

PHYSICS OUTREACH & ENGAGEMENT

Letter from the Chair

This year brings the start of a new decade (for most of us – some insist that the new decade begins in 2021, but that’s just wrong!) and the Forum on Outreach and Engaging the Public (FOEP) begins its second decade as well. Started in 2010, FOEP is the ‘home’ for those interested in outreach efforts and communicating physics to the general public. 2020 is also a Leap Year, bringing another Presidential election, an important time to promote the value of scientific research. Rather than simply curse the darkness, the members of FOEP believe in lighting candles, devoting time and effort to communicating the results and benefits of physics to the general public. The APS’ recently adopted new Strategic Vision places an explicit emphasis on outreach, recognizing that it is in the best interests of the physics community to support and encourage engagement with the general public, many of whom are voters and taxpayers.

To learn more about outreach opportunities and activities, check out the FOEP sponsored sessions at the APS March meeting (one contributed and one invited). Invited speakers include the APS’ Chief Government Affairs Officer Francis Slakey, who will give a talk on Outreach for Policymakers, Prof. Matthew O’Dowd (writer and host of *PBS Space Time*), and Jeanna Bryner (Managing Editor of LiveScience.com). The FOEP Invited session is co-sponsored by the Forum on Physics and Society (FPS), and we are co-sponsoring an FPS session on Wednesday morning titled Communicating Science to the Public, with Adam Frank delivering the Joseph A. Burton Forum Award talk on “Physics, Truth, and the Crisis of Science Denial” and Xiaoxing Xi giving the Andrei Sakharov Award talk on “Scientific Espionage, Open Exchange and American Competitiveness.” Other speakers in this session include Dennis Overbye of the New York Times, Ann Merchant of the National Academy of Sciences’ Science and Entertainment Exchange and Ira Flatow, host of National Public Radio’s Science Friday. In

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JOIN US

To join FOEP at no cost prior to renewing your APS membership, send an email to 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.

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

addition, the Division of Materials Research is sponsoring a Physics for Everyone session, with an emphasis on Physics in Popular Culture. I am personally very excited to hear all of these speakers address a wide range of outreach opportunities.

FOEP is also hosting a public event on Wednesday evening at the March meeting that will enable APS members to test their science communication skills. We physicists routinely employ technical language when discussing our research with our colleagues, but often this terminology is a barrier when communicating our results with the general public. We also know it can be a challenge to describe our work without the jargon. The FOEP Executive Committee wondered – could we make this challenge even harder? and thus was born the THING EXPLAIN YOUR RESEARCH contest. Participants will have to translate the title of their APS March meeting talk using ONLY the one thousand (or ten hundred) most common words in English as found at <https://splasho.com/upgoer5/>. Inspired by the book *Thing Explainer: Complicated Stuff in Simple Words* by Randall Munroe (creator of xkcd.com). A panel of judges will then try to determine which of three actual talk titles corresponds to the THING EXPLAINED translation. If the judges guess correctly, the participant can win fabulous prizes! (well, we think they're pretty nice). As mentioned, this contest will be open to the public, and should highlight, in a fun and accessible manner, the very difficult task of explaining advanced research topics to non-scientists.

Another way to engage with the public is to have them help out with your research. This year's Nicholson Medal winner, Professor Lucy Fortson from the University of Minnesota is one of the founders of the Zooniverse, an online platform that incorporates humans and their inherent visual pattern recognition capabilities into sophisticated computational algorithms that can solve key challenges in the realm of Big Data across many disciplines. As an example, by incorporating hundreds of thousands of members of the general public to examine and classify the morphology of millions of identified galaxies, Prof. Fortson's research is the very definition of outreach. This project has been shown to yield results that are in fact more accurate than classifications made by only a few experts – the so-called “wisdom of the crowd” effect and demonstrates a novel and creative solution to the flood of information contained within Big Data. Prof. Fortson will give a FOEP sponsored invited talk on this work at the April APS meeting this year in Washington, DC (and an interview with her can be found in this newsletter). Also speaking in her session at the April meeting will be this year's A.I.P. Andrew Gemant winner, Prof. Virginia Trimble, as well as a reprise of the Outreach for Policymakers talk by Francis Slakey.

