

Hi everyone!

I hope you got the invitation we sent out a couple days ago to register for our spring conference at Swarthmore this March! We encourage you to come join us for entertaining company, great ideas, and two exciting talks by David Chuss ("Exploring the Infant Universe") and Catherine Crouch ("Connecting Introductory Physics to Biology and Chemistry to Engage Student Interest"). There will also be a chance to learn from colleagues by sharing great classroom ideas and demos — please sign up to give a brief presentation if you've got a great idea to share! The early registration deadline is February 25th (\$70 for the full conference, plus \$10 membership dues if you haven't paid them yet). See below and in attachments for more details.

I also wanted to let you know that a couple of spots have opened up at the FREE Energy workshop at La Salle University on February 28th. 9 AM - 12 PM, light breakfast and Act 48 credits provided. If you're interested, please sign up at: <https://www.eventbrite.com/e/free-aapt-la-salle-physics-workshop-series-for-science-teachers-tickets-15263174566>

Also, I have corrected a couple of minor typos in the conference flyers, updated the information about Swarthmore's monthly astronomy open house, and have included a new link to the jobs.aapt.org posting for the opening at Germantown Academy!

Summary of the remaining contents:

1. Register now for SEPS AAPT Spring Meeting at Swarthmore College (registration deadline 2/25 for conference 3/6-7)
2. Applications now open for Penn SWE's Gears Day for high school girls (register by 3/1 for event 3/28)
3. UPenn's QuarkNet Collaboration offers paid summer research for select high school students (apply by 4/7)
4. Registration for AAPT Physics Bowl now open (deadline 3/9, competition window 4/1-4/17)
5. Germantown Academy seeks Upper-School Physics Teacher (fall 2015, now with link to jobs.aapt.org)
6. Summer Teaching Opportunity at Princeton University Preparatory Program (deadline 2/15 for preferred consideration)
7. LaSalle University hosts free AAPT workshop on Heat and Energy (workshop 2/28 has openings!)
8. University of Delaware hosts 2015 Technology in Education Conference (3/14)
9. Girl Scouts of Eastern Pennsylvania seeks retired STEM educators as mentors
10. NASTAR Center offers free summer professional development programs for teachers (July 2015)
11. Save the date for 39th Annual NJ Science Convention
12. AAAS seeks field testers for grade 4-12 assessments (registration deadline 3/31)
13. Penn State Abington seeks part-time Physics instructors for Spring 2015 (posted 11/12)
14. ASU offers summer MNS degree in Physics or Chemistry (3 summers, apply by 4/1)
15. Housing reimbursement available for summer modeling workshops in NYC (July-Aug 2015)
16. Summer modeling workshops in Physics and Chemistry offered at ASU (apply by 5/10)
17. Call for abstracts from 2015 AAPT National Meeting at University of Maryland (deadline 2/25, conference 7/25-29)
18. APS April Meeting in Baltimore (meeting 4/11-15, abstract deadline has passed)
19. Join CSAAPT for their annual Spring Meeting at University of Virginia (3/28, updated hotel info available)
20. Swarthmore College Hosts Telescope Open House on Second Tuesdays (next one 10/14)
21. NJAAPT holds spring demo show at Princeton (4/24)
22. Penn Outreach Lectures at LRSM (next lecture 2/12)
23. LRSM Science Cafes at Saint Declan's Well and Stoney's British Pub (next science cafes 2/18 and 3/18 in Philadelphia, 2/16 and 3/9 in Wilmington)
24. Cool physics links: Make an electric train with a battery, magnets, and wire; What would happen if the earth was flat; Look up your local acceleration due to gravity; Measure Planck's constant using Legos; How basic physics may defeat DeflateGate
25. SEPS AAPT Online

Please read on for more information and local events! If you know anyone who is in need of a biweeklyish info dump of local physics-education events, please pass their contact information on to me so that I can add them to the list! Or if you have any events you want to publicize, please let me know about those, too.

Feel free to email me or Jeremy Carlo (jeremy.carlo-at-villanova.edu) if you have any questions about our upcoming spring meeting. 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.

Happy physics, everyone! I hope I will see many of you next month at Swarthmore!

Jillian Waldman
Secretary, SEPS AAPT
Science Teacher
Archmere Academy
Claymont, DE 19703

1. REGISTER NOW FOR SEPS AAPT SPRING MEETING AT SWARTHMORE COLLEGE

Hi everyone!

We'd like to invite you to register for the Southeastern PA Section of the AAPT's annual Spring Meeting at Swarthmore College, this March 6-7, 2015. Our theme this year is "Physics at All Scales", and our invited speakers will be David Chuss of Villanova on Friday night, (Title: "Exploring the Infant Universe"), and Catherine Crouch of Swarthmore on Saturday (Title: "Connecting Introductory Physics to Biology and Chemistry to Engage Student Interest."). More information is included in the attached flyers; updates will be provided by email to the SEPS list and online on the SEPS website (<http://physics.upenn.edu/aapt>) as further details are finalized.

Philadelphia Regional Noyce Partnership (PRNP) has kindly agreed to co-sponsor the conference, so we are able to offer Act 48 credits to Pennsylvania-certified teachers. Please bring your PPID # to the conference if you would like Act 48 credit! (The PRNP members include Bryn Mawr College, Haverford College, Drexel University, La Salle University, Saint Joseph's University, The University of Pennsylvania, Temple University, and The Philadelphia Education Fund.)

Early registration closes February 25th. The registration form is online here: <http://goo.gl/d6gvxu>

Registration checks should be made out to SEPS AAPT and send to our treasurer, Art Zadrozny, 16 Painters Lane, Chesterbrook, PA 19087, postmarked by February 27th to qualify for the early registration discount. In addition to the conference registration fee, please include \$10 to cover SEPS AAPT section dues if you are not currently a member or have not yet paid this year's dues.

Feel free to email me, Jeremy Carlo (jeremy.carlo-at-villanova.edu), or Mary Ann Klassen (mklasse1-at-swarthmore.edu) if you have any questions. I look forward to seeing many of you at the meeting!

2. APPLICATIONS NOW OPEN FOR PENN SWE'S GEARS DAY FOR HIGH SCHOOL GIRLS

My name is Sindura Chaparala, and, as GEARS Day Co-Director along with Danielle Orłowski, I am writing on behalf of University of Pennsylvania's Society of Women Engineers (SWE). SWE is a national non-profit service organization aimed at encouraging women to achieve their full potential in their careers as engineers and as leaