

PHYSICS OUTREACH & ENGAGEMENT

Letter from the Chair

- Senate speech by Former Majority Leader Senator Harry Reid on Aug 3, 1992:

"I think each of my colleagues should base his or her vote on an America that is still curious like Lewis and Clark were curious. An America still dreaming like its Albert Einstein, still stretching through new horizons, horizons based on science and technology. In choosing the superconducting super collider you will see an America concerned not just with platitudes about education, and we talk a lot about platitudes, but real education, real science.

"Let us move from a society of adulation and ease to one seeking the boundaries of knowledge, a country having room for Albert Einstein and his theory of relativity, a world having room for a Philo Farnsworth and theory about the thing called television.

"Let us vote for education, today. Let us vote for America's future."

While Sen. Reid's speech was about a particle collider that was defunded a year later, I was struck by some of his language that spoke of the impact of physics research in inspiring students and others. He was a strong supporter of outreach, and like many Members of Congress, he argued that physicists need to engage the public if they want continued support.

In that same speech, he said "in America today, we have fewer physics teachers than we have school districts, not schools, but school districts." This puts the burden on us to communicate the excitement and importance of our work.

The mission of the Forum on Outreach and Engaging the Public is to foster and enable outreach by APS members. Today, physicists do an amazing array of outreach including traditional modes such as talks at many types of organizations from Rotary Clubs to schools. They also write blogs, social media postings, and articles for popular magazines, as well as produce videos

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 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 \$8 for every Forum membership over two.

VOL. 2 NO. 1 FEBRUARY 2015

In this issue



Letter from the chair
-1-



Spotlights on Outreach and
Engaging the Public
-3-



Fiat Physica - An Engaging
Crowdfunding Platform
-6-

NE
WS

Outreach News
-8-

info

Outreach Websites that
Inform & Engage the Public
-9-



February Brings Valentine's
Questions and Ideas
-10-

\$\$

Funding Information
-11-

Who

Call for Fellows and Medal
Nominations
-12-

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

and other multimedia presentations. Many of us interact with the news media and organize events such as science cafés and physics slams. In recent years, three physicists have been Members of Congress (and they have been lobbied by other physicists). The FOEP Chair is working on a Planetarium show about Dark Matter (called Phantom of the Universe). If you are doing something unusual or special, please let us know.

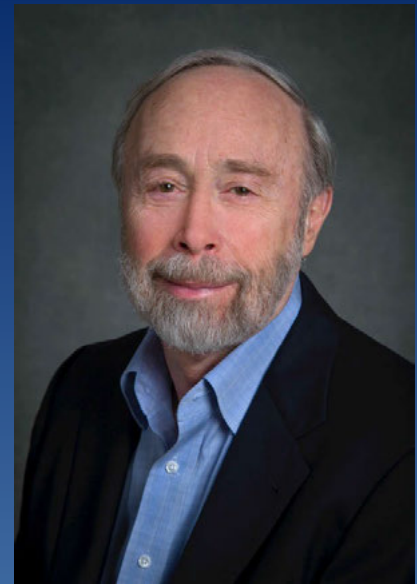
This year FOEP was honored to handle the successful nomination of Alan Alda to be a Fellow of the APS for “his contributions to science education, creation of the Alan Alda Center for Communicating Science which helps scientists improve their communication skills, and his work with projects which promote physics and science in the media.” Alda is an actor, director, screenwriter, and author, who has won Emmys and Golden Globes, as well an Academy Award nomination. This year deadline for you to submit nominations is April 1, 2015; learn more at:

<http://www.aps.org/programs/honors/fellowships/>

Our Forum is now in charge of the Dwight Nicholson Medal, which is awarded (in general terms) for efforts in engaging the public, for programs inspiring students, and for special mentoring efforts. The deadline is July 1. More information is given elsewhere in this newsletter.

One of the main responsibilities of the Forum is to organize sessions at the March and April meetings of the APS. These are described later in this newsletter.

