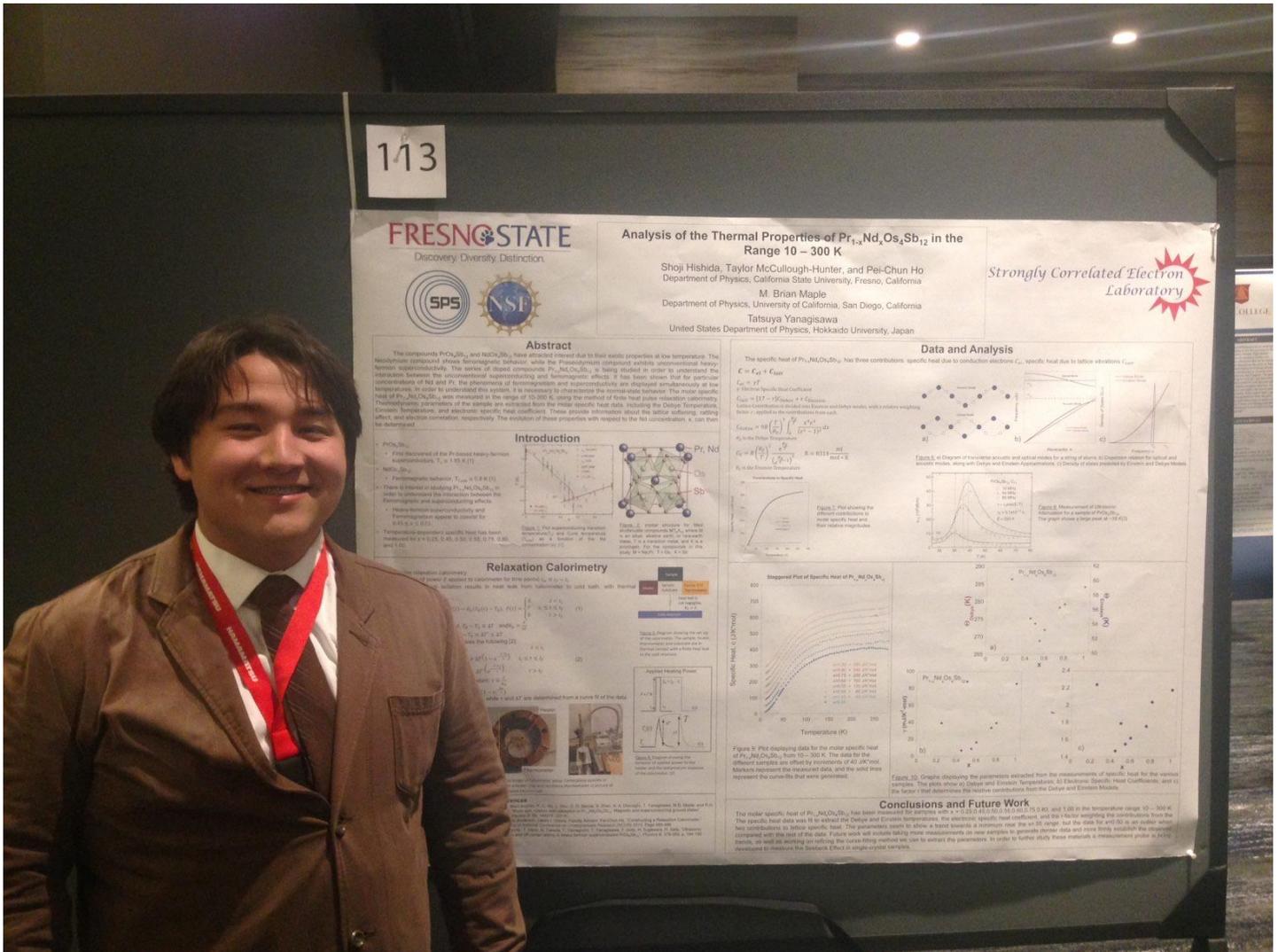
The Fresno State SPS chapter was active in participating in the PhysCon meeting in the Bay Area in November of 2016. The chapter sent up 15 students, the chapter advisor, the Zone councilor from Zone S18 (Don Williams) and Mr. Roger Key the lab and demo specialist in the physics department at Fresno State. Three students were partially funded via an SPS reporter award. At PhysCon they interviewed Jocelyn Bell Burnell, the discoverer of neutron stars/pulsars and one of the key note speakers of PhysCon. In addition, four students from our chapter were fully funded via MSI grant. VP Tim Evans along with Don Williams obtained additional funding from the College of Science and Math Dean (approximately \$2000) to pay for other students not covered by SPS grants. Several Fresno State students presented posters at PhysCon and Shoji Hishida won an OSA poster award.

