Hi everyone, and Happy New Year! I hope you are enjoying the excellent electrostatic properties of this week's cold, dry air more than you are suffering from the cold and dryness.

First, just a quick reminder that you have THREE DAYS to register for the joint workshops SEPS is running in collaboration with LaSalle University. They will take place on Saturdays from 9 am - 12 noon, at:

La Salle University

Holroyd Hall 053

1900 West Olney Ave., Philadelphia, PA 19141

Act 48 credits will be provided, and the flyers are attached to this email. The registration deadline for ALL THREE workshops is January 12, 2014. The list of topics will be:

Saturday, January 25, 2014: Teaching Electricity & Magnetism: An Inquiry Approach

Register here: https://www.eventbrite.com/e/free-physics-workshop-series-at-la-salle-university-teaching-electricity-magnetism-an-inquiry-tickets-9778994235

Saturday, February 22, 2014: Teaching Waves, Sound, & Light: An Inquiry Approach

Register here: https://www.eventbrite.com/e/free-physics-worshop-series-at-la-salle-university-teaching-wave-sound-light-an-inquiry-approach-tickets-9815138343

Saturday, April 5, 2014: Use of Data Collection Technological Tools, Probeware, and Video Analysis in Teaching Physics

https://www.eventbrite.com/e/free-physics-workshop-series-at-la-salle-use-of-data-collection-technological-tools-probeware-and-tickets-9815314871

More detailed descriptions and presenter biographies follow in the newsletter.

Secondly, if you email Bill Berner right now (berner -at- physics.upenn.edu), you and anyone you want to bring can probably still attend the Penn Winter Demo show. It will take place this upcoming Monday & Tuesday (January 13th & 14th), and the theme will be Electricity and Magnetism. Registration is free, but advance registration is required. See below (and the attached flyer) for more details.

And of course, we're continuing to work on assembling the schedule and agenda for SEPS' Spring Meeting at Villanova University. Our theme is "Physics of the Future", and we've just finished lining up our major speakers. The meeting will be

held March 21-22, with Jeremy Carlo coordinating. Watch this space for updates and registration information as we finalize our plans.!

There's a whole bunch more stuff going on -- read the rest of the newsletter for details!

Here's the list of the remaining contents of this newsletter:

1. Free Physics Workshops at LaSalle University (register by 1/12 for workshops 1/25, 2/22, 4/5)

2. Save the date for SEPS AAPT's spring meeting, March 21-22 at Villanova

3. 120 copies of Paul Zitzewitz's Physics Principles & Problems available for free

4. Pennsylvania Kidwind Competition now open for Registration (competition date 3/1)

5. Opening for Intro Physics Instructor at Penn State Abington

6. Register now for Penn's 2014 Physics Demo Show (1/13 & 1/14)

7. Opening for Lecturer at Penn State Harrisburg

8. Princeton Plasma Camp (one-week intensive summer workshop)

9. Penn Outreach Lectures at LRSM (Teachers Lectures 1/16 and 2/27)

10. American Helicopter Museum & Education Center seeks educators for Advisory Board

11. DuPont Challenge Science Essay Competition (deadline 1/31)

12. Kohelet Yeshiva High School seeks part-time math teacher

13. Free Science Saturday open lectures at Princeton's Plasma Physics Lab (next lectures Jan 11, Jan 18, Jan 25)

14. Princeton hosts 13th annual Young Women's Conference in STEM (registration deadline 2/14)

15. Free field trips and professional development workshops at the NASTAR Center

16. NASA Exploration Design Challenge (deadline 3/14/14)

17. Cool physics links: Sonic levitation, frozen bubbles, the importance of nanoseconds, a simple snowflake camera, electrostatic pong

18. SEPS AAPT Online

Please continue to let me know about any exciting events, professional development opportunities, or resources you come across that you'd like to share with the rest of the Southeastern PA Section! I'm especially interested in getting more resources that will be useful to college faculty, since most of the mailing lists I am personally on pertain to my own grade level, and I'd like this list to be useful for everybody on it.

And as always, please let me know by email (jwaldman -at-archmereacademy.com) if you would like me to change your subscription, or if you have friends or colleagues who would like to be added.