Michael Barnett



Letter from the Chair, continued

continued
the Chair,
continued



Spotlights on Outreach and Engaging the Public

Andrea Morello and The Quantum Around You

Dr. Andrea Morello, an associate professor at The University of New South Wales (UNSW) studied as an electrical engineer and a quantum physicist. He is active in building a quantum computer in silicon and leads the research group that first demonstrated the manipulation of quantum information encoded on the spin of a single phosphorus atom embedded in silicon (video: <http://newsroom.unsw.edu.au/news/quantum-computing-taps-nucleus-single-atom>)

Dr. Morello became interested in Physics because it fulfills his curiosity about the world in what he describes as “the most satisfying way.” He says he became interested in engineering because he is “a rather practical person.” But ultimately he wanted to spend a lot of his time asking - and answering - fundamental questions, which is what steered his interests to quantum physics.

I asked Dr. Morello how he became interested in doing outreach and how he began getting involved with it. He told me the following:

“A few things. As a practitioner of physics research, I understand very well the importance of having interested, enthusiastic and motivated students taking up a science or engineering degree. They are the lifeblood of our society and our culture. So I decided to give my contribution to making as many young people as possible interested in physics. Second, I am ferociously adverse to the stereotype of the nerdy scientist, and I make every effort to alert people (especially young ones) that one can do physics "in style". I think quantum physicists are the 21st century version of the Parisian intellectuals of a century ago - we are the ultimate cool.”

Dr. Morello has started a video series called *The Quantum around You* (<https://www.youtube.com/watch?v=tnfur3fqklc>). This well received endeavor began by a series of events. First, he had been involved in producing a few videos to popularize his research breakthroughs, and this allowed him to get to know the people in his university's media department very well. Then he was featured in a few videos in Veritasium, a popular science channel produced by Derek Muller (<https://www.youtube.com/user/1veritasium>). These videos were extremely successful, and the viewers frequently asked for more videos with Dr. Morello. This resulted in The University of South Wales TV suggesting that Dr. Morello should create his own video series, and they were willing to help.

Dr. Morello said he would like to see his outreach projects help inform



Dr. Andrea Morello's laboratory

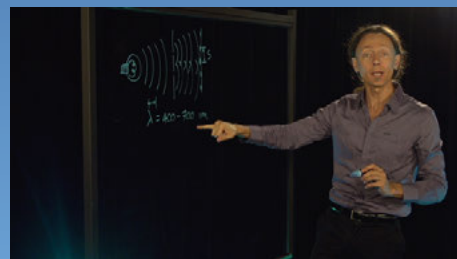


Image credits: UNSW E-Learning

and motivate high school students on the breadth of possibilities that a career in science or engineering can give them. He said that it is not easy to quantify, but he is getting very positive feedback on the impact of my videos.

When asked about what advice can you give to others who want to engage in outreach based on his experience, he had this to say: “One thing I found is that it's extremely important to create some connection with the viewership. Every now and then I check the comments thread and answer some questions the viewers may have. This actually doesn't take much of my time, but it seems to have a very positive impact on the way viewers perceive my work. They know there is a real person behind that web page.”

Take time to make human connections. It has a great impact when

Rebecca Thompson and APS Outreach

Dr. Rebecca Thompson is Head of Public Outreach at the American Physical Society. She found some time in her busy schedule, between organizing outreach efforts, holding outreach workshops, finalizing the newest issue of *Spectra*, and cross country trips as well as trips abroad, to answer some questions.

Question: *What is the mission or goal of APS Outreach?*

Public Outreach is a rather nebulous term. What the APS Outreach department defines as outreach is different from many other professional societies. There are so many possible directions for outreach projects and what seems like an infinite number of fantastic and creative suggestions. To try and narrow down our focus, our department created a mission statement so that we could clearly state our definitions and goals.

The APS Department of Public Outreach strives to:

- Create programs to encourage science literacy and physics engagement and an enduring appreciation for physics.
- Couple physics with ever changing cultural trends and technology to continue to engage and excite all audiences.
- Support and encourage APS members in their efforts to engage with the public.
- Be a leading source for accurate, exciting, engaging and well-communicated physics information
- Communicate the work of APS members to broader audiences.