As this year's Chair of FOEP, I am excited to work with the Executive Committee and all of the Forum's members to increase FOEP's visibility and relevance. Please consider nominating a colleague (or yourself) to be an APS Fellow through FOEP, or for the Nicholson Medal for Outreach, which is administered by FOEP. Just as we are driven to innovate in our research, creative new methods for outreach are needed. We'd love to hear your ideas on how FOEP can better serve our members in their outreach efforts as we enter our second decade (and hopefully avoid an awkward teen age phase!).

Jim Kakalios



James Kakalios
University of Minnesota
- Minneapolis

Letter from the Chair, continued

COMPUTED
THE CHAIR
REPRESENTATION

Spotlights on Outreach and Engaging the Public with FOEP's Nicholson Medal Winner

Questions and Answers with Lucy Fortson, 2019 Dwight Nicholson Medal for Outreach Recipient.

Lucy Fortson, University of Minnesota

For extraordinary work in bringing the excitement and discovery of scientific research to the public through her leadership of the Zooniverse project.

Q. You have done quite a bit of outreach, but your Nicholson Award focuses on the Zooniverse Project. Would you tell us a bit about the project?

The Zooniverse is an online citizen science platform that engages volunteers from around the world in actively contributing to research projects hosted by the platform. The idea is that the human visual cortex is excellent at pattern recognition tasks in complex images; in many cases, we are still better than machine algorithms at classifying or annotating images or other types of data. This is really important as the big data wave really begins to hit with all the upcoming new astronomical observatories and physics experiments. And it's not just astronomy and physics suffering from difficulties in analyzing all the data coming in – citizen science solutions with the Zooniverse can also help fields such as ecology with large arrays of camera traps, biomedicine with huge numbers of electron microscope slices through cells, and the humanities with all of recorded human endeavors to transcribe and make available for digital queries. We started in 2007 with the Galaxy Zoo project where about 150,000 volunteers participated in labeling images of about a million galaxies deciding whether they were “spiral” or “elliptical” to help disentangle certain aspects of galaxy evolution which relied on accurate morphological classifications. After a survey of our volunteers told us that the most common reason for participating was a desire to contribute to real research, we realized we could expand to other projects including more complex tasks such as detecting dips in light curve data from stars that could indicate a transiting exoplanet or picking which galaxy merger simulation best represented an actual merger image or marking on videos where a solar coronal mass ejection petered out. Since the Zooniverse platform was launched in December, 2010, we have grown to nearly 2 million volunteer participants and over 200 projects. And something I definitely want to emphasize, the annotations and other data provided by the volunteers are used in peer review research – Zooniverse projects have over 250 peer-reviewed papers so far. What's more, some of those papers describe discoveries made by the volunteers including a new type of galaxy – Green Peas – and several exoplanets. Over the past several years, we've worked hard to develop tools that make it easy for researchers to build a project on their own (yes, we called it the Project Builder) and have developed rather sophisticated infrastructure into the platform so researchers can integrate machine learning techniques into their projects to accelerate the classification process while still enabling serendipitous discoveries.

Continued on page 4



Lucy Fortson
University of Minnesota

To me, the most exciting thing about outreach is it opens doors to experiences I might never have had otherwise...