Best,

Jillian Waldman

Secretary, SEPS AAPT

Science Teacher

Archmere Academy

Claymont, DE 19703

1. **FREE PHYSICS WORKSHOPS AT LASALLE UNIVERSITY IN SPRING 2014**

Co-Sponsors: LaSalle University - Graduate Programs in Education

American Association of Physics Teachers - SEPS

Philadelphia Regional Noyce Partnership

Philadelphia Education Fund

Act. 48 credits provided

All sessions:

Saturdays from 9 am – noon

La Salle University

Holroyd Hall 053

1900 West Olney Ave., Philadelphia, PA 19141

Register using the link below!

Workshop #1

Teaching Electricity & Magnetism: An Inquiry Approach

Saturday, January 25, 2014

Presenters: Barry Feierman & Bill Berner

Register here for Workshop #1: https://www.eventbrite.com/e/free-physics-workshop-series-at-la-salle-university-teaching-electricity-magnetism-an-inquiry-tickets-9778994235

Workshop Description

This hands-on workshop will demonstrate how to use an inquiry approach to engage students in learning about electricity and magnetism. Attendees will spend the morning being "students," working with partners, and exploring 10 different stations related to electrostatic forces, capacitors, AC resonance, induction, motors, and generators. Handouts describing each station will be provided. REGISTER BY January 12, 2014!

Workshop #2

Teaching Wave, Sound, & Light: An Inquiry Approach

Saturday, February 22, 2014

Presenters: Bob Schwartz & Jay Bagley

Register here for Workshop #2: https://www.eventbrite.com/e/free-physics-worshop-series-at-la-salle-university-teaching-wave-sound-light-an-inquiry-approach-tickets-9815138343

Workshop Description

The workshop will center on the topics of waves, sound, and light. There will be several demonstrations that participants will observe and learn how to perform. Emphasis will be placed on learning properties of waves and using them to model the nature of both sound and light. Attendees will build make-it/take-it devices for use in their classrooms. Also, attendees will learn how to conduct qualitative and quantitative experiments for students. Attendees should bring a smart phone and/or a tablet, either Apple or Android. Android tablet users should download the free app 'Oscilloscope' (UberApp). Apple iPad users should download 'E-scope 3-in-1' (e-skett Corp.) which costs $1.99. REGISTER BY January 12, 2014!

Workshop #3

Use of Data Collection Technological Tools, Probeware, and Video Analysis in Teaching Physics

April 5, 2014

Presenters: Bob Schwartz, Jay Bagley, Bill Berner, and Barry Feierman

Register here for Workshop #3: https://www.eventbrite.com/e/free-physics-workshop-series-at-la-salle-use-of-data-collection-technological-tools-probeware-and-tickets-9815314871

Workshop Description

The workshop will use Vernier hardware (Lab Quest) and software (Logger Pro) to gather and analyze data. These could include experiments associated with kinematics, dynamics, conservation principles, electricity, waves, and sound. Gathering and analyzing video data will also be a focus of the workshop. Though not a requirement, if attendees have an Apple iPad, they should download Video Physics (Vernier) and Graphical Analysis (Vernier) from the AppStore. Each costs $1.99. If attendees do not have an iPad, another device capable of filming video, such as a smartphone or tablet, is highly recommended. REGISTER BY January 12, 2014!

For more information, see the attached flyer or contact

Greer Richardson, Ph. D

Director of Graduate Programs in Education

La Salle University

215-951-1806

richards -at- lasalle.edu

2. **SAVE THE DATE FOR SEPS AAPT'S SPRING MEETING, MARCH 21-22**

We are working on putting together a schedule and agenda for SEPS' Spring Meeting at Villanova University. Our theme is "Physics of the Future", and we are in the process of lining up speakers and workshop leaders. The meeting will be held March 21-22, with Jeremy Carlo coordinating. Watch this space for updates as we finalize our plans. (And if you have any good suggestions, let us know! You can email me at jwaldman -at- archmereacademy.com, or our President, Paula Miller, at pjmiller4 -at- comcast.net.)