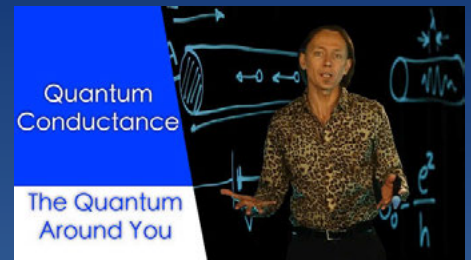


Image Credit: UNSW E-Learning



Rebecca Thompson during a visit to Fourier's gravesite.



APS Physics Central Group at Comic Con

Question: *What do you do as head of outreach?*

It's always complicated when someone asks me to describe a "typical day" because I don't think there is any such thing. The biggest program I'm involved in is PhysicsQuest. I design the PhysicsQuest experiments and write the manual including the annual Spectra Comic Book. This year Miss Alignment has broken out of jail and is trying to take over the town. Again. 2015 is the International Year of Light and the PhysicsQuest kit and comics are all light focused. It is pretty awesome to watch something you created come to life.



In addition to that, I spend a lot of time managing projects and setting a direction for APS outreach. Of course, one of the most exhausting and exciting times of ours is our annual trip to Comic Con International. We are the only scientific society to exhibit and we are honored that our comics rank a spot around the corner from DC Comics and across the aisle from Jeff Smith of the "Bone" and "Rasl" series. We try and take physics right to the public instead of waiting for them to come to us. For a great summary of our time there, we have a video of the event: <https://www.youtube.com/watch?v=wFbGsydaR9Q>

Question: *What programs does the APS outreach have?*

We run a huge range of programs from PhysicsQuest for middle schoolers to our blog for those out of college. You can read about almost all of our programs on www.physicscentral.com. We try and run programs for all ages and are in the process of designing programs for "third age learners," which is a demographic very few science outreach programs reach.

Two of our most exciting, new, projects are our SpectraSnapp app and our new poster series. SpectraSnapp is available for iPhone and Android and uses an easy-to-make attachment to turn your phone into a spectrometer. You can take pictures of spectra and compare them to a library of known spectra. It's pretty much the standard spectroscopy lab, only on your phone. It is also possible to share your pictures with others through a central database. This fits in well with the 2015 International Year of Light, of which APS is a founding partner (www.light2015.us). Our new set of posters is available on the PhysicsCentral website. They have a great retro feel. The posters will be available for purchase through the website or we'll be handing them out at the March and the April meeting.

Question: *How might APS outreach be a help to a member (and perhaps a nonmember) of APS who wants to do physics outreach?*

Our Outreach Mini-Grant program gives funding to groups interested in starting their own outreach efforts. We like to fund programs that are really pushing the envelope in terms of outreach. It's always exciting to see what people are coming up with. The hope is that by showing the physics community how committed APS is to helping their members interact with a broader audience it will change the perception of outreach within the physics community. The APS outreach department is always looking for ways to help members so I'm going to turn this question around and ask APS FOEP members what we could do to support their outreach efforts.



Fiat Physica – An Engaging Crowdfunding Platform

The economic crunch certainly affected the science community. Many scientists have found themselves out of work, in multiple years of post-docs, or scrambling for funding. Mark Jackson, a theoretical physicist, has managed to bring science funding to the public by creating a crowdfunding platform called Fiat Physica, (<http://www.fiatphysica.com>). And, if you want “the crowd” to fund a scientific project, you’re going to need to engage and inform the crowd about the science you want to do.



Here’s what Mark had to say in response to some questions posed:

Question: Have you personally felt the crunch of funding?



