

# PHYSICS OUTREACH & ENGAGEMENT

## Letter from the Chair

Dear FOEP Members,

Thank you for your efforts for making this FOEP's best year yet. We had a fantastic time at the APS March Meeting in New Orleans. Here were some of the highlights

### 1) FOEP sponsored workshops at the APS March Meeting: Finding your scientific voice

The [Forum for Outreach and Engaging the Public \(FOEP\)](#) hosted workshops on improving communication skills of students and postdocs. Each 3 hour workshop focused on how to improve the 10 minute talks for the meeting as well as gave participants instruction on how to communicate with the lay public about their work. The workshop was well received by the students. See page 11 for more about the event.

### 2) FOEP Invited Session at the APS March Meeting: From Physics Girl to the Physics Bus, Creating an Effective Voice for Physics in a Diverse Society

We had a great line up for this session including **Physics Girl**, the folks from the **Physics Bus**, Charlie Falco who talked about **The Art of the Motorcycle and the History of Art**, as well as Amber Stuver from **LIGO**, and Melanie Dreyer-Lude who discussed **Theater Techniques for Physicists**.

Please send us your ideas for future speakers that you would like to see at the FOEP invited sessions. We can be reached at [FOEPAPSnewsletter@gmail.com](mailto:FOEPAPSnewsletter@gmail.com).

*Continued on page 2*

## JOIN US

To join FOEP at no cost prior to renewing your APS membership, send an email to [membership@aps.org](mailto:membership@aps.org) with your request to add FOEP to your membership. Please note that if you currently belong to two or more forums, FOEP will be added at no charge for the remainder of your membership term. On your next membership renewal notice, you will see a Forum subtotal that will include \$10 for every Forum membership over two.

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*A publication of The Forum on Outreach and  
Engaging the Public - FOEP -  
A forum of the American Physical Society*

**We had a very full crowd at the sessions (see pg 12). Be sure to check out the FOEP sessions at the next April and March meetings!**

### **3) The Physics Bus came to New Orleans for the 2017 APS March Meeting!**

In addition to giving a spectacular talk to a standing room only audience about their outreach work at the FOEP invited session, the Physics Bus was available during the Monday Night Happy Hour in the Convention Center Exhibition Hall. Finally, they also conducted outreach to the New Orleans community, visiting grade schools throughout the week. See page 13 for more about the event and check out the links below for photos!

<https://www.facebook.com/IthacaPhysicsBus/posts/1852632404978726>

<http://news.chess.cornell.edu/articles/2017/Herman170413.html>

### **4) Free Beer for FOEP members at the APS Happy Hour hosted by Becky Thompson**

We had a terrific turn out for our Happy hour meet and greet at the APS March meeting. Becky Thompson also made an assortment of delicious pies in honor of Pi day. FOEP has been extremely lucky to have an APS staff member as energetic and supportive as Becky so please join me in thanking her for her efforts the next time you see her.

### **5) Welcome to our new members**

I would like to extend a warm welcome to our new FOEP Members from the entire Executive Committee. We are looking forward to hearing from you about the kind of events you would like to see more of at our meetings and events. We can be reached at: [FOEPAPSnewsletter@gmail.com](mailto:FOEPAPSnewsletter@gmail.com).

### **6) Give a non-technical talk in addition to your technical talk at APS meetings.**

I would like to remind the community and the FOEP members in particular that they can give a non-technical talk in addition to their technical science presentation at the APS meetings. I encourage you to do so since we need to have a thoughtful and creative exchange of ideas moving forward.



Letter from  
the Chair,  
continued

*Continued on page 3*

## **Forum on Outreach and Engaging the Public**

FOEP's goal is to increase the public's awareness of physics by providing a forum within APS for the large number of physicists currently involved in a diverse array of outreach and public engagement activities. FOEP fosters the development and dissemination of outreach activities such as blogging, multimedia, video, pop culture, popularizations, press relations, politics, "amateur" and distributed science, science cafes, and public shows and lectures. The Forum organizes and sponsors sessions at the March and April APS meetings and will issue a semiannual newsletter.

## **7) Thanks to the FOEP executive committee for working tirelessly on our behalf.**

Finally, I would like to take this opportunity to thank the FOEP Executive Committee for their efforts and commitment to improving FOEP and APS more broadly. It has been a pleasure serving with all of them as we have set out to represent you not only through the meeting programs but also through engagement with APS.

The current FOEP Executive Committee members are:

Past Chair: Yvan Bruynseraede

Chair: Itai Cohen

Chair-Elect: Larry Gladney

Vice Chair: Don Lincoln

Secretary/Treasurer: E. Dan Dahlberg

Members at Large: Alice Bean, Amber Stuver, Heide Doss, Rachel Henderson

APS Staff member: Rebecca Thompson

Assigned Council Representative: Gay Stewart

Editor of Newsletter: Heide Doss

Now more than ever it is vital that we commit ourselves towards outreach and engaging the public. In an era where distrust of science seems to be growing, effective communication and illustrating why we are so excited about our science will be crucial. It has been a pleasure serving you this past year and I wish you all the best in your endeavors over this next year.

Itai Cohen



## Letter from the Chair, continued

continued  
the Chair,  
continued

# Spotlights on Outreach and Engaging the Public of two APS Fellows FOEP Nominated

Questions and Answers with two FOEP nominated APS Fellows, Don Lincoln (2015) and Ágnes Mócsy (2016). Answers are edited for clarity as needed.

## **Don Lincoln [2015]**

Fermi National Accelerator Laboratory

*"For contributions to outreach and engaging the public in the physical sciences, particularly particle physics, with a broad range of communication vehicles and forums."*

**Q. You've been doing a lot of cool science. Which projects have you worked on that were the most exciting to you, and what made them exciting to you?**

The first question is easiest to answer. I worked on a Fermilab experiment called E683 that shot the highest energy photon beam in the world. It probed the intersection between nuclear physics and the realm of quarks. After that, I first worked on the Fermilab experiment DZero and now the CERN experiment CMS. Those two were (and are) each in their time employed the highest energy particle beams in the world to try to find something new about rules that govern the universe.

For excitement, that's much trickier. I loved E683 because I was able to work on every facet of the experiment, from building it, to writing the software, to analyzing the data, to writing the papers. It was the full experience. In the second two experiments, the experience is quite a bit different. It's extremely hard to play leading roles in everything. The experiment is too big and the requirements on each component are simply too stringent. There, you make your contribution on a piece and collaboration is key. The DZero experiment cofound the top quark and the CMS experiment cofound the Higgs boson. It is a fantastic experience to be part of key discoveries.