Q. What have you found to be the most rewarding part of the Zooniverse Project?

I am always awed by the fact that so many people want to help push research forward in whatever way they can and get real joy through participating in our projects. I also really enjoy working closely with research teams across so many domains outside of physics, learning about their fields and applying my problem solving skills to figure out how Zooniverse can help them attain their research goals. But the best part about the Zooniverse is that it so naturally combines cutting edge research work while engaging members of the public in that research. After spending a lot of time before the Zooniverse working on ways to engage the public in the process of research that were kind of contrived at best, I still just get a big grin on my face when I see a new project up that has a fantastic research problem and volunteers just flocking to it to help. It's been long enough since the launch of Zooniverse that in some cases, we actually have students writing in their graduate school applications about how participating in a Zooniverse project galvanized their interest in astrophysics and how they want to continue in a research program related to what they were doing. It's pretty amazing to think that something I helped bring into existence has had such an enormous impact on so many people.

Q. Which of your outreach projects have been the most rewarding to you?

Well, it's a bit of a funny question since I worked for many years at the Adler Planetarium, first as an Astronomer, then as Director of Astronomy and then as Vice President for Research. In that time, while still conducting my own astrophysics research as part of the VERITAS gamma ray observatory, I sunk my teeth into every imaginable way of working with the public to engage them in astrophysics. I developed content for planetarium shows, exhibit galleries and educational programs. I gave many, many public lectures and talked with kids ranging from 5 to 100 years old. I worked to get people out to our observatory to experience the wonders of looking at the night sky and I pushed for new visualization technologies to help visitors immerse themselves in some of the fantastic data and imagery that astronomy so enjoys. I also worked on policy and many national committees to help improve STEM education opportunities and the engagement of the public in the process of research. And it was at the Adler where I co-founded the Zooniverse with colleagues from Oxford and elsewhere. In many ways, all of this has been rewarding – I took the Astronomer position at the Adler way back in 1995 when I actually had 3 faculty offers, because I felt compelled to give back to the public but I didn't want to have to give up my research which was the typical track at that time. Under University of Chicago astrophysicist David Schramm's orchestration, the Adler had just started a program to make combining research and outreach possible with joint positions between the University of Chicago and the Adler. I believe I was the third person to be hired into such a position. So from that perspective, I have a rather unusual career trajectory spending obviously a lot more of my time in outreach than most scientists with research positions. And I found nearly all of my outreach work rewarding. For example, I loved giving presentations to the public in the Adler's Space Visualization Lab where I could take small groups on an adventure through say, the Hubble archive image of Eta Carinae in high resolution on a "power wall" and describe the life cycle of stars using the rich detail in that image. However, the Zooniverse is by far the most important and successful program I have been involved with, so it's only natural for me to say it's been the most rewarding. And to see how it has evolved over the years gives me real pleasure.

Q. What advice would you give to researchers about doing outreach?

If you want to do anything in outreach, find an outreach mode that really makes you feel good too. There are so many ways to "do" outreach, the key thing is to find a way that allows you to convey your passion about science. It doesn't necessarily have to be about your research. Maybe you're most comfortable talking with little kids about how things work – then connect with your local primary school or church group to offer to come in for an activity. Be willing to accept that in many circumstances especially in formal education, the groups you work with may have constraints so be patient and find ways to work within those constraints. If you want to work with the public, most museums will have a volunteer program that can place you where your skills are most appropriately needed. The point is, you have to invest in doing outreach – real outreach isn't something where you can just do a random public lecture somewhere and tick off a box for outreach. So like any investment, it takes thought, time and effort to make it rewarding for both you and the people you are outreaching to.

Continued on page 5

Speaking of outreach taking time and effort, it is important to acknowledge that it is difficult for researchers to balance all expectations on them professionally and keep a sane work-life balance at the same time. Here is where my advice is in the “do-as-I-say, not-as-I-do” category as I am notoriously overcommitted. Just try to set realistic goals for what you can accomplish. A little bit of outreach well-placed can go a long way. Being a consistent tutor in a neighborhood community center for a few hours a month can create real change; trying to develop an outreach program within your department to provide middle school girls with coding experiences because you think it will help with your Broader Impacts section on your next proposal is laudable but you need to know what you’re getting in to. Bottom line, if outreach is important to you, you will find a way to make it work. If it is not important to you, don’t force it – if you feel there are expectations on you to take on outreach that you’re not comfortable with, explore with your chair/advisor/supervisor other ways to accomplish broader impacts that may be more meaningful for you such as creating industry connections or doing service work with a professional society or contributing to policy efforts or contribute to open source coding, as just a few examples.

