

Future Faces of Physics Award Proposal

Project Proposal Title	Light on Science
Name of School	University of Oregon, Dept. of Physics
SPS Chapter Number	Z17-5379
Total Amount Requested	\$300.00

Abstract

The abstract should be **no more than 50 words**. The abstract should be a standalone description of the proposed project/activity/event, appropriate for posting on the SPS website or publishing in *The SPS Observer*. The abstract should be in paragraph form and should include the school name, a brief description of the proposed project, and a brief statement about the motivation for the project.

A Hispanic graduate student in the Physics Department at The University of Oregon is interested in spearheading an outreach effort to a school with a high minority population, utilizing our Physics undergraduate students to visit the school and work with 5th grade students and their teacher. This is also in cooperation with another graduate student who is the local chapter president of the Optical Society, OSA where they plan on basing one part of the outreach effort for the International year of Light 2015. We have chosen to reach out to a local school where the Oregon Department of Education has stated in their report card that it is a **Priority School** (“high poverty school that is ranked in the bottom 5% of Title I-A schools) based on Oregon’s rating formula. These schools generally have overall very low achievement and limited growth over time. Additional supports and interventions to make improvements are needed. Secondly, the school has a Hispanic neighborhood within its jurisdiction. As such, they have constructed their school to be a “dual immersion” program. One belief is exposure to Hispanic scientists at a young age could encourage a young student to work in Math and study science because they *can* see they can do it. Also interacting with college students can be seen as interacting with a big brother or sister and learning science in a creative way.

Proposal Statement

The entire Proposal Statement should be no more than 2 pages, and organized as follows.

Overview of Proposed Project/Activity/Event

The Overview should be a more detailed description of the proposed project/activity/event than the abstract.

This section should include:

- Brief description – What will the project look like?
- Goals of the project – What will the project accomplish?
- Intended audience – Who is the target audience and how many people will be impacted?
- Background and motivation – What is the context and motivation for the project? This might include a discussion of how the projects builds on a previous project carried out by the chapter, where the idea came from, or why the chapter is well-positioned to carry out this project.

This section should explain to reviewers WHAT the project is and the context in which it will be carried out.

SEE ATTACHED

How Proposed Activity Promotes Physics Across Cultures

This section should be a detailed description of how the project will meet the stated goal of the award: to promote physics across cultures. The text should explain why the project is appropriate for a Future Faces of Physics Award, and how it will attempt to meet a need in the community, strengthen a relationship, or fill a void.

This section should explain to reviewers WHY the proposed project is worthwhile and WHY it should be funded by a Future Faces of Physics Award.

SEE ATTACHED

Plan for Carrying Out Proposed Project/Activity/Event

This section should detail the plan for carrying out the project, in bullet or paragraph form. Include, at minimum:

- Personnel - Who will be in charge of planning the event and how will progress be monitored?
- Marketing - How the project will be marketed to the target audience to ensure satisfactory participation?
- SPS member participation - How many SPS members or volunteers are likely to participate and in what capacity? Will volunteers be recruited from other groups as well?
- Expertise - Are there SPS members or others with special expertise that will help to ensure success?

This section should tell reviewers HOW the proposed activity will come to fruition. Please include adequate details so that reviewers see evidence of thoughtful planning.

SEE ATTACHED

Project/Activity/Event Timeline

This section should detail the timeline for carrying out the project. Work backwards from the project date and include key milestones and the dates by which important details needed to be finalized in order to complete the project on time.

This section should tell reviewers WHEN the planning efforts and proposed activity will happen.

SEE ATTACHED

Activity Evaluation Plan

The Activity Evaluation Plan should be no more than 300 words. This section should explain how the chapter will evaluate the success of the activity in meeting the goal of the award—promoting physics across cultures. This may be as simple as keeping accurate records or administering a short survey of participants.

Some key metrics of success might be:

- Attendance or participation numbers
- Survey results from participants
- Feedback from key participants

This section should tell reviewers HOW the chapter will evaluate whether the proposed activity promoted physics across cultures.

Budget Justification

The Budget Justification section should be no more than 300 words. This section should justify the expenses outlined in the Budget Proposal. For example, if the funding will be used to purchase volunteer t-shirts, explain why volunteer t-shirts would be useful and how they would help meet the goals of the project. (The actual budget must be submitted as a separate file, created in conjunction with the “Future Faces of Physics Award Proposal Budget Template.”)

Include information about any money or supplies coming from other sources that will leverage the funding requested from SPS. Include in-kind funding and support (borrowed equipment, etc.) that will be used in carrying out the project.