3. **120 COPIES OF PAUL ZITZEWITZ'S PHYSICS PRINCIPLES & PROBLEMS**

AVAILABLE FOR FREE

Marple Newtown HS is looking to give away the following physics textbooks: 120 copies of Physics Principles and Problems © 2009 edition (texts are generally in very good shape) by Zitzewitz, et. al. (Glencoe). We also have the associated teacher materials. The online text subscription is not included. Any school wanting the books must make arrangements to pick them up in person- we cannot ship, box or package the books. Contact Dennis Andrews, Science Department Leader at dandrews -at- mnsd.org .

4. **2014 PENNSYLVANIA KIDWIND CHALLENGE NOW OPEN FOR REGISTRATION**

Event date: March 1, 2014

Location: Mt. Nittany Middle School, State College, PA

Audience: 4 – 12th grade teams

Prizes for winning teams AND the winning teams are eligible to attend the National Kidwind Challenge in DC!

For more information: http://csats.psu.edu/projects/currentprojects/kidwindchallenge-archive.cfm

The KidWind Challenge is a student-oriented wind turbine design contest. Over a period of a few months, students spend time designing and constructing their own wind turbines with the goal of creating a device that is efficient, elegant and highly functional. There are 2 divisions of the competition: 4th – 8th grade and 9th – 12th grade. Form a team and sign up! Scholarships are available for teams, contact Leah Bug at leahbug -at- psu.edu for details.

Any group of students who are of middle or high school age are eligible to enter a team in the KidWind Challenge. This includes students from public and private schools, home schoolers, after school clubs, boy and girl scout troops, 4-H clubs, etc. Each team must have a chaperone. Cash prizes for winning teams and a chance to attend the 2014 National Kidwind Challenge in DC, held at the USA Science and Engineering Festival April 26 & 27, 2014.

During the challenge, there will be activities for team members to join in and have fun! Not only will there be hands-on activities, but a tour of the school's wind turbine will be offered. For more information, rules, and registration, visit the web site listed above. For additional information not found on the web site, contact Leah Bug at leahbug -at- psu.edu.

Please share this information with individuals who may be interested in participating!

5. **OPENING FOR INTRO PHYSICS INSTRUCTOR AT PENN STATE**

ABINGTON

Penn State Abington seeks part-time Physics Instructors (non-tenure track) for the spring semester beginning January 2014. The successful candidate will teach an introductory calculus based or algebra physics course at the university level.

Earned doctorate in physics or a related field preferred. Preference will be given to candidates with demonstrated excellence in teaching physics at the college level. The review process will begin immediately and continue until the position is filled. Employment will require successful completion of background check(s) in accordance with University policies. Applicants should submit an electronic dossier (no paper submissions please) including: 1) a cover letter; 2) a curriculum vitae; 3) a list of courses taught at the college level; 4) a statement of teaching philosophy to:

Dr. Ann Schmiedekamp

Division of Science and Engineering

Penn State Abington

Abington, PA 19001

ams -at- psu.edu

Penn State Abington is a four-year undergraduate college of Penn State University located two blocks from Route 611 in Abington, Pennsylvania, and 10 miles north of Center City Philadelphia.

Penn State is committed to affirmative action, equal opportunity and the diversity of its workforce.

6. **PENN PHYSICS DEMO SHOW**

The annual Penn Holiday Physics Demonstration Show will be presented on Monday & Tuesday, January 13 & 14, 2014

It will be in the main auditorium of David Rittenhouse Laboratory

on the southeast corner of 33rd and Walnut Streets

The topic will be Electricity & Magnetism, and there will be two presentations each day, 9:30 to 11:30 AM and 12 noon to 2PM.

Attendance is free, but reservations are needed. They are on a first-come basis, and can be made by emailing Bill Berner at

berner -at- physics.upenn.edu

Please see also the attached flyer.

7. **OPENING FOR LECTURER AT PENN STATE HARRISBURG**

Penn State Harrisburg, School of Science, Engineering and Technology invites applications for the full-time, non-tenure track position, Lecturer/Senior Lecturer in Physics, effective Fall semester 2014. The successful candidate is expected to teach a broad range of undergraduate courses/labs in Physics, Astronomy, and/or Earth Science. In addition, all full-time faculty are expected to engage in scholarly activities, participate in University/College and professional service, assist with ABET accreditation processes, and advise undergraduate students. The minimum qualification is a Ph.D. in Physics or a closely related discipline plus relevant experience. Preference will be given to individuals who have demonstrated commitment to excellence in college teaching. Information about the College can be found at www.hbg.psu.edu.

This is a fixed-term appointment with excellent opportunity for re-funding. Applicants should submit a cover letter, curriculum vitae, three letters of reference, and a personal statement of teaching philosophy to Lecturer/Senior Lecturer in Physics Search Committee, c/o Mrs. Dorothy J. Guy, Director of Human Resources, Penn State Harrisburg, Box: AAPT-41003, 777 W. Harrisburg Pike, Middletown, PA 17057-4898 or via e-mail at HBG-HR -at-LISTS.PSU.EDU. Review of applications will begin on November 25, 2013, and will continue until the position is filled. Employment will require successful completion of background check(s) in accordance with University policies. Penn State is committed to affirmative action, equal opportunity, and diversity of its workforce.

A flyer suitable for posting in your department is attached.

8. **PRINCETON PLASMA CAMP**

The Plasma Science and Fusion Energy Institute (Plasma Camp) is a one-week intensive workshop designed to provide the opportunity to study plasma physics and fusion energy through experimental research in our state-of-the-art laboratories. Participants will perform experiments, in collaboration with laboratory scientists, that investigate the basic properties of plasmas. Finally, plasmas are ideal to illustrate many concepts in high school physics curricula including waves, atoms, nuclear reactions, relativity, electricity and magnetism. An integral part of the Institute will be the development of new plasma-based lesson plans, student-led investigations and demonstrations.

All participants will receive equipment similar to what is used during the workshop to take back to their classroom. In addition, up to $2,000 is available through a mini-grant to purchase additional equipment after completion of the

workshop.

To find out more about Plasma Camp, check out the following website or contact Deedee Ortiz at dortiz -at- pppl.gov.

http://www.pppl.gov/education/science-education/programs/plasma-camp

9. **PENN OUTREACH LECTURES AT THE LAB FOR RESEARCH ON THE STRUCTURE OF MATTER (LRSM)**

Since 1994, the LRSM has presented a monthly series of materials-based lectures during the school year to science teachers. These are given by faculty and staff associated with the LRSM. The lectures are free, generally take place on Thursday evenings at 5:30 pm and are followed by food and refreshments during which teachers can engage the speaker in conversation about the talk or other aspects of education. Teachers can also receive Act 48 credit. All talks take place at:

LRSM, 3231 Walnut Street, Philadelphia

A flyer for the complete lecture series is attached. Upcoming lectures include:

January 16: Igor Bargatin, Mechanical Engineering and Applied Mechanics, "Direct Energy Conversion"

February 27: David Chenoweth, Chemistry, "Building Functional Molecules for Application in the Life Sciences"

More information about the LRSM's outreach lectures is available at the link below. If you are interested in attending, please contact Andrew R. McGhie at 215-898-6461 or at mcghie -at- lrsm.upenn.edu.

http://www.lrsm.upenn.edu/outreach/teachers.html

LRSM also offers a series of science cafes, open to the public. The Science Cafe at the World Cafe Live, 3025 Walnut St. Phila, by Dr. Eric Hume on ' Adventures and Mis-adventures in Materials and Biology: 50 years of hip replacement progress', has been rescheduled and will now be given at 6:00 pm on Wednesday, January 8, 2014. Come early, bring friends, and have dinner before the talk.

10. **AMERICAN HELICOPTER MUSEUM & EDUCATION CENTER SEEKS EDUCATORS FOR ADVISORY BOARD**

The American Helicopter Museum and Education Center, located in West Chester, PA, is looking for educators who might be interested in joining our Education Advisory Board. The Education Committee meets once a month, either on-site at the Museum, or via phone-in conference. They are looking to expand their education offerings and would like advice from educators, either current or

retired, on what is needed in the classroom, as well as professional development. The Museum has an extensive collection of rotary-wing artifacts, helicopters, autogiros and convertiplanes on display, as well as a library and archives. Education Advisory Board members brainstorm the best way to use the Museum's resources in public education programs.