Q. What do you find most exciting about outreach? Most rewarding? Most difficult? Most important?

To me, the most exciting thing about outreach is it opens doors to experiences I might never have had otherwise – everything from appearing on live radio or television explaining some of the latest discoveries to serving on NASA’s Advisory Council and visiting many of the NASA Centers including Stennis where I got to watch new rocket technology being tested in the company of several astronauts. For someone who actually applied to be an astronaut (don’t ask) that was truly exciting. The most rewarding? Taking a complex topic like my research work on very-high-energy gamma-ray emission from blazars or my dissertation topic in high energy physics searching for a 4th generation quark or “just” the life cycle of stars and seeing an audience (of one or many) stay with me and seeing them get some satisfaction after I work to break down the underlying concepts in a way that is accessible for them. The most difficult? When the intended audience does not care at all about science or my efforts to make it interesting and engaging because they have too many other problems in their lives or they have turned off any critical thinking capacity they might have once had. The most important? Finding a way to reach people who don’t normally think about science and building opportunities with them and their communities so they can investigate science as part of their daily lives. And maybe, through that effort, inspiring a kid to think more broadly about the world and the universe, and becoming a scientist herself.

If you want to do anything in outreach, find an outreach mode that really makes you feel good too.

Finding a way to reach people who don’t normally think about science and building opportunities with them and their communities so they can investigate science as part of their daily lives. And maybe, through that effort, inspiring a kid to think more broadly about the world and the universe, and becoming a scientist herself.

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 Medal is sponsored by the friends of Dwight Nicholson, and through a generous gift from Professor Herb Berk, the Medal will be awarded with a stipend of \$2,000. Up to \$1,500 will be available for the recipient's travel expenses to the meeting at which the Medal is presented.

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

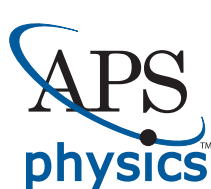
1. successfully stimulated the interest and involvement of the general public on the progress in physics, or
2. created special opportunities that inspire the scientific development of students or junior colleagues, or has developed programs for students at any level that facilitated positive career 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 the first business day 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.



*Dwight
Nicholson
Medal for
Outreach*



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

FOEP at the March and April Meetings 2020



JOIN US AT THE MARCH MEETING IN DENVER FOR:
THING EXPLAIN YOUR RESEARCH

The A.P.S.'s Forum on Outreach and Engaging the Public (FOEP) is holding a contest at the March 2020 A.P.S. meeting in Denver, CO, to test your Science Communication skills!

We physicists routinely employ technical language when discussing our research with our colleagues, but often this terminology is a barrier when communicating our results with the general public. We also know it can be a challenge to describe our work without the jargon.

At FOEP's public event: THING EXPLAIN YOUR RESEARCH, that challenge just got harder! Inspired by Randall Munroe's book "Thing Explainer: Complicated Stuff in Simple Words," you will need to translate the title of one of your talks at the March meeting (contributed or invited), but you may ONLY use the 1000 most common words in English, as found at <https://splasho.com/upgoer5/> !

(Warning: this list does NOT include the words: Topological, Insulator, or Graphene.)

A panel of judges will then try to determine which of three actual talk titles corresponds to your THING EXPLAINED translation. If they guess correctly, you can win fabulous prizes (well, we think they're pretty nice).