**Q. You've been involved in a tremendous number of outreach projects, for example: Blogs for the PBS show NOVA, two biweekly columns for Fermilab Today, videos for Fermilab, TED talks, Scientific American articles and others, writing books for the public and consulting on a number of books, as well as hundreds of public lectures. What motivates you to do all this? How do you manage to find time to do all this and your research?**



Don Lincoln  
Fermi National Accelerator  
Laboratory

Photo credit: Reidar Hahn/Fermilab

*"If you decide to do outreach, my advice is to pick a type that interests you. It could be writing, public speaking, working with science festivals, doing a science café, mentoring kids, etc. Talk to people who are doing similar things and learn from them. But be sure to remember that you're the one doing it, so don't just clone what they did."*

*"People matter. Remember that. See how people you meet can help you and don't forget to help others. Remember that we are all working to get the message out about the importance of science. The more people we have doing it, the better."*

It's hard. But some people go bowling or others garden. I write. I think it's important. And I have a patient family. Plus, as I have increased my national visibility, Fermilab has given me some freedom to spend my time helping to tell the public about the great science that particle physicists and cosmologists are doing.

I grew up in an academically-impooverished household. My dad never finished high school. My interest in science arose from a combination of science fiction writers, as well as the writings of Carl Sagan, Isaac Asimov, George Gamow, etc. I am paying a debt.

It seems to be working. I get emails from young people who thank me for telling them about a world they would have otherwise never imagined. I like to think that my parents (and Carl, Isaac, and George) would have been proud.

**Q. Have you ever regretted doing outreach or felt that it has gotten in the way of your research?**

I have never regretted doing outreach. Not once. But it has had consequences for my research career. When I was young, doing outreach was considered a career negative. Time spent talking about science wasn't doing science and therefore was wasted. That attitude probably closed some paths that I might have followed, had I made other choices. But I have no regrets.

**Q. From all your outreach projects, which type of outreach do you find most effective, and which type do you find most rewarding?**

That's a tough question. In physics, we tend to clump together education and outreach and, if we do either of them at all, most of us tend towards the education side. Education is a culture in which most physicists feel comfortable and the rules are hierarchical. The professor is the expert and the listeners are expected to exert themselves to learn. This is an important effort, but it is less demanding on the lecturer.

In outreach, the power structure is reversed. The consumers are in charge. If the producer isn't engaging, the consumer will turn to something else.

My first guiding principle is to make scientifically-accurate and otherwise entertaining content. My second guiding principle is to never forget my audience. The audience varies for each thing I produce. The Scientific American audience is intelligent and inquisitive, but not necessarily physics-savvy. The Physics Teacher audience knows physics, but not always the most modern principles. The YouTube audience only wants a factoid or two that they can consume quickly. Always, always, remember your audience.

My final principle is to try to find ways to leverage the number of viewers. If you make a great talk, but deliver it to a room with three people in it, this is not the best use of your time. Accordingly, I try to engage the media, which is why I write for LiveScience, Space.com, CNN, and (rarely) The Huffington Post. They can put an article in front of tens of thousands or even millions of eyes. My YouTube videos get tens of thousands of views. My magazine articles can do very well. In Scientific American, they even translate the articles into two dozen languages.

Which do I find the most rewarding? That's super hard. Talking to a couple of kids can make a huge impact on them. I can guide them in ways that can change their lives. And that is incredibly rewarding.

However, I think the thing that I like the best is to find ways to engage a large audience. If I can do that, then



perhaps the viewers will take it upon themselves to do a little more reading. I have anecdotal evidence that this works. But I can always do more.

**Q. What advice would you give to others doing outreach?**

Outreach is personally rewarding, and it is crucial in our modern world. We live in a world in which facts are viewed as amorphous things and that the loudest voice is the right one. And that's not true.

Without taking a stand on any of these topics, each of them have a single objective answer. The Earth is 13.7 billion years old, or it's not. Mankind is genetically tied to the rest of the tree of life, or it isn't. Humanity is changing the climate, or there are other causes. Cell phones don't cause brain cancer, or they do.

If you decide to do outreach, my advice is to pick a type that interests you. It could be writing, public speaking, working with science festivals, doing a science café, mentoring kids, etc. Talk to people who are doing similar things and learn from them. But be sure to remember that you're the one doing it, so don't just clone what they did.

Also, remember that it takes time to build a voice. Don't try outreach if you're a sprinter and not a marathoner. Everything takes longer than you'd think.

You also have to keep in your mind your own career. Outreach is rewarding, but there is an uneasy tension between doing outreach and research. The research world is highly competitive and you will be jockeying with people for which that is their entire focus. Accordingly, I recommend that early in your career that you focus on the things that will move your career to a safe place. Once you get a permanent academic position and then tenure, you will be in a better position to rebalance your life. Of course, if you decide to do a lot of outreach in your graduate school or postdoctoral years, you may find that you like science communication better than research. You might then consider working for a museum or for a national science organization, like APS, ACS or others.

**Q. Are there any parts of your outreach experiences that you think readers of our Spotlight article should know?**

There is a tremendous advantage to "being in the club," so to speak. It took me a year and a half to have anyone show interest in my first book. Now I can call many publishers and sell the book on the basis of a voice conversation. It took me five years to get on Scientific American's radar screen. Now I can pitch an idea directly and get an answer in a day.

The more you do and the more visible you are, the easier it is to branch out and do other things.

Plus I can't overemphasize the importance of connections and networking. My eventual entrée into the world of writing for Scientific American came through a connection between a mutual friend. Being on the NOVA television show arose because I was doing blog posts for NOVA online. My invitation to give talks on cruise ships came from connections with Scientific American and my ability to work with the Great Courses came from a recommendation from a faculty member I met on that cruise. People matter. Remember that. See how people you meet can help you and don't forget to help others. Remember that we are all working to get the message out about the importance of science. The more people we have doing it, the better.

## Ágnes Mócsy [2016]

Pratt Institute

*"For innovative explorations of the intersection of science and the arts, for advocacy on behalf of fundamental science, and for promotion of underrepresented minorities working in science."*

**Q. You are a theoretical nuclear physicist and have worked on a number of exciting projects. Which physics projects have you worked on that were the most exciting to you, and what made them exciting to you?**

There are a number of really exciting and memorable projects I took part in and research experiences I have lived through. It is great to have had the opportunity to spend a significant part of my life researching fundamental questions, such as the origins of matter - what happens when we heat up matter to trillions of degrees, recreating conditions present microseconds after the Big Bang? This, on its own, I find extremely exciting.

We think that the early universe was made of a soup of some of the most elementary constituents of matter, quarks and gluons, a soup we refer to as quark-gluon plasma (QGP). We recreate and study this matter by colliding heavy ions at nearly the speed of light! We do this in two terrestrial laboratories, the Relativistic Heavy Ion Collider at Brookhaven National Laboratory, in NY, USA, and the Large Hadron Collider at CERN, Geneva, Switzerland. Studying for example how composite particles form from a cooling and expanding QGP is non-trivial. Quantum Chromodynamics (QCD), the theory of strong interactions, relevant in answering this question is not easy to solve, and requires approximating models and so-called effective field theories, as well as supercomputers.