In addition, the museum is are always looking for volunteers who may have an interest in the mission of the museum. Please refer to the attached flier describing a number of volunteer opportunities.

Inquiries should be directed to Patti Spackman at pspackman -at- americanhelicopter.museum.

11. **DUPONT CHALLENGE SCIENCE ESSAY COMPETITION**

The DuPont Challenge Science Essay Competition is one of the foremost student science and technology prize programs in the United States and Canada. It has two primary objectives: to help increase science literacy among students and to motivate them to excel in communicating ideas in science, technology, engineering, and mathematics (STEM). Students may write a 700 to 1,000-word essay that addresses a topic of their interest within four categories of challenges. This year's four challenge areas are:

Challenge #1: Together, We Can Feed the World

Ensuring that enough healthy, nutritious food is available for people everywhere is one of the most critical challenges facing humanity. This focus on providing for the needs of a growing population will help developing countries prosper, and foster economic growth around the world.

Challenge #2: Together, We Can Build a Secure Energy Future

While the demand for energy grows, the supply of fossil fuels will not. With a growing population, we will need to use those existing resources as efficiently and effectively as possible, and find better ways to harness renewable energy sources, as well. These transitions will stimulate new industries and power clean economies.

Challenge #3: Together, We Can Protect People and the Environment

A growing global population places increased pressure on people and the environment. And as the world develops, humanity places greater value on both life and the earth we all share. We believe that life and our ecosystem are precious, and we're working to protect them.

Challenge #4: Together, We Can Be Innovative Anywhere

Innovations in science, technology, engineering, and mathematics (STEM) all help to make the world a better place. We can use scientific research to solve

issues ranging from medicine and health to mathematical computation to any STEM topic we are passionate about. The diverse and ever-changing world of science is open to you!

The contest opened November 15 and closes to submissions January 31, 2014. For more information, check out http://thechallenge.dupont.com

12. **KOHELET YESHIVA HIGH SCHOOL SEEKS PART-TIME MATH TEACHER**

Kohelet Yeshiva High School, in Merion Station, is looking for a part-time math teacher capable of taking over an Algebra 2 class and a statistics class. This would be effective in January until the end of the school year. For further information, contact Dr. Leslie Cohen Rogers, Interim Dean of General Studies, Kohelet Yeshiva High School, 223 North Highland Ave., Merion Station PA 19066. tel: 610-667-2020 (ext. 3050). lrogers -at- koheletyeshiva.org

13. **FREE SCIENCE SATURDAY OPEN LECTURES JANUARY-MARCH AT PRINCETON'S PLASMA PHYSICS LAB**

Science on Saturday is a series of lectures given by scientists, mathematicians, and other professionals involved in cutting-edge research. Held on Saturday mornings throughout winter, the lectures are geared toward high school students. The program draws more than 300 students, teachers, parents, and community members each Saturday. Topics are selected from a variety of disciplines.

The program runs January through March, and is free and open to the public. NO REGISTRATION IS REQUIRED to attend the lectures; however, a valid, government issued, photo ID is necessary to gain access to the Laboratory for anyone over 18 years of age.

Lectures begin promptly at 9:30 AM, but attendees are advised to show up early to make sure they can actually get a seat. Doors open at 8:15. Free breakfast is provided before the lectures. The hour-long lectures are followed by a Q&A session which typically ends by 11:15 AM.

The first few lectures will be:

January 11: Containing a Star on Earth: Understanding Turbulence at 100 Million Degrees (Dr. Walter Guttenfelder, PPPL)

January 18: Physics of Cancer (Prof. Wolfgang Losert, University of Maryland)

January 25: The Atmosphere as a Laboratory: Aerosols, Air Quality, and Climate (Prof. Peter DeCarlo, Drexel)

February 1: The Invisitble World of Marine Microbes: How Earth's Smallest Living Things Have the Biggest Impact on How Our Ocean Works (Prof. Kay Bidle, Rutgers)

More information here, and in the attached SOS flyer: http://science-education.pppl.gov/SOS/Overview.html