Want to try your hand at boiling your research down to its basics? (And we do mean basic!). If so, send an e-mail to Jim Kakalios, 2020 Chair of FOEP at kakalios@umn.edu. You must include THING EXPLAIN SUBMISSION in the subject line. Submit your original APS talk title, the session your talk will be given, and your Thing Explained translation. The THING EXPLAIN YOUR RESEARCH event will be held on Wednesday, March 4, at 7:30 PM at the Denver Convention Center in a room TBD. Please plan on attending the event, which is open to the general public, as well as APS meeting attendees.

Happy Translating, and we'll see you in Denver!

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 and April Meetings 2020

Session G06: Adventures in Outreach and Engaging the Public

Sponsoring Unit: FOEP

Tuesday, March 3 Room: 113



- | | |
|-------------------|--|
| 11:15AM - 11:27AM | G06.00001: Breaking Down Barriers to Science and Physics Communication in China - Do Veritasium YouTube Videos Translate?
Hanyu Zhang, Derek Muller |
| 11:27AM - 11:39AM | G06.00002: From Ten Blocks to Ten Million Lightyears: Bringing the universe to our neighborhood
Nicholas Wolff |
| 11:39AM - 11:51AM | G06.00003: Physics to Environmental Science: Solution Seeker of today's world
Libia Hazra, N. Srinivas |
| 11:51AM - 12:03PM | G06.00004: Share your research at FunSize Physics
Shireen Adenwalla, Jocelyn Bosley, Leigh M Smith |
| 12:03PM - 12:15PM | G06.00005: Physics outreach as teaching and service-learning experience for students
Tatiana Erukhimova |

Session J38: Outreach and Public Science Communication, Invited

Sponsoring Units: FOEP, FPS

Tuesday, March 3 Room: 607

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|-----------------|--|
| 2:30PM - 3:06PM | J38.00001: The PBS Space Time Experiment: Suprising Insights on Public Science Engagement
Invited Speaker: Matthew J O'Dowd |
| 3:06PM - 3:42PM | J38.00002: Science Communication - For the Geek in Everyone
Invited Speaker: Jeanna Bryner |
| 3:42PM - 4:18PM | J38.00003: Outreach to Policymakers
Invited Speaker: Francis Slakey |

Session M37: Communicating Science to the Public, Invited

Sponsoring Units: FPS, FOEP

Wednesday, March 4 Room: 605

- | | |
|-------------------|--|
| 11:15AM - 11:40AM | M37.00001: Joseph A. Burton Forum Award talk: Physics, Truth and the Crisis of Science Denial
Invited Speaker: Adam Frank |
| 11:40AM - 12:05PM | M37.00002: Andrei Sakharov Award talk: Scientific espionage, open exchange, and American competitiveness
Invited Speaker: Xiaoxing Xi |
| 12:05PM - 12:30PM | M37.00003: The role of news journalism
Invited Speaker: Dennis Overbye |
| 12:30PM - 12:55PM | M37.00004: Science and Entertainment Exchange
Invited Speaker: Ann Merchant |
| 12:55PM - 1:10PM | M37.00005: The art of interviewing scientists
Invited Speaker: Ira Flatow |
| 1:10PM - 2:15PM | M37.00006: Panel Discussion
Invited Speaker: |