Answer: Yes, both directly and indirectly. The first time it hit me was during my postdoctoral research at Fermilab. The entire BTeV experiment was eliminated [B meson teraelectronvolt experiment] and the rest of us had our salaries cut by 10%. Foreign travel was strongly discouraged. Soon after that I looked into applying for a British PPARC [Particle Physics and Astronomy Research Council] Fellowship, only to discover that the entire program had been cancelled. I applied for Fellowships in the Netherlands and through the Marie Curie program, taking several weeks away from research to really polish my applications, then learned that merely a tiny fraction of proposals could be supported. Faculty openings became increasingly rare, each soliciting about two hundred applications from ivy-league PhD's with impressive research credentials. Many of my friends have left the field completely, and the ones who have remained are now spending nine, ten, eleven years as a postdoctoral researcher. These positions were originally conceived as simply a holding-pattern for a few years until one found a faculty job, but have now become a long-term career. There is such a feeling of hopelessness in the field, just at the time we should be celebrating such amazing accomplishments as the Higgs Boson discovery or glimpsing quantum fluctuations in the light from the Big Bang.

Question: What made you think of starting a crowdfunding platform?

Answer: I was working at the Paris Centre for Cosmological Physics, and began assisting them in their fundraising efforts. I quickly saw that there was a need for fundraising development done by physicists: traditional fundraisers aren't able to explain the significance of physics discoveries, and most physicists don't have the time to do fundraising. Thus I decided to begin the world's first physics fundraising agency. As I set up the company I realized that crowdfunding was a perfect way to both engage the public and maximize donations to projects. Crowdfunding has proven tremendously successful, but there was not yet one specialized to physics - and it's difficult to find such projects in the generic "anything goes" platforms. I realized this was the perfect job for me: using my physics knowledge, helping the community, entrepreneurship, and traveling.

Question: How did you create it? That is, what were the steps you had to go through to do this? And, when did it go live?

Answer: I first had to think of a name - I wanted the word physics in there and so played around with conjugations until I realized that Latin's universality and association with higher learning made it the ideal choice. I adapted the phrase Fiat Lux - Let There Be Light - into something more appropriate: Fiat Physica, or Let There Be Physics, hence our motto Make Physics Happen. I then commissioned the logo, which I wanted to be a more 3D version of the classic atomic symbol, and brochure, which I distributed to colleagues

Fiat Physics – A crowd funding platform *continued*

inviting them to set up projects on our platform. Meanwhile, I began designing the website (<http://www.fiatphysica.com>), and producing a promotional video (<http://youtu.be/2iini8-KwTg>). Each of these took great consideration: one needs each to present the correct content but packaged in a manner which is stylish and engaging. It took several months of writing, editing, and programming, but in the end I was very happy with the results of each. By then we had assembled a very impressive list of campaigns from all over the world, on a variety of topics. During the last few months I used an attorney to file the proper incorporation documents, then began hiring staff: a business and marketing director, a social media manager, writer, and graphic artist. We've worked together to polish the campaign pages, formulate a business plan, organize promotional events, and develop a social media presence. We went online on December 11, about 10 months after I first conceived of the idea.

Question: How is the site doing?

Answer: Fantastic - in the first four days we raised over \$4,000 and had several research groups contact us inquiring about setting up projects. Our Twitter, Facebook and Instagram profiles have rapidly gained followers, and we had nearly one hundred people immediately join our MeetUp group hosting monthly social events. We've also had many colleagues offering their help. Some of these now serve on our Advisory Board: Neil Turok, Director of the Perimeter Institute, who used his \$100,000 TED Prize to launch the Next Einstein Initiative; Sandya Narayanswami, previously Director of Foundation Relations at Caltech; and Rocky Kolb, Dean of the Physical Sciences at the University of Chicago. We have campaigns ranging from rewarding young researchers at the Foundational Questions Institute (<http://www.fiatphysica.com/campaigns/fqxi-courage-award/>) and the (<http://www.fiatphysica.com/campaigns/lagrange-junior-prize>) Lagrange Institute of Paris, to educational and outreach programs like Bring Astronomy Back to Romanian Children (<http://www.fiatphysica.com/campaigns/astronomy-back-to-romanian-children/>) or the Mountains of Stars nature-astronomy training program (<http://www.fiatphysica.com/campaigns/mountains-stars/>).

Question: Where do you want it to go?