14. **PRINCETON UNIVERSITY HOSTS 13TH ANNUAL YOUNG WOMEN'S CONFERENCE IN STEM**

Princeton's 13th Annual Young Women's Conference in STEM will be held on March 21, 2014 at Princeton University's main campus. Young women in grades 7-10 are invited to attend with their school groups of 3-10 students. Registration is free but must be completed by February 14th. More information on the YWC can be found here: https://pppl.princeton.edu/www.pppl.gov-ywc_information

15. **FREE FIELD TRIPS AND PROFESSIONAL DEVELOPMENT WORKSHOPS AT THE NASTAR CENTER**

The NASTAR CENTER -- ETC's National Aerospace Training and Research Center, is the premier air and space training, research, and education facility in the world. It is located in Southampton, PA, which Google tells me is a 35-minute drive north from Center City, Philadelphia. The NASTAR Center's Education Programs offer unique, hands-on learning experiences for K-12 Students, Educators, and the General Public in an authentic aviation and space training environment. Programs incorporate STEM (Science, Technology, Engineering, and Math) education objectives with fun, inspiring, and engaging activities centered on the worlds of aviation and space.

They offer field trips and scout programs geared towards PA academic science standards, as well as summer workshops for teachers. (The students will be disappointed to learn they don't get to play in the centrifuges; I'm not sure if the teacher workshops are more interactive.) For more information or to schedule a Teacher Orientation and check out the facilities before planning a trip, check out their website at: http://www.nastarcenter.com/education

16. **NASA EXPLORATION DESIGN CHALLENGE**

Audience: K-12 Educators and Students

Virtual Crew Registration Deadline: March 14, 2014

Students from Kindergarten through 12th grade will have the opportunity to play a unique role in the future of human spaceflight through participation in NASA's Exploration Design Challenge, or EDC. NASA EDC invites students around the world to think and act like scientists in order to overcome one of the major hurdles of deep space long-duration exploration -- the dangers associated with space radiation. Students taking part in the challenge will discover how to plan and design improved radiation shielding aboard the Orion Multi-Purpose Crew Vehicle, currently being developed by NASA, Lockheed Martin and other partners to carry astronauts to space, venturing farther than humans have ever gone

before.

Through a series of science, technology, engineering and mathematics, or STEM, engagement activities, students in grades K-8 will analyze different materials that simulate space radiation shielding and recommend materials that best block radiation and protect astronauts. Students in grades 9-12 will think and act like engineers as they apply what they learn to design shielding to protect a sensor on the Orion crew module from space radiation. After a review of the design solutions submitted by teams in the grades 9-12 challenge, five finalist teams will be selected and matched with a mentor from NASA to test their designs in a virtual simulator. The winning team will build a prototype radiation shield that will be analyzed and submitted to Lockheed Martin for flight certification on the inaugural flight of the Orion Exploration Flight Test, or EFT-1.

The five U.S. finalist teams from the grades 9-12 challenge will be invited to attend the EFT-1 launch, currently scheduled for November 2014. The names of all students, grades K-12, participating in the NASA EDC will fly aboard the spacecraft as honorary virtual crewmembers for Orion's first flight. The deadline to register students for the virtual crew is March 14, 2014 .

For more information and to register online, visit http://www.nasa.gov/education/edc. For more information about Orion, visit http://www.nasa.gov/orion. Email any questions about this opportunity to nasaedc -at- nianet.org .

17. **COOL LINKS:**

Sonic levitation video: https://www.youtube.com/watch?v=odJxJRAxdFU#t=108

Frozen soap bubbles: http://distractify.com/culture/arts/frozen-bubbles-in-wintertime/

Grace Hopper explains the importance of nanoseconds: https://www.youtube.com/watch?v=JEpsKnWZrJ8

How to build a simple snowflake camera: http://laserclassroom.com/snowflake-photography/

Since it's the season for static electricity to be everywhere, here's Electrostatic Pong, programmed by a physics teacher: http://www.theuniverseandmore.com/ (You have to click the link to "Polarity Shift" to get the pong game; you can also check out his excellent kinematics graphing game)

14. **SEPS AAPT ONLINE**

For news, upcoming events, and photos of past events, check out the SEPS AAPT web presence online and on Facebook!

Website: http://www.physics.upenn.edu/~aapt/

Facebook: https://www.facebook.com/?ref=logo#!/group.php?gid=166735829132