One of the most exciting times in my career started with a talk I heard as a postdoc at a conference that raised in me a nagging question I immediately wanted to work on. The resulting research, done with a collaborator, led to a shift in paradigm in the understanding of what was considered true at the time. Our theoretical work showed that our understanding of quarkonium suppression in relativistic heavy ion collisions, the so-called "golden signal" of QGP production, a thermometer of some sorts, is not only incomplete, but at places the interpretations of results are misleading. What made creating this body of work both exciting and nerve-racking was that our results went against what famous well-established leading figures in the field were saying. I've spent lots of sleepless nights worrying about a potential mistake and thus cross-examining my calculations over and over again.



Ágnes Mócsy  
Pratt Institute

*... if you have the tiniest spark to explore some kind of outreach work then go for it. I almost guarantee that if you engage you will find a kind of gratification that it's worth your time.*



*Read about the shoes on page 9*

Naturally, I wanted to be standing on as firm a ground as possible when going against the mainstream. Such times are the most exciting in science, when people really fight you and want to shred your work to pieces. If it withstands the scrutiny it means that you are making something truly new and your contribution will matter in moving our understanding a tiny bit further. This was undoubtedly intellectually exciting and pleasing.

Way before the quarkonium work, part of my PhD research was to investigate the phase diagram of QCD and make theoretical predictions for whether there is a critical point in the nuclear phase diagram, and if so where that is. It turned out that a decade after defending this thesis work, Brookhaven's collider began a program looking for the critical point, trying to scan the phase diagram experimentally, and that program continues today. Although, due to other interests I stepped away from this exploration I am still excited that I was one of the early contributors to the phase diagram question, that has by now grown into its own field.

Determining the Sound of the Little Bangs was another super exciting project I have done with a collaborator. Based on experimental data and theoretical results we studied how density waves might propagate in the QGP, explaining some of the thus-far unexplained and unexpected measurements. This fluctuations-correlations analysis was another work where I feel we did something that mattered, something that could not be ignored, but allowed for more questions and investigations to be raised. This work also resulted in my first outreach project, since we created a YouTube video that culminated with the sound itself.

**Q. You've been involved in a number of outreach projects, for example: Creating short films and videos, giving workshops, collaborating with artists and designers, inventing the Fusion Project Runway, holding science fashion shows, art shows, lobbying congress, talking to the underrepresented, young girls of all colors (also serving on the board of SistersMATR), being a part of PubSci events, producing Science Happy Hours, talking to a wide audience in theater and cinema, creating interdisciplinary science courses, like *Science*, the *Film Muse*, and so much more. What motivates you to do all this, and how do you manage to find time to do all this and your research?**

My motivation for all this is rooted in encounters that shed light on the value of fundamental research. Its role in a society is not understood, or it is misunderstood, or misguided. I felt somewhat of a responsibility to share what my understanding is. I found that people are curious and they want to know and they want to understand, and it is our job as scientists not be condescending towards not knowing but rather to inform and raise curiosity. My conviction is that physics is not only for physicists. Many can enjoy the awesomeness of understanding something about how things work and why they are the way they are without having to go through years of math training. Even showing the beauty and power of math and that of equations causes me pleasure when it breaks down some of the walls built around the accessibility of physics.

There is also another, more personal motivation. Too often I was faced with a statement that I do not look like a physicist. Our society's vision of a physicist (and often of any scientist) tends to be that of a middle aged white male. So this, together with the realization that I was often one of the few, if not the only female in a seminar room, ignited another kind wondering about who are the physicists, and who aren't and why? Diving into the research addressing these questions, and being asked to talk about them, made me realize that showing myself as just one of the many ways a physicist looks like might be of relevance in trying to make science accessible for more, and shifting the gender and racial landscape of physics towards what reflects our society at large. When younger ladies approach me with either physics questions or



guidance, or when my more seasoned colleagues end up discussing issues related to underrepresentation I feel that this bit of a self-imposed responsibility is not meaningless.

As for finding time to do all this, yes, that is a real issue. Everything you wish to do well takes time. Everything. So I give substantial time and energy to these projects. Often my weekends get eaten. Admittedly it goes on the expense of my research productivity as well. We all have equal amounts of time, and we all can choose how to spend it. I try to choose and distribute my time on what I expect to be fulfilling projects, and projects that might make a bigger difference. Now, with embracing documentary film making in my life, exploring deeper my own scientific and artistic creativity, the question of time management also needs some reevaluating attention.

**Q. I noticed your shoe collection coffee table book. I love the cover! What is the story behind this book?**



The Private Collection  
Ag's Book of Shoes: 2019

Hah, yes, the shoe book! The shoe book is part of my personal journey towards self-acceptance. For many years I was separating different aspects of my life, feeling that for example my love for fashion does not sit well with a career in physics. I thought that in order to be taken seriously in the science world, in particular in the world of theoretical physics, where the number of female practitioners has been - and still is - very low, I would need to not draw attention to my looks, but be more like one of the guys in order to be taken seriously. Hence the ever increasing number and style of shoes stayed hidden until the point where I felt confident enough to embrace all parts of myself under one hat. This moment happened when I felt I had put enough on the physics table to prove that I am not only a curious but also a capable scientist, who happened to have a shoe collection. So my decision of “coming out” was to celebrate my collection with photos and stories acknowledging each pair, and creating a coffee table book. This step indeed made me more relaxed to be who I am in any, including physics, environment.

I believe that everyone can reach their full potential only if they can be themselves. If you have to spend effort to hide and suppress, and be someone whom you are not that is not good for you, and not good for whatever job you are doing. This brings me back to the diversity and inclusion question in physics (and all other fields where there are minorities embedded in dominant groups) - there is not one way to be a scientist, there is not one way to look like a scientist, and we would all be benefiting (inside and outside of science) for embracing this instead of holding on to limiting stereotypes.

**Q. Have you ever regretted doing outreach or felt that it has gotten in the way of your research?**

Well, regret no. Got in the way, most certainly. But I would not call it got in the way, I rather embrace that I place value on it and thus I made a purposeful choice to do it. It is important to me though that colleagues, who's opinion I respect tremendously, do not consider my explorations into new territories with dismissal. Their acceptance of my non-traditional physicist career is crucial in me continuing on that road.

**Q. How did you get involved in doing outreach?**

I will be straightforward and confess that I do not like to use the word outreach. There is a tendency to associate outreach with something one is requested to do by funding agencies to keep research grants flowing. Yet, there are lots of wonderful colleagues who engage with passion in activities involving a wider audience. As mentioned above, these all take time. And I wish the scientific community at large would place

serious value on such activities from a junior researcher too, besides the high value that is placed on research publications. But, in a way, the current system of values does not allow for that, almost penalizing those who are interested besides research in science communication activities.