One of my favorite quotes is by Wayne Gretzky: "A good hockey player plays where the puck is. A great hockey player plays where the puck is going to be." And the future of scientific support is going to be through crowdfunding. I want Fiat Physica to be the leading platform for the public to support and engage with physics. There are several avenues by which we accomplish this: To provide a destination where enthusiasts can engage with physics concepts in an accessible, relevant, and enjoyable manner, we have a blog where we post articles that tie abstract concepts to concrete, everyday examples. We sponsor monthly social gatherings in New York City to discuss physics in a relaxed environment. We also have very interactive social media profiles for the physics-enthusiast community to keep abreast of the latest developments in the field. We also provide campaign management and optimization, the white glove service of crowdfunding. We especially want to utilize such social media to include and celebrate demographics not historically recognized in physics, such as women and minorities. We are building and seeking relationships with foundations and companies who support fundamental physics research and education. The future of physics can no longer be determined behind lab doors and at private galas. We have built the missing link between the scientific community and the public.

Outreach News

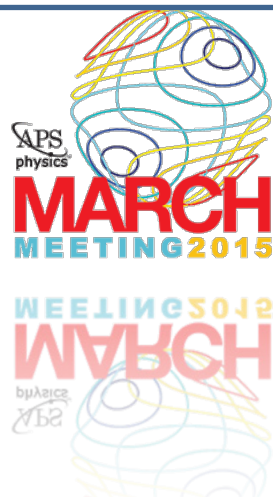
NEWS

The 2013 Convening Report – MIT

A report on the evolving culture of science engagement convening is available at:
<http://www.cultureofscienceengagement.net/2013convening/report/>

The report is based on two days of discussions with seventy-five participants consisting of scientists, science educators, communicators of science, science policy makers, science funders primarily from the US, but some from Ireland and the UK. The intimate gathering focused on why and how the attendees conduct science engagement and the cultural dimensions of the engagement.

The big finds were “the surprising diversity of goals” and “how wide and varied the science engagement community is.”



March Meeting

Room: Mayor Cockrell Room 004

Tuesday, March 3, 2015 at 2:30PM - 3:06PM in Mayor Cockrell Room 004

- *The Physics Force presents The Physics Circus* by E. Dan Dahlberg
- *Quantum physics reimagined for the general public* by Julien Bobroff
- *Developing a Global Science and Math Education System Based on Real Astronomy Data* by Carlton Pennypacker
- *The Role of Outreach in NSF Proposals* by Randal C. Ruchti
- *Developing Broader Impacts Activities through Informal STEM Education Collaborations and Strategies* by James Bell

SESSION AB35: PHYSICS SLAM! (Auditions)

Sponsoring Units: APS

Chair: Becky Thompson, APS

Tuesday, March 3, 2015 at 10:00 AM - 11:00 AM

Convention Center Room 210B

SESSION EE3: PHYSICS SLAM! (Performance)

Sponsoring Units: APS

Chair: Becky Thompson, APS

Who Should Attend?

All are welcome.

Overview

Do you enjoy getting up in front of a group and talking about physics? Do you want to practice your science communication skills? Is discussing physics over beer your preferred Friday night activity? Then the Physics Slam is for you.

This year APS will be hosting a Physics Slam at a local pub with the goal of getting the San Antonio community involved in the March Meeting. Each "slammer" will be given 10 minutes to entertain and inform an audience of adults about whatever topic of physics they choose. The audience will judge each performance and the top slammer will be given a nerdtastic prize.

Everyone will be given a chance to present and perfect their "slam" at the morning "audition." The top eight will be chosen to perform Tuesday evening at the local bar.

Registration Not required.



April Meeting

The FOEP Session at this year's April Meeting will be a science communication training workshop in collaboration with NSF. The session will be a half day of learning how to best communicate with a broad range of audiences from congress to cocktail parties. We are all excited about NSF's participation and they will unveil their new PI communications tool kit.