The Fresno State SPS chapter also sent a delegation of 12 students to the Spring Zone 18 meeting held at UC Merced March 3-4th, 2017. In addition to the students the SPS advisor and Zone Councilor also attended the zone meeting. The keynote speaker at the meeting was Dr. Tom Ramos who gave an excellent talk on the amazing history of Lawrence Livermore Lab.

Professor Don Williams of Fresno State is currently serving as the Zone Councilor from Zone 18.



Fresno State Students at Physcon 2016



Shoji Hishida presenting his award-winning poster at Physcon 2016



Don Williams and Roger Key presenting the "Bed of Nails" demo at Physcon 2016

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

Note that there is a separate section for telling us about your Sigma Pi Sigma activity at the end of the report – that's BONUS material

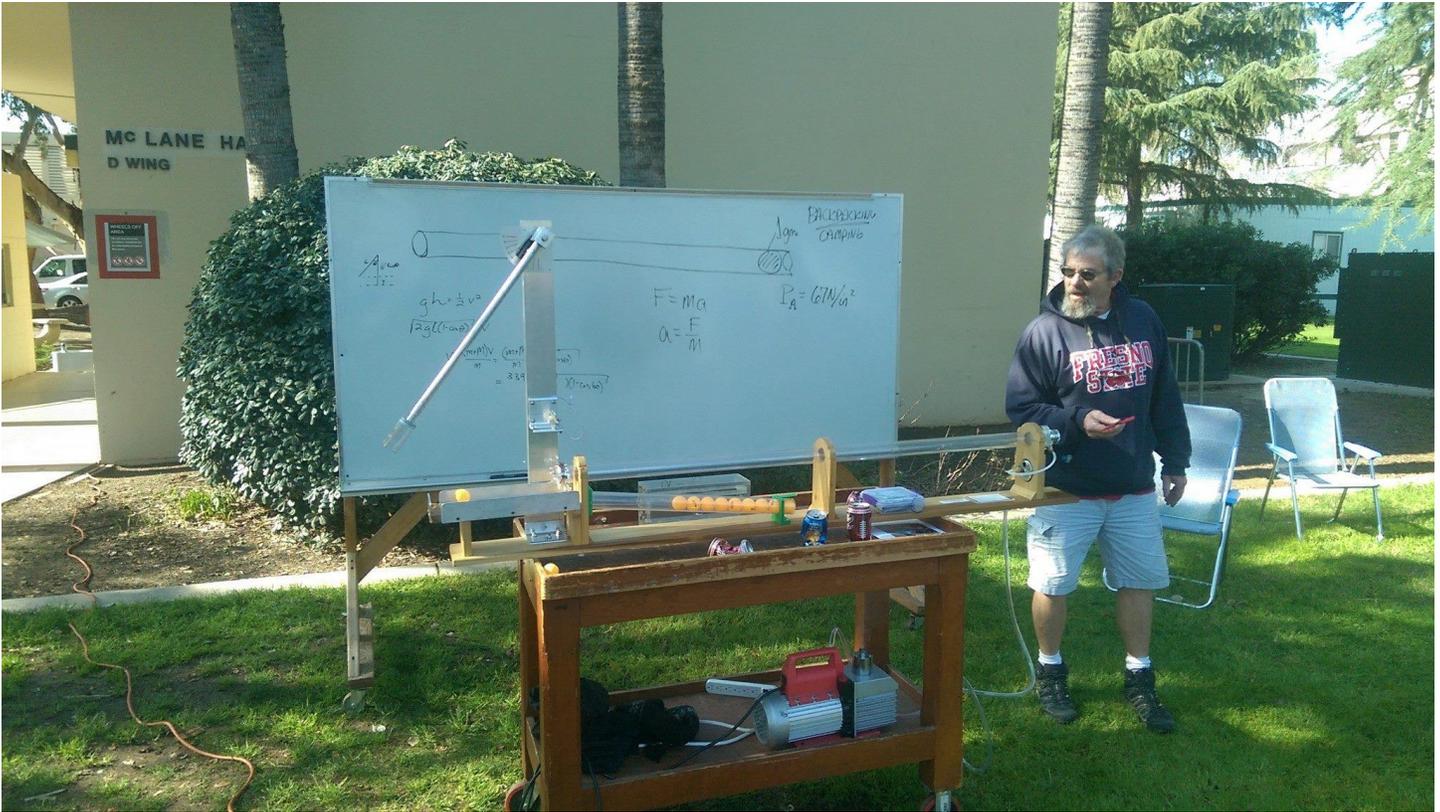
The Fresno State SPS chapter held weekly meetings every Thursday from 11:45 to 1:30 pm on the East side of the physics department. These meetings were accompanied by a BBQ which was open to all Fresno State students. At each of these Thursday BBQ/meetings we would discuss SPS business (such as planning for PhysCon or the Zone meeting) or we would have a physics demo of the week which we would show off and explain to the students that came for the BBQ. The attendance at these Thursday BBQs was as low as 10 to as high as 60. The BBQs were funded by donations from faculty and students.