FOEP co-sponsors a play: Einstein's Wife

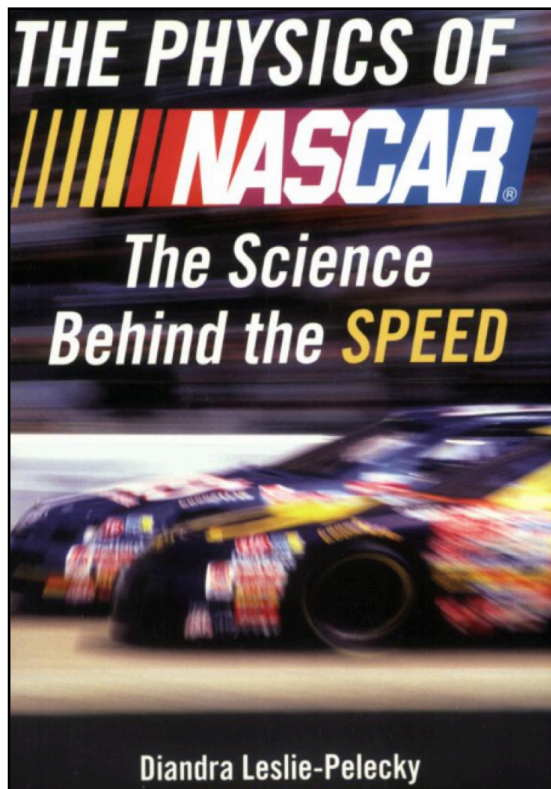
When: APS March Meeting, Wednesday, March 4, 2020, 8:00 p.m. – 9:30 p.m.

Where: Centennial Room FG, Conference Hotel, Hyatt Regency Denver

Sponsor: Forum on the History of Physics (co-sponsored by FOEP, FPS, FED, CSWP, DMS, DCMP)

Open to all: You do not have to be registered to attend the play

FOEP at the March and April Meetings 2020



Special Free Lecture

From Nanomaterials to NASCAR: Materials at 200 Miles per Hour

Presented by physicist Dr. [Diandra Leslie-Pelecky](#), the author of the popular book, *The Physics of NASCAR*, and a regular guest on the SiriusXM Speedway satellite radio program.

Her popular talk explores the science that wins NASCAR races.

Tuesday, March 3 from 7:30p.m. to 8:30p.m.
In Four Season 4, Colorado Convention Center

And

Saturday, March 7 (U CO Boulder) and Sunday, March 8 (at CO State, Fort Collins)

Talks sponsored by the Divisions of Material Physics and Condensed Matter Physics of the American Physical Society



In an April meeting FOEP sponsored session Dr. Lucy Fortson (see the Spotlight article on page 3 of this newsletter), the Dwight Nicholson Medal winner, will give a FOEP sponsored invited talk on her award winning outreach work (an interview with her can be found in this newsletter). Also speaking will be this year's A.I.P. Andrew Gemant winner, Prof. Virginia Trimble, as well as a reprise of the Outreach for Policymakers talk by Francis Slakey.

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!

Report from you Councilor

by: Noah Finklestein

SOME UPDATES FROM THE APS NOVEMBER 2019 COUNCIL MEETING

APS is seeking to continue to enhance and expand its meetings...

Specifically, as per APS's Strategic Plan, "We will improve APS Meetings to better respond to the emerging needs of the various communities involved, especially students and early – career scientists, and to provide optimal experiences for all participants." We are creating more synergies between APS Meetings and Physical Review Journals; embracing new technologies; exploring nontraditional ways of meeting. To these ends, APS has a new meetings director: Hunter Clemens.

And **there is plenty of opportunity to provide feedback** on/suggestions for new meetings and structures: Annual Leadership meetings (see below), April and March Meeting forums, at our April, September, and November Council Meetings...As your councilor please feel free to send suggestions my way.

You may note a new national meeting. From our strategic plan: In order for members and others to appreciate the exciting discoveries in physics, notable developments in the physics community, and the many successful APS programs, we will explore new and better ways to communicate and interact more effectively. Specific actions will include: **There is a new Leadership Meeting Jan 28-31, 2020 in DC**, couple with Congressional Visit Days Jan 28-29, and a Keynote from Nobel Laureate Steven Chu. Jan 30.

Organizational Updates have been made:

APS has a variety new staff and reorganized two key departments. The Careers, Diversity, Education and Public Engagement programs have been consolidated into one department, now known as the

APS Programs Department headed by Monica Plisch. We have organized an APS Project Development unit that includes a variety of large-scale initiatives, such as : STEP-UP, EP3, IGEN, and a Graduate Student Network. **APS Project Development is headed by Ted Hodapp**

Work from the newly formed Ethics Committee is underway – establishing tools, website, and conducting survey(s).