Web Sites that Engage and Inform the Public

info

With a warm-fuzzy approach, a recently released series of YouTube videos calls attention to complicated scientific concepts and ideas in less than 100 seconds. Concepts such as quantum tunneling, super paramagnetism, immensity of number of atoms and the origin of magnetism in materials are explained by "Smart Puppy" to her "Kitty Friends". The purpose of the videos is to attract audiences to amazing science issues, especially in the area of Solid State Physics. The videos can be viewed at:

www.uctv.tv/smart-puppy/

The Quantum around You (see *Spotlight* article above)

<https://www.youtube.com/watch?v=tnfur3fqklc>

A Day in the Life in Physics at OSU

go.osu.edu/womeninphysics

Veritasium

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

Minute Physics

<https://www.youtube.com/playlist?list=PL908547EAA7E4AE74>

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/>

International Year of Light 2015:

Why light matters, Learn about light, Hands on involvement, and more

<http://www.light2015.org/Home.html>

Florida State University Magnet Lab:

Interactive Tutorials, Timelines, Pioneers, and more

<http://www.magnet.fsu.edu/education/>



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, 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



February Brings Valentine's



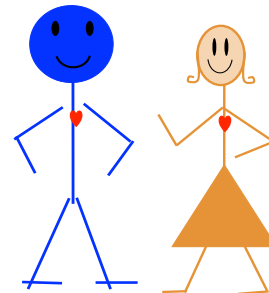
Cartoon credit: Randall Munroe <http://xkcd.com/1016/>



♥ APS Physics - Physics Central

An attractive force

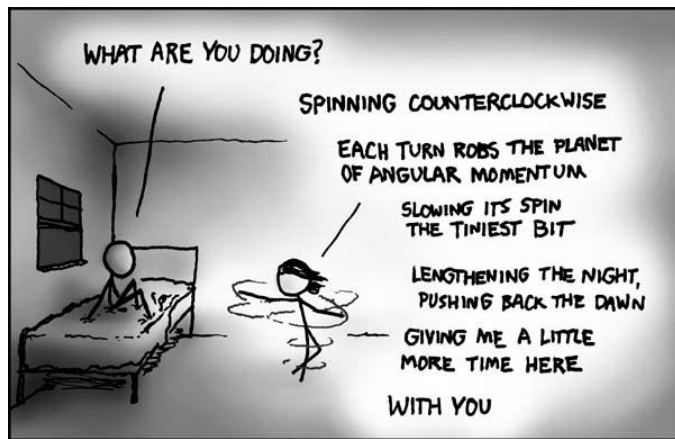
Gravity is an attractive force arising from mass – the amount of matter something has. Mass attracts mass. The more massive you are, the stronger your gravitational field. Forces always arise from an interaction between two objects. The force of one



object on a second object is equal and opposite to the force of the second object on the first.

Imagine a person weighing 150 lbs, or about 68 kg, jumping from Earth. Earth pulls her/him down with a force of 150 lbs (667 newtons), accelerating the person at about 9.8 meters per second squared toward Earth. The person pulls Earth up toward her/him with a force of 150 lbs (667 N). Since Earth's mass is about 5.97×10^{24} kg, the person only accelerates Earth at a rate of 1.1×10^{-22} m/s².

General Relativity: Mass curves space causing matter and light to follow the shortest possible paths between two points, called geodesic paths. © 2013 Science On Cards



Cartoon credit: Randall Munroe <http://xkcd.com/162/>

Questions and Ideas



Want to get more involved?

Email someone on the executive committee. Contact info can be found 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

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."

<http://www.spsnational.org/programs/awards/white.htm>

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/x36692.xml>

OSA 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>

OSA Outreach Grants

International Year of Light Youth Education Outreach Grant (up to \$500). International Year of Light activities including Day of Optics, classroom demonstrations, etc. Eligibility: two per year per chapter/section

http://www.osa.org/en-us/membership_education/grants_recognitions_special_services/grants_fellowships/activity_grant/

APS New York State Section Outreach Grants

The purpose of this program is to support projects that increase public understanding and appreciation of physics particularly for K-12 students. The outreach committee will support projects up to a maximum of \$1,000 with some additional funds available for personal expenses.