The Future Faces of Physics Award Proposal Budget should tell reviewers WHAT the funds will be used to purchase. This section should explain to reviewers HOW the items listed in the budget will help accomplish the goals of the project and of the Future Faces of Physics Award more generally.

Proposal:

Introduction:

Fehmi Yasin is currently a graduate student in Physics at The University of Oregon and was also involved with SPS outreach when he was an undergraduate in Salt Lake City. He is very interested in working with our undergraduates and establishing an outreach effort to a low income school in Eugene with a large Hispanic population. He is also interested in joining up with an established outreach program in Chemistry and Biology so it can expand in physics and assist with marketing and coordination of activities. His description follows.

Teiler Kwan and Annika Gustafsson SPS Members, Chapter Presidents.
Stanley Micklavzina SPS Advisor, dept. of Physics, University of Oregon.

Overview of Proposed Project

"Mad Duck" is a Chemistry and Biology outreach program developed by Shannon Boettcher in 2011 in which the University hosts middle school students interacting with biology and chemistry demos on certain Fridays that where schools have has to cancel classes due to forced teacher furlough days. The aim to expand on this program and create a Mad Duck "physics department" that joins the Mad Duck Science Fridays, and also goes to schools in the poorer neighborhoods in town and performs demos there as either a supplementary to class or as an after school program. Because of the accessible nature of my research, I'd also host school field trips, so that the students could see real experiments and measurements being taken on a Transmission Electron Microscope. Drawing from my previous experience doing this in Salt Lake City, I have begun to shape this program already. I have met with Shannon Boettcher, outlining the logistics and discussing how to approach different schools with the intention of improving scientific outreach, while not imposing on them. I have also met with the undergraduate SPS regional coordinator at the University of Oregon, Stanley Micklavzina, who loves the idea and has put me into contact with the SPS co-presidents, so that we can directly involve undergraduates in this outreach program. Stanley Micklavzina also has deep expertise in physics demonstrations and interactive activities for students. I believe it is very important to involve physics undergraduates, as it will enhance their own education and perhaps have as big of an impact on them as it did on me. Additionally, I have met with the president of our chapter of OSA, Roger Smith, who has committed time and take-home demos for kids for past science fairs and summer camps.

Finally, I chose to reach out to River Road/El Camino del Rio Elementary School in Eugene Oregon for a couple of reasons. Firstly, the Oregon Department of Education has stated in their report card that River Road is a **Priority School** ("high poverty school that is ranked in the bottom 5% of Title I-A schools in the state based on Oregon's rating formula. These schools generally have overall very low achievement and limited growth over time. Additional supports and interventions to make improvements are needed.")². Secondly, River Road is in a very Hispanic neighborhood of Eugene. As such, they have constructed their school to be a "dual immersion" program. Being Hispanic myself, I believe that exposure to Hispanic scientists at a young age would have greatly encouraged me as a young student, and I hope to encourage these underrepresented students to study science because they *can* do it. I have already contacted the principal of River Road elementary, and expressed Mad Duck's interest in developing a 5th grade science program with them. He has put me into contact with the fifth grade teacher and other interested parties. I look forward to continuing our communication and the development of this program.

Once we establish a program at River Road School, we will use the experienced undergrads to better develop our outreach program for other schools, events, and science camps."

Thank you for your time.
Fehmi Yasin. Physics Graduate Student, University of Oregon.

CLOSING NOTE:

I have been working focusing this year to get out students more involved in outreach. Last Friday, October 10, Fehmi Yasin came to my office and approached me about this idea. It fit so perfectly into the Future faces, I had to submit it. We are both extremely busy, but managed to put together this much of a proposal. I am excited and i think it is great our grad students are interested to do this AND work with our undergrads. I hope you find this idea worth funding.

Stanley Micklavzina SPS Advisor, Zone 17 Councilor.

Project Activity and Timeline:

The Timeline is November 2014 - December 2015. We have already started to develop outreach activities with a focus on light for the *IYL*. We will be working to coordinate the program and implement it throughout the year. Fall term 2015, advertising promoting the program to other schools and the community at the annual Science Open House which occurs at the end of September on the University of Oregon campus.

Proposed budget:

Light Kits. 10 Light Kits. \$39.00 each, \$390.00 (Laserclassroom.edu)
Other OSA light interactive Kits \$210.00

Matching Funds from the Department Physics outreach funds. \$300.00
Requested from SPS \$300.00

Stanley Micklavzina SPS advisor
Teiler Kwan and Annia Gustufsson SPS Members, Chapter Presidents.