Our chapter features an undergraduate physics room which is a publicly accessible room intended for undergraduate students in physics. This room acts as a hub for physics majors who can prepare meals and study for their classes. We also sell various foodstuffs out of the undergrad room to help us fundraise for providing textbooks, trip money, and other amenities for the department. These amenities are available to any students on campus.

At the end of the semester the SPS did a 2-day camping trip to Kings Canyon National Park. There were 15 students who came to the trip, which included cooking out under the stars and a make shift steam hut courtesy of Don Williams.

In April, the SPS hosted a speaker (Dr. Matt Thompson) from Tri-Alpha energy to talk about fusion energy in the private sector (Tri-Alpha is the biggest, private company working on fusion energy). Dr. Thompson discussed fusion and energy and also gave a pizza lunch presentation about what to do to go about getting a career in private industry.

Did your chapter meet regularly this year?	Yes
How Frequently?	Weekly
About how many people attended?	This varied but usually 10-20. Not all were physics major or SPS members. Our weekly meetings were on Thursdays from 11:45 to 1:30 and were accompanied by a BBQ which was open all students on campus. We discussed SPS business and also had a "demo of the month" to show off to anyone who came to the BBQ/SPS meeting.
What is your Chapter's budget?	\$250
Do you fund raise?	Yes
Do you receive funds from your school?	Yes
How many people are SPS National members?	Eight



Don Williams demonstrating the vacuum cannon and ballistic pendulum at the weekly Fresno State Physics BBQ



SPS Vice President Tim Evans fires up the grill for the beginning of the weekly Fresno State Physics BBQ

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

We had several students attend various local and national physics meetings sponsored by the American Physical Society. Several students attended the APS Far West Section meeting held at UC Davis in October 28-29, 2016. Fresno State student Patrick McDougall won 2nd place for the Kennedy Reed award (best graduate student talk in theory <https://www.aps.org/units/cal/awards/index.cfm>).

Also, several students attended the APS April meeting which was held in January in Washington DC. Many of the students gave talks or presented poster based on their research as part of their work on the ATLAS project at the LHC from the summer of 2016.



Olivia Krohn giving a talk on her ATLAS research at the APS April meeting in January, 2017.

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

Our main thrust in regards to off campus interactions is the physics outreach class run by Prof. Don Williams. Don trains Fresno State student how to give engaging and informative physics demos and explanations to students from K-12. This has been enormously well received in the community. Because of his efforts Don was awarded the "Outstanding Lecturer" award on Fresno State campus. Below are links of Don and his outreach students performing demos for school kids or doing interviews for local TV stations.

- <http://bit.ly/2suvIMq> - Don Williams and a young volunteer demonstrating the principle of torque.
- <http://bit.ly/2totKtk> - Don Williams on local news: "Great Day"
- <http://bit.ly/2rt2ei8> - Don Williams and outreach students giving an interview about their program.



Don Williams and the students from his outreach class.