That said, I consider the beginning of my involvement when I joined the faculty of Pratt Institute, where the leading disciplines are that of the arts, design and architecture. I was intrigued by the fact that Pratt hires scientists to teach their amazing student body. So I went for the challenge and found it so inspiring to me that I stuck around. Many of my creative science communicating works (like videos, fashion shows, and exhibits) and collaborations are born from being exposed to a mostly non-scientific world at Pratt, allowing me to explore a side of me that was mostly unexplored before.

I did not break my ties with Brookhaven National Lab, it is an essential part of my life that I do not wish to let go, but rather bring it into my and others lives in new ways. Be that by bringing my students, as well as faculty and even administration from Pratt to visit what I call the “wow factory,” that is the particle collider, or have my artist students meet and collaborate with other scientists, or by designing and co-teaching a course that brings physics and filmmaking under one hat, running part of the class with access to Brookhaven’s state of the art research facilities, or by heading to bars and theaters talking about research either under Brookhaven umbrella or other STEM-related events, or by contributing my efforts to the User’s Executive Committee of the collider.

So lots of the outreach is born from being embedded both in the scientific and artistic worlds, from finding the connections and telling the science through new mediums and languages, hoping that a wider audience previously perhaps not exposed or not curious, would give it all a chance.

**Q. From all your outreach projects, which type of outreach do you find most effective, and which type do you find most rewarding?**

It is hard to measure the effectiveness for some types of outreach, hence part of the judgment is based on direct and indirect feedback, and on the continued and increased interest.

Let me highlight the Fusion Project Runway as an example of what I find effective. This twice a year project was born out of the idea that different people learn in different ways and so besides more typical exams, why not access and express knowledge in new creative ways. So my artist and designer students are expected to internalize the physics and astronomy they learn in the following way: pick a topic from the semester that they fancied most, research that topic beyond class material, and create a science-art fusion project in the medium of their choice. Then, they’ll have a timed presentation in front of a panel of judges, experts brought in from the world of physics and art/design. Thus each fusion project undergoes scrutiny from their scientific and artistic merit as well. Students also perform written peer evaluations of each other. The peer evaluations are later made anonymous and given to the individual evaluated. The variety of works is rich (animation, film, fashion, jewelry, painting, sculpture, photography, industrial and interior design, poetry, dance, music, and more). My experience is that you can engage people through their own comfortable medium, and they can truly blossom, and get to the bottom of complex scientific concepts and processes through their own creative ways. Many of these works end up being part of public shows, exhibits, and publications. Often I invite the artists to join me onstage and be part of the production. And there is another effect to all this: in science we communicate through graphs, equations, articles; here we use other languages, for instance telling science stories through garments; or jewelry pieces can be real conversation starters - to name just a couple. This way, potentially reaches new audiences as well.

As for what's rewarding, I consider some of the teaching and building lasting relationships in cross-disciplinary collaborations with artists and designers, as well as going to venues to tell about the science embedding in it different art forms to be extremely rewarding. Making people fall in love with subjects they did not think they'd even be interested in is something I take great enjoyment in. You know, when people's faces light up in their aha moments of awe. We all are like that, when we get to understand something we feel good and it can provide a step towards wanting to know more. I feel that inspiring people and being inspired by them - is a wonderful part of my life. And perhaps I can make a difference - that is all what I can hope for. The more things I do, the more interested I get to keep doing more and keep challenging myself with new ideas and new ways of telling science stories. I thus now landed into a new area, making documentaries - for now rooted in some aspect of science- a super exciting and rewarding experience, an exploration that is here to stay as my activity.

I also find the congressional visits I take part in each spring quiet inspiring. On Capitol Hill we get to meet sharp and knowledgeable elected officials and staffers, some aligned with my political views, some perpendicular. Talking to them and discussing the value of fundamental research and why government funding is indispensable for simply curiosity driven research, and what benefits we already enjoy from this type of research is rewarding. These visits are exhausting, with a busy rolling schedule, yet it gives a sort of high at the end of the day, you feel that you did something important, and you walk away with an aura of hope.

## Q. What advice would you give to others doing outreach?

I am not sure there is any advice to give, other than if you have the tiniest spark to explore some kind of outreach work then go for it. I almost guarantee that if you engage you will find a kind of gratification that it's worth your time.

*I believe that everyone can reach their full potential if they can be themselves. If you have to spend effort to hide and suppress, and be someone whom you are not that is not good for you, and not good for whatever job you are doing. This brings me back to the diversity and inclusion question in physics (and all other fields where there are minorities embedded in dominant fields) - there is not one way to be a scientist, there is not one way to look like a scientist, and we would all be benefiting (inside and outside of science) for embracing this instead of holding on to limiting stereotypes.*



*You know, when people's faces light up in their aha moments of awe. We all are like that, when we get to understand something we feel good and it can provide a step towards wanting to know more. I feel that inspiring people and being inspired by them - is a wonderful part of my life. And perhaps I can make a difference - that is all what I can hope for. The more things I do, the more interested I get to keep doing more and keep challenging myself with new ideas and new ways of telling science stories.*



## Dwight Nicholson Medal for Outreach

The Forum on Outreach and Engaging the Public assumes responsibility for this prize. This important APS prize consists of the Nicholson Medal and a certificate that includes the citation for which the recipient has been recognized.

The prize shall be awarded to a physicist who either through public lectures and public media, teaching, research, or science related activities has

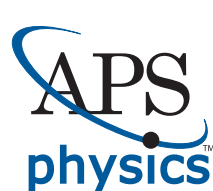
1. successfully stimulated the interest and involvement of the general public on the progress in physics, or
2. created special opportunities that inspire the scientific development of students or junior colleagues, or has developed programs for students at any level that facilitated positive career choices in physics, or
3. demonstrated a particularly giving and caring relationship as a mentor to students or colleagues, or has succeeded in motivating interest in physics through inspiring educational works.

Full details are at: <http://www.aps.org/programs/honors/awards/nicholson.cfm>

Nomination deadline is usually in June.

Contributed by: E. Dan Dahlberg

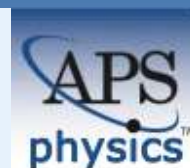
*Know someone who would be deserving of the Nicholson award or worthy of being an APS Fellow? Don't wait!!! Start the nomination process now.*



**FOEP**  
**FORUM ON OUTREACH &  
ENGAGING THE PUBLIC**



*Dwight  
Nicholson  
Medal for  
Outreach*



## 2017 FOEP Nominations for APS Fellows



### What

APS Fellowship constitutes recognition by one's professional peers of exceptional contributions to the physics enterprise. Only a small fraction of the APS members reach the level of fellows and therefore this is an important recognition.