A Working group on Climate (of departments) is underway. The traditional (and successful program of site visits hosted by CSWP and COM, running since 1990), is being updated include more voice and clearer expectations for visits. This committee welcomes input.

A new Forum of Diversity and Inclusion was discussed and voted on

Policy work continues:

Relevant updates to POPA **statements focus on education** (supporting physics teaching (k12), undergraduate research, and physics education research), and **ethics and values**. All of these are focused on updating wording and modernizing language.

The Office of Government affairs has been assessing and addressing the challenges in international graduate student study in US institutions. Outside of the top tier, physics departments across the U.S. have suffered an average *2-year decline in international applications of -22%*. ^[1]_[SEP]To that end, OGA is working on public campaign and legislation to support international graduate student engagement, including dual intent visa (a way to stay after graduate school) and a pathway to obtaining a Green Card.

Finally APS hosts an Innovation fund. In its first year, 4 projects were funded

- More Humane APS Meetings through Machine Learning (Tim Atherton, *APS IT*): Using machine learning and natural language processing to improve the meeting experience by identifying talks on subjects the attendee wants to see
- APS Network of Diversity Leaders (Ed Bertschinger, Geoff Potvin, *Monica Plisch*): Convene representatives from 30 physics departments to form a national network that develops and shares equity/diversity/inclusion practices and strategic plans
- Informing and Activating the U.S. Physics Community in Nuclear Threat Reduction (Stewart Prager, Steven Fetter, *APS OGA*): Build a team of individuals to travel and engage the physics community (information and advocacy) on nuclear threat reduction
- U.S.–Africa Initiative in Electronic Structure (OmololuAkin-Ojo, Richard Martin, Renata Wentzcovitch, *APS Int'l Affairs*): Organize two week-long workshops (Rwanda, Africa / Columbia Univ., New York) on electronic structure simulations – an area of research that is readily available to anyone with internet connectivity

Next years competition will be announced soon (or has been announced – keep an eye out) - likely Mar 15 submission of ~1 page summary followed by invited proposals.

If you have items you wish to communicate to Council, please contact me.

Noah Finkelstein
Council of Representatives
FED, FOEP, GPER
noah.finkelstein@colorado.ed

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 Engagement:

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

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).

Find out about IOP’s 3 minute wonder challenge:

http://www.iop.org/activity/3-minute-wonder/page_60438.html

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

Web Sites that Engage and Inform the Public

info

Fun Size Physics: <https://funsizephysics.com/>

Seeker: <https://www.youtube.com/channel/UCzWQYUVCpZqtN93H8RR44Qw>

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

Veritasium: <https://www.youtube.com/watch?v=c6wuh0NRG1s>

Mathologer: <https://www.youtube.com/watch?v=YuIljLr6vUA>

The Particle Adventure: <https://www.particleadventure.org/>

Contemporary Physics Education Project: <https://www.cpepphysics.org/>

Phantom of the Universe: <http://phantomoftheuniverse.com/>

Physics Tutorials: <https://www.physicsclassroom.com/Physics-Tutorial>

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>

International Particle Physics Outreach Group

<http://ippog.org/resources/types/activities>



Let FOEP Post Your Outreach Links

Do you have a favorite web site, web article, and or video you like, or perhaps your own outreach website? Send it to us for consideration of inclusion on this page so everyone can enjoy it. Send ideas to: FOEPAPSnewsletter@gmail.com

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.

<http://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.

<https://sloan.org/grants/apply>

IOP Institute of Physics

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

https://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

Many institutions have their own internal outreach funding programs.

Contributed by: H.M. Doss



FOEP

**FORUM ON OUTREACH &
ENGAGING THE PUBLIC**

PHYSICS OUTREACH & ENGAGEMENT

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