<http://www.aps.org/units/nyss/outreach/index.cfm>

Contributed by: B. Parks

Dwight Nicholson Medal for Outreach

The Forum on Outreach and Engaging the Public has assumed responsibility for this prize. The 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>

Contributed by: M. Barnett



Call for Fellows

Fellowships:

APS Fellowship constitutes recognition by one's professional peers of exceptional contributions to the physics enterprise. Only APS members who are members of FOEP can be nominated for fellowship through FOEP. The deadline for Fellowship nominations is June 1, 2015.

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

The process consists of providing the nominee's contact and professional information and uploading nomination letters that document the accomplishments of the nominee and explain why he or she is deserving of recognition.

Nominations are evaluated by the FOEP nomination committee, reviewed by the full APS Fellowship Committee, and finally approved by APS Council.

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 – take a moment to think about people who have an exceptional track record in this area. We strive to have a diverse group of nominees and encourage the nomination of members of all underrepresented groups. 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.

Contributed by: D. Lesley-Pelecky



FOEP's 2014 Fellow

Alda, Alan [2014]

State University of New York, Stony Brook

For his contributions to science education, creation of the Alan Alda Center for Communicating Science which helps scientists improve their communication skills, and his work with projects which promote physics and science in the media.

Nominated by: Forum Outreach & Engaging Public

To learn more about the Alan Alda Center for Communicating Science, visit this website: <http://www.centerforcommunicatingscience.org>

And to learn more about his 2015 Flame Challenge, where one explains science to an 11 year old, (and students are the judges of the best explanation) visit this link:

<http://www.centerforcommunicatingscience.org/the-flame-challenge-2/flame-challenge-2015/>



Image of Alan Alda (left), Briane Greene (middle), and Rep. Judy Biggert (Ill-13th) from a 2006 Capitol Hill Quarterly

<http://www.aps.org/publications/capitolhillquarterly/200607/strings.cfm>

A Staged Reading of the Play: **Background** by Lauren Gunderson

Room: TBD, Grand Hyatt San Antonio Wednesday, March 4, 2015, 8:00PM - 9:30PM

A Staged Reading of the Play -- Based on the true story of New York Cosmologist Dr. Ralph Alpher. The play moves backwards, as does the study of the origins of the universe, to trace the path of the forgotten and unaccredited scientist, who before the technology was capable, provided the mathematical proof of the existence of Cosmic Background Radiation. Twenty years later, after two other scientists found the actual radiation and received Nobel Prizes for their accidental discovery, Ralph suffers a heart attack due to the stress of being snubbed. It is from this moment he traces backwards through his life and, ultimately, to the beginning of time. The play relies on silence, pace, and metaphor to deliver a striking, sometimes mystical look into the science of behind humans, and the humanity behind a scientist. Join us for a dramatic staged reading of **Background**, a play by Lauren Gunderson (<http://laurengunderson.com/>) performed by The Overtime Theater of San Antonio (<http://theovertimetheater.org/>). Arranged by special permission of The Gersh Agency. After the performance, the director and actors will be available for a talk-back audience discussion.

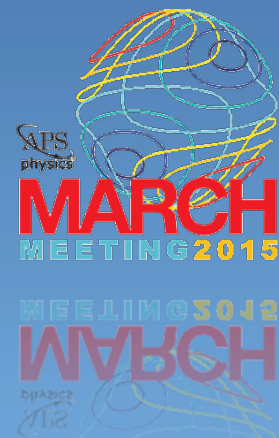
A Staged Reading of the Play: **TRANSCENDENCE: Relativity and Its Discontents**

Room: TBD, Hilton Baltimore Inner Harbor Sunday, April 12, 2015, 8:00PM - 9:30PM

TRANSCENDENCE explores aspects of Einstein's life and his general theory of relativity at the time of the theory's creation and initial reception. While being faithful to historical scholarship, the play creates its own theatrical reality aiming to engage emotions and intellect.

Join us for a dramatic staged reading of **TRANSCENDENCE**, a play by the science historian Robert Marc Friedman

(<http://www.hf.uio.no/iakh/english/people/aca/robertfr/index.html>) and directed by James Glossman, Lecturer in Directing and Shakespeare, Johns Hopkins University. After the performance, the playwright, director and actors will be available for a talk-back audience discussion.



Sponsoring Units: FHP



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