### Who

Only APS members who are members of FOEP can be nominated for fellowship through FOEP. The deadline for Fellowship nominations is usually in May. We strive to have a diverse group of nominees and encourage the nomination of members of all underrepresented groups.

Who

### How

Nomination is done entirely on-line. Complete instructions for the nomination are available at: <http://www.aps.org/programs/honors/fellowships/nominations.cfm>.

How

The process consists of: providing the nominee's contact and professional information, uploading nomination letters documenting the accomplishments of the nominee and explain why he or she is deserving of recognition. Note that it is the responsibility of the nominators to provide a compact however complete nomination.

### Evaluation

Nominations are evaluated by the FOEP nomination committee, reviewed by the full APS Fellowship Committee, and finally submitted for approval to the APS Council.

### Subject

Outreach is a broad enterprise, spanning academia, industry and national laboratories, as well as freelance professionals such as writers, journalists and bloggers. Outreach activities are often overlooked and undervalued. Thus it is important to think about and propose people who have an exceptional track record in this area.

### Why

Nominating someone for APS fellowship takes time; however, it is a great way to emphasize the importance of reaching out to and engaging with the public. At the personal level it is very satisfactory to get recognition of your peers.

*Contributed by: Ivan K Schuller*





## Congratulations FOEP Fellows for 2016

Fellows for 2016:

Goldfarb, Steven [2016]

University of Michigan

Citation: For devising new techniques and creative methods to facilitate science communication and education on a global scale.

Mócsy, Ágnes [2016]

Pratt Institute

Citation: For innovative explorations of the intersection of science and the arts, for advocacy on behalf of fundamental science, and for promotion of underrepresented minorities working in science.

Thompson, Rebecca [2016]

American Physical Society

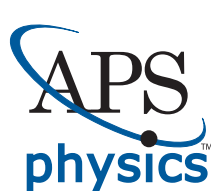
Citation: For development of innovative physics outreach, engagement, and informal education programs reaching millions of children and adults every year, and outstanding leadership in US and international science outreach communities.



## FOEP Membership

**Stop by the APS table at the April or March meeting to sign up for membership! Or sign up online.**

To join FOEP at no cost prior to renewing your APS membership, you can get your ID badge scanned at a meeting, send an email to [membership@aps.org](mailto:membership@aps.org) with your request to add FOEP to your membership, or send a letter requesting membership to APS membership department. Please note that if you currently belong to two or more forums, FOEP will be added at no charge for the remainder of your membership term. On your next membership renewal notice, you will see a Forum subtotal that will include \$10 for every Forum membership over two.



**FOEP**

**FORUM ON OUTREACH &  
ENGAGING THE PUBLIC**

## FOEP at the March Meeting 2017

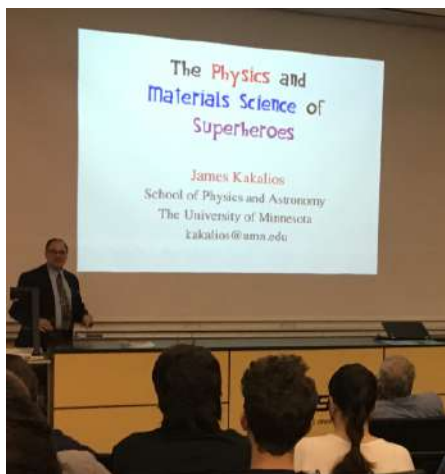
### Public Physics Lecture at March Meeting in New Orleans



Starting in 2010 at the Portland, Oregon March meeting, Ivan Schuller, Brian Schwarz, and I have organized a public lecture titled “The Physics Of Superheroes” by Jim Kakalios, author of the book by the same name, for the general public at the March meetings. These public lectures have been supported by DMP and DCMP every year since then. The motivation is to increase the general public’s awareness of the very positive impact of condensed matter and materials physics research on their daily lives. The talks are well attended and Jim does an excellent job of connecting to the research being reported at the March meeting with the world of science fiction. For example he calculates the force Spiderman’s silk fibers must supply stopping the elevated train in the movie, and describes how it is consistent with the strength of actual spider silk. He then compares it to steel and concludes a steel cable the same diameter would break. He then explains to the audience a cable made of carbon nanotubes could be much smaller and still stop the el and that scientists at the March meeting were performing research to make carbon ropes a reality.

At the meeting in New Orleans we organized three public lectures for Jim’s presentation. One at LSU in Baton Rouge, one at Tulane in New Orleans, and the third at the March meeting on Wednesday evening. As is always the case the audiences were great and truly enjoyed Jim’s unique humor and entertaining talk. Each talk was followed by lots of questions from the audience. This year’s attendance was over 700 and we have already received a promise of support next year in Los Angeles by DMP and DCMP.

*Contributed by: E. Dan Dahlberg*



**Double your exposure by giving an outreach talk in addition to your science talk!**

The Forum for Outreach and Engaging the Public will have contributed talk sessions at the March and April meetings. *Importantly, these talks do not count against you, so you can still submit a scientific presentation.* We look forward to hearing about your work!

## FOEP at the March Meeting



### FOEP sponsored workshops at the APS March Meeting: Finding your scientific voice.



Finding Your Scientific Voice Workshop to be held at the APS March meeting. Join Melanie Dreyer Lude and Itai Cohen as they guide you through a series of exercises for improving your 10 minute talks.

#### Two Sessions were held, each restricted to APS graduate students and postdocs

The [Forum for Outreach and Engaging the Public \(FOEP\)](#) will host workshops on improving communication skills of students and postdocs. Each 3 hour workshop will focus on how to improve the 10 minute talks for the meeting as well as give participants instruction on how to communicate with the lay public about their work.

Based on this positive response we intend to offer such workshops more frequently. Keep an eye out for future FOEP sponsored workshops at APS meetings.

#### Comments received

--Thanks for the very nice talk which is very helpful for improving my ability to have a good performance in the 10 minutes presentation of this March meeting. Specifically, the emphatic important idea, which is conveying the core message in the elevator-pitch style gives me a deep impression. -- Yongzheng

-- "I learned a lot in the short time and I think it will help me break out of some bad habits I have, in particular by seeking more opportunities to communicate science." --Jon

-- "The session was just in general effective. Making us work on the 'elevator' pitch, speech mechanics (posture, diction, etc.) brings those issues to our consciousness so we can improve our talks. ... Appreciated having someone from a theater background present the tutorial. It gives the talking points credibility because everything comes back to humans' natural position as storytellers." -- Alex

-- "I thought the workshop was fantastic. I appreciated the improv, practicing core messages, and then workshopping the actual presentations." -- Derrick

-- "I appreciated the chance to make multiple versions of my elevator pitch and try it on people in a less overwhelming environment. ... I found much of the advice helpful and a good deal of it was new advice to me even after hearing a lot of people talk about giving good scientific presentations." -- Laura



## FOEP at the March Meeting



MARCH 13 - 17, 2017  
NEW ORLEANS, LOUISIANA

### FOEP Invited Session at the APS March Meeting: From Physics Girl to the Physics Bus, Creating an Effective Voice for Physics in a Diverse Society

We had a great line up for this session including **Physics Girl**, the folks from the **Physics Bus**, Charlie Falco who will be talked about **The Art of the Motorcycle and the History of Art**, as well as Amber Stuver from **LIGO**, and Melanie Dreyer-Lude who discussed **Theater Techniques for Physicists**.