Part 4B: Blake Lilly Prize Application (OPTIONAL)

The Blake Lilly Prize, named after the late Blake Lilly and given in his honor, recognizes SPS chapters and individuals who make a genuine effort to positively influence the attitudes of school children and the general public about physics. For example, many chapters perform something like a "Physics Circus," conduct classroom demonstrations, offer tutoring services for grades K-12, or assist with school science fairs. The Blake Lilly Prize is an opportunity to be publicly recognized for these types of physics outreach efforts. More details about the Blake Lilly Prize are available at: <https://www.spsnational.org/awards/blake-lilly>

If you wish to nominate an event your chapter or an individual from your chapter coordinated during the 2016-17 academic year for the Blake Lilly Prize, please detail the activity below.

Name of activity	Fresno State Physics outreach
Description of activity	Training Fresno State students how to give engaging/entertaining physics demos along with accurate explanations of the science behind the demos. Examples of the physics outreach in action are found at the links above on page 10.
Targeted areas of impact	K-12 students in terms of getting them excited about physics/science. Also this impacts the Fresno State students in helping them to understanding to explain physics concepts in a clear and fun way.
Number of Attendees	The physics outreach class would go out every Friday with 8 Fresno State students to put on the outreach show. The number of attendees who watched the outreach show depended on the size of the schools that were visited. Usually the size of the K-12 audience was 40-100.
SPS Provided volunteers	8 Fresno State students
Student	8
Non-Student	none
Estimate of hours to implement activity	5 hours per week (2 hours prep and 3 hours traveling to and outing on the outreach show).
Individual Name (leave blank if this is a chapter application)	Professor Don Williams and his outreach class.

How is this activity different than what you have done before?

This outreach class was started in 2011 and has evolved into its present form over a period of time.

How did you assess the impact your activity had on the community?

The impact if the activity is assessed by the number of letters the outreach team receives form students whose classrooms were visited, from the number of local TV spots reporting on the outreach program, and on the number of students coming to Fresno State physics as a result of the outreach program.

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

(This category will be double weighted)

The Fresno State SPS chapter prides itself in providing unique and fulfilling experiences to all students involved. Our outreach program is unlike any program around because we have a rigorous class that consistently visits schools and other events to instructs future teachers on properly learning physics, performing demonstrations, and presenting the information in an entertaining and fluid manner. Furthermore, the ATLAS collaborations Fresno State has across the CSU system and networking connections our chapter has made with surrounding universities only strengthen our presence in the scientific community.

We strive to continually support these programs because they provide the students in our chapter with the skills necessary to perform well in a professional setting. To elaborate, communication skills are critical in the field of science, and explaining complicated principles of physics to elementary school students, as one such example, is an excellent method for developing professional communication tools and creating confidence in one's own abilities overall. Regarding our ATLAS connection, the program has been growing every year since its inception and has continually sent more students overseas to the Large Hadron Collider at CERN. Not only is this a fabulous traveling opportunity, but our students work amongst brilliant and expert scientists in the field of particle physics. Moreover, the students then develop presentation skills when they return to Fresno and participate in the annual student research colloquium as part of the Fresno State Physics department colloquium series.

Our chapter had a large turnout for multiple events this year and we only seek to increase our activity in the upcoming academic year. We have elected new officers who seek to continue promoting our chapter presence on campus. We have begun to institute a second meeting time on Thursdays twice a month to discuss events and activities that we would like to participate in, as well as participating in games and other activities to further increase the participation of our department in the SPS chapter. We have a relatively small department(it is growing, however) and we would like to begin to integrate our entire department into the chapter.

The following should be reported by all schools that have Sigma Pi Sigma Chapters

Sigma Pi Sigma Chapter Sigma Pi Sigma Activity Report

Did your chapter host a Sigma Pi Sigma Induction this year?	No
Is the Sigma Pi Sigma Chapter active outside of the SPS Chapter activities described above? (If yes, please tell us the story below)	No
How many members did you induct in 2016-17?	

The Fresno State SPS chapter was not very active regarding Sigma Pi Sigma. This is something we plan to work on in the next year.

Please **UPLOAD** your report in PDF format by **June 15, 2017**

Login to the membership.spsnational.org with your Chapter's credentials (the username is spschapter####) and click Annual Chapter Report in the main menu.



PLEASE remember to keep a record of your report on your local hard drive!

If you have any questions, please contact your Associate Zone Councilor or Zone Councilor
<https://www.spsnational.org/about/governance/national-council>
or the SPS National Office
+1-301-209-3007 or sps@aip.org