Physics Girl Dianna Cowern will explain the challenges she had to overcome in creating the Physics Girl YouTube Channel

**We had a very full crowd at the sessions. Be sure to check out the FOEP sessions at the next April and March meetings!**



*Contributed by: Itai Cohen*

### Happy Hour!

Every March Meeting FOEP in conjunction with the APS Outreach department holds an Outreach Happy Hour. The goal is to get those doing outreach talking with each other and build a community. It's also a chance for FOEP to honor the new fellows and talk about the benefits of joining FOEP. This year the happy hour was held at Gordon Biersch in New Orleans and attracted over 50 outreach enthusiasts. Beer and snacks were consumed while discussing best practices in outreach. Only one of the new fellows was in attendance but Becky Thompson happily accepted her new Fellows pin and certificate. Because the event was on "Pi Day" there was also copious amounts of pie. If you are attending March Meeting in 2018 look out for information on the Outreach Happy Hour and come join us for informal outreach fun.



*Contributed by: Rebecca Thompson*

## FOEP at the March Meeting



### The Physics Bus was at the New Orleans for March Meeting!

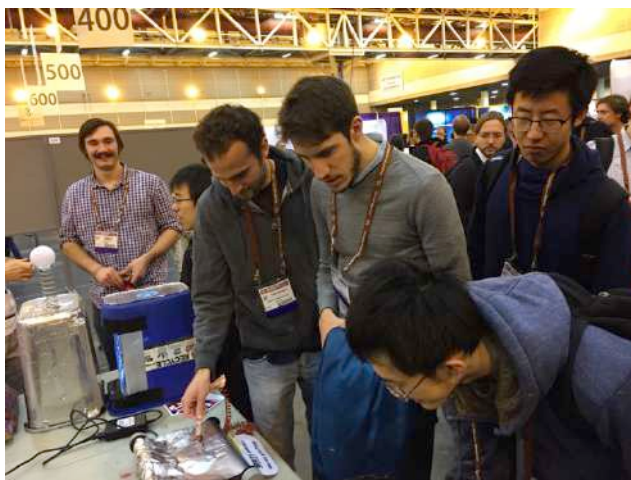
The Ithaca Physics Bus is about doing science for fun. It is a mobile exhibition of upcycled appliances--reimagined by kids--that showcase unfamiliar physics phenomena. The mission of the physics bus is to awaken interest and creativity in physics for all ages and walks of life.

The Bus went down to New Orleans for the APS March meeting 2017 and made stops in schools and community events throughout the week.

In addition to giving a spectacular talk to a standing room only audience about their outreach work at the FOEP invited session, the Physics Bus was available during the Monday Night Happy Hour in the Convention Center Exhibition Hall. Finally, they also conducted outreach to the New Orleans community, visiting grade schools throughout the week. Check out the links below for photos!

<https://www.facebook.com/IthacaPhysicsBus/posts/1852632404978726>

<http://news.chess.cornell.edu/articles/2017/Herman170413.html>



*Contributed by: Itai Cohen*

### Double your exposure by giving an outreach talk in addition to your science talk!

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## Report from our Council Representative

APS  
council

I'm grateful for the opportunity to join the APS Council of Representatives as your councilor. Last spring I joined as the elected member to serve as a representative from FED, FOEP, and GPER. By way of reminder, the Council oversees the membership and units, scientific meetings, fellowships and prizes, policy statements and most standing committees and by-laws. Complementarily, the APS Board of Directors oversees the management of the society, corporate governance and finance, strategic directions, and final approval of policies and procedures. If you are interested, a bit about me is below.

Report from our most recent Council meeting:

APS appears healthy (currently over 54,000 members, with more than 30% student members; students are an area of community that APS especially seeks to engage and retain --- FOEP strikes me as an excellent resource here). In addition to Apr and Mar meetings, APS ran the Conference for Undergraduate Women in Physics (CUWiP) in January. CUWiP boasted more than 1500 undergrads in attendance, noting that there are about 1500 female physics majors who graduate each year. Planning for 2018 Apr and Mar Scientific meetings is well underway.

Administratively, there have been updates to various Divisions' bylaws regarding the new organizational structure of APS, and a proposed growth of the Topical Group to a Division of Quantum Information. There are recommendations for a new Dissertation award in Astrophysics and in Atomic and Optical Physics, and an Early Career Soft matter award. There is a new journal in the Phys Rev line ([Materials](#)) and we have heard a new editor in chief, Michael Thoennessen.

Key APS strategy is focusing on organizational finances and also coupled with journal strategic planning. As you may know we have an interim director of Public Affairs and the APS Leadership is reviewing this office as it searches for a new Director. APS engaged in a variety of policy activities and statements (see [policy](#) and [news](#) feeds). These include but are not limited to: endorsing and engaging in the March for Science (the Board and Council were active in the Phoenix march), and POPA has a new statement Addressing the Global Energy Challenge, the Board issued a statement on Racial Violence.

There will be two Council meetings coming up where I will be pleased to share FOEP issues, concerns, and celebrations. The September meeting will be shorter and online, while the November, longer and in person. I welcome your feedback and areas you wish to bring up to Council (through the FOEP executive board). Issues that I have heard to date include: mechanisms for endorsing honorary (non-APS members) as Fellows, finding a mechanism to better include non-APS speakers at APS meetings, and considering a student outreach prize. As these ideas coalesce or others emerge I welcome your feedback and will be pleased to serve as your advocate.

**Noah Finkelstein** is a Professor of Physics at the University of Colorado Boulder and conducts research in physics education, specifically studying the conditions that support students' interests and abilities in physics – developing models of context. In parallel, he conducts research on how educational transformations get taken up, spread, and sustained. He is a PI in the Physics Education Research (PER) group and a co-director of CU's Center for STEM Learning. He co-directs the national Network of STEM Education Centers, is helping build the STEM DBER-Alliance, and coalitions advancing undergraduate education transformation. He is involved in education policy serving on many national boards, is a Trustee of the Higher Learning Commission, is a Fellow of the American Physical Society, and a Presidential Teaching Scholar and the inaugural Timmerhaus Teaching Ambassador for the University of Colorado system.

*Contributed by: Noah Finklestein*

## Physics at Comic Con

*by: Rebecca Thompson*

Every year the APS Outreach team gets to travel to Comic Con International in San Diego, CA. Why go to such a unique place? To exhibit their science comic series, Spectra the Laser superhero. With it's 9 issues that excite and teach, a comic book convention is the ideal place to get these comics in the hands of comic book lovers of all ages. Spectra is the story of middle school Lucinda "Lucy" Hene who can turn into a laser superhero. She battles such villains as Miss Alignment and General Relativity. As kids read the comics they learn a little about different types of physics.

Comic Con attracts over 200,000 people each year hoping to catch sight of their favorite stars and show off their "cos play" outfits. Though the convention started as strictly a venue for comic books, it has now become the premiere pop culture event. It hosts panels on everything from Game of Thrones to the latest young adult novels. In the past few years the idea of teaching with comics has become a bigger presence at the event. This is where Spectra fits in. Teachers are now using comics in their classroom in addition to novels and text books. With the goal of teaching physics through stories told through comics, Spectra has become a useful tool for teachers. Spectra creator and author Rebecca Thompson served on a panel to discuss how to teach STEM with comics. The panel included Jorge Cham, creator of the popular PhD Comics. They discussed the impact comics can have in STEM teaching and public outreach.

In addition to talking to audiences about the importance of comics in the classroom, the outreach team distributed over 2 tons of comics to fans in attendance. There were many repeat customers looking for the newest two issues. In the most recent issue Spectra mysteriously loses her powers and needs to find a way to save the school dance using just her brain and the help of her friend Kas's new sound powers. Students learn about acoustics while reading about her and her friends. Both kids and adults enjoy them. In many cases APS staff were talking about science with people dressed as everything from the Flash to Daenerys. Watching Thor read your comic is certainly an experience you'll never forget.

To read the Spectra series or order your own copies please visit [www.physicscentral.com](http://www.physicscentral.com). For more information about the series or outreach trips to comic conventions, please email Spectra author Rebecca Thompson at [Thompson@aps.org](mailto:Thompson@aps.org).



## Celebrating Einstein, An Engaging Outreach Event

*by: Rachel Henderson*

“Celebrating Einstein” is a public outreach event committed to communicating science, specifically Einstein’s theory of General Relativity (GR), to the general public. Originally created at Montana State University and the eXtreme Gravity Institute, Celebrating Einstein was most recently hosted by West Virginia University (WVU) through a month-long series of events, including danced lectures, orchestra performances, artwork, readings, lectures, planetarium shows, and field trips. An interdisciplinary collaboration between the Department of Physics & Astronomy and the School of Theatre & Dance resulted in 4 field trips for 723 middle school students and teachers, 4 danced lecture performances and 2 orchestra performances for 399 people from the general public, 5 lectures and 2 documentaries for 346 participants, and 5 planetarium shows for over 200 adults and children. This event reached about 13,000 people in 7 different counties via Facebook Live and Reddit.



The Celebrating Einstein goals are to increase both the audience members’ interest in physics and astronomy and their conceptual understanding of Einstein’s theory of GR. Overall the audience’s average conceptual gain significantly increased - by 20%. The positive feedback from the public was astonishing: “Nicely done. Much more educational that I imagined” and “It brought tears to my eyes” are examples of audience feedback.

The combination of art and dance to communicate science proved an effective and creative way to motivate engagement. If you would like to see more information, please visit <http://einstein.wvu.edu/>.

## How to Join FOEP

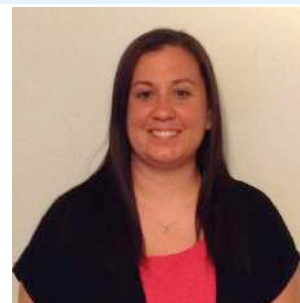
To join FOEP at no cost prior to renewing your APS membership, you can get your ID badge scanned at a meeting, send an email to [membership@aps.org](mailto:membership@aps.org) with your request to add FOEP to your membership, or send a letter requesting membership to APS membership department. Please note that if you currently belong to two or more forums, FOEP will be added at no charge for the remainder of your membership term. On your next membership renewal notice, you will see a Forum subtotal that will include \$10 for every Forum membership over two.



## Outreach: A Graduate Student's Perspective

by: Rachel Henderson

Rachel Henderson is starting her sixth year of graduate school at West Virginia University (WVU). Working with Drs. John and Gay Stewart, she is a physics education researcher (PER). Rachel's thesis is focused on how classroom diversity and inclusion impact scores on conceptual physics assessments. She, along with the WVU PER group, is also trying to understand why undergraduate students depart from STEM fields and how we, as physicists, can increase retention within the sciences, specifically in physics courses.



### **What experiences do you or your University have involving physics outreach?**

I have helped organize "Space Day" and "Science Day" at the *Spark! Imagination and Science Center*, a children's museum serving northern West Virginia with a focus on science literacy. These gave children of all ages a chance to learn about science through demonstrations and play. More recently, the WVU Physics & Astronomy Department hosted an event called "Physics of Baseball" after a minor league baseball game in Morgantown for about 40-50 girl scouts. Being a former college softball player, this event was a great opportunity to incorporate both my love of science and my love of baseball together, and teach kids how relevant physics is to the world around them!

### **How did you get involved in outreach?**

My outreach experiences really began during my undergraduate education at Slippery Rock University. I participated in a service learning project for space science where the physics department put on physics demonstrations and a planetarium show. I also participated in many outreach events with the SRU softball team including Operation Christmas Child and many children's instructional camps throughout the season. In graduate school, I helped lay the groundwork for outreach events in the newly formed WVU Physics and Astronomy Graduate Student Organization (PAGSO). Some of the organization's foci include regular outreach events, coordinating prospective graduate student visits, and interfacing between physics faculty and graduate students to build a better grad school experience!

### **What is your favorite part of participating in outreach events?**

It sounds corny, but my favorite part of participating in outreach events is seeing the excitement from young children and students. Graduate school has its ups and downs but participating in outreach activities always gives me the reminder of why I chose to study physics – it reminds me of my passion for understanding how the world works! I've always had a passion for teaching young scientists and bringing physics outside of the classroom to people who love science but don't have the chance to see it in action, that often is even more rewarding! I enjoy providing fun opportunities to learn about science and hopefully am able to somehow make it relevant to a child's interest. There's the chance you're recruiting a future Nobel Laureate into science every time you lead an event.

### **Being a graduate student member of the Forum on Outreach and Engaging the Public (FOEP), what do you find to be the most beneficial?**

I find the FOEP sessions and events at the APS meetings the most useful. (A talk at a FOEP session doesn't count toward a research talk, so you can give one even if you're talking elsewhere in the week!) Gathering ideas from other faculty and students about what is going on at their university is always encouraging. It's a chance to ask questions and bounce ideas off of each other and maybe even bring bits and pieces back to my own University for a future event!

*Stay tuned for more perspectives on outreach from other Physics & Astronomy Graduate Students!*

## Outreach Info & Resources

info

### APS Physics Central has an “Outreach Guide!”

The guide provides ideas, opportunities, and information on how to conduct various types of outreach.

Check it out! <https://www.aps.org/programs/outreach/guide/>

And within this guide you’ll find information about:

#### Outreach Ideas

- [Physics on the Road](#)
- [Public Lectures - One Time](#)
- [Public Lectures - Series](#)
- [Open Houses](#)
- [Science Cafes](#)
- [Demo Shows \(on campus\)](#)
- [Working with a Museum](#)

#### Outreach Tips

- [Public Relations](#)
- [Working with Children and Schools](#)

#### [Demos List](#)

#### [Experts](#)

### The Institute of Physics has a website devoted to Public Engagmeent

This website provides ideas for outreach activities, how to run an event, evaluation of an event or activity, as well as sign ups for events (in the UK).

<http://www.iop.org/activity/outreach/>

### The Alan Alda Center for Communicating Science

Has many resources, and classes you can sign up for at Stony Brook University. There is a “Workshops on the Road” program that visits other locations. Check out their website for ideas and information.

<http://www.centerforcommunicatingscience.org/alan-alda/>

## Questions and Ideas



### Want to get more involved?

Email someone on the executive committee. Contact info can be found on the last page of this newsletter or online at:

The Forum on Outreach and Engaging the Public at

<http://www.aps.org/units/foep/governance/officers/index.cfm>

### Newsworthy Items?

Have an idea for something to include in the Newsletter: An outreach activity, an idea for an article, best practices, what does and doesn't work, or something else? Please send your ideas to the newsletter editor at

[FOEPAPSnewsletter@gmail.com](mailto:FOEPAPSnewsletter@gmail.com)



## Web Sites that Engage and Inform the Public

info

Smarter Every Day

<https://www.youtube.com/user/destinws2>

Minute Physics

<https://www.youtube.com/user/minutephysics>

Veritasium

<https://www.youtube.com/user/1veritasium>

Periodic Table of Videos

<https://www.youtube.com/user/periodicvideos>

Numberphile

<https://www.youtube.com/watch?v=w-I6XTVZXww>

APS Physics Central:

Physics in Action, Physics in Pictures, Physics +, Physics@Home, and more

<http://www.physicscentral.com>

OSA's Optics for Kids website:

Activities, Celebrities, Timelines, and more

<http://www.optics4kids.org/home/>

IOP Physics.org

<http://www.physics.org>

NASA Outreach Resources

<http://science.nasa.gov/researchers/education-public-outreach/>

Expanding your Horizons Network

<http://www.eyhn.org/aboutmain>



## Let FOEP Post Your Outreach Links

Does your outreach program have a website? We could list it in our newsletter. Please email your url to [foepAPSnewsletter@gmail.com](mailto:foepAPSnewsletter@gmail.com), and include description of site. Some examples are:

- Presentations for the general public
- Science museums
- Summer camps and programs
- Demonstrations
- K-8 outreach
- K-12 outreach

- High school and college outreach
- Physics recruiting for high school and college
- Online videos
- Contests
- Science fairs and festivals
- Ask a physicist
- Science cafés
- Other (please describe)

*Contributed by: B. Parks*

## Funding Information



### **APS grants for public outreach and informing the public**

APS annually awards several grants up to \$10,000 to help APS members develop new physics outreach activities. Programs can be for traditional K-12 audiences or projects for engaging the public.

<http://www.aps.org/programs/outreach/grants/>

**Marsh W. White Awards** are made to Society of Physics Students Chapters "to support projects designed to promote interest in physics among students and the general public."

<https://www.spsnational.org/awards/marsh-white>

### **SPIE education and outreach grants for photonics and optics**

As part of its education outreach mission, SPIE provides support for optics and photonics related education outreach projects.

<https://spie.org/education/education-outreach-resources/education-outreach-grants>

### **AAPT - American Association of Physics Teachers**

#### **Bauder Fund Grants for Physics Outreach Programs**

Can provide funds to obtain and or build and support traveling exhibits of apparatus.

<http://www.aapt.org/Programs/grants/bauderfund.cfm>

### **Alfred P. Sloan Foundation**

The Alfred P. Sloan Foundation offers grants toward promoting science and science understanding to the general public.

<http://www.sloan.org/apply-for-grants/>

### **IOP Institute of Physics**

Public Engagement Grants – open to all but only for projects that take place within the UK and Ireland

[http://www.iop.org/about/grants/outreach/page\\_38843.html](http://www.iop.org/about/grants/outreach/page_38843.html)

### **EPS European Physical Society**

Two grants that can fall into the outreach category are the EPS grant for Regional Physical Society Meetings that include items outside their usual grant categories, and EPS Award for Pre-University International Physics Competitions.

[http://www.eps.org/?page=support\\_grants](http://www.eps.org/?page=support_grants)

Many institutions have their own internal outreach funding programs.

*Contributed by: H.M. Doss*

# PHYSICS OUTREACH & ENGAGEMENT

## Executive Committee

**CHAIR:** ITAL COHEN (01/17 - 12/17) CORNELL UNIVERSITY

**CHAIR-ELECT:** LARRY GLADNEY (01/17 - 12/17) UNIVERSITY OF PENNSYLVANIA

**PAST CHAIR:** YVAN BRUYNSERAEDE (01/17 - 12/17) UNIVERSITY OF LEUVEN

**VICE CHAIR:** DON LINCOLN (01/17 - 12/17) FERMI NATIONAL ACCELERATOR LABORATORY

**SECRETARY/TREASURER:** E. DAN DAHLBERG (01/15 - 12/18) UNIVERSITY OF MINNESOTA

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**MEMBER AT LARGE:** AMBER STUIVER (01/16 - 12/17) LIGO – LIVINGSTON OBSERVATORY

**MEMBER AT LARGE:** HEIDE DOSS (01/16 - 12/18) POINT LOMA NAZARENE UNIVERSITY

**MEMBER-AT-LARGE:** RACHEL HENDERSON (01/17 - 12/18) WEST VIRGINIA UNIVERSITY

## FOEP Membership – Join Today

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*Physics Outreach & Engagement is a non-peer-reviewed newsletter of the Forum on Outreach and Engaging the Public, a forum of the American Physical Society. It provides information and news related to the Forum and provides a medium for Forum members to exchange ideas. Opinions expressed are those of the authors alone and do not necessarily reflect the views of the APS or of the Forum. If you would like to submit an article, commentary, letter, review, or contact us about another issue, please email the editor, [FOEPAPSnewsletter@gmail.com](mailto:FOEPAPSnewsletter@gmail.com)*

The Forum on Outreach and Engaging the Public can be found on the web at <http://www.aps.org/units/foep/index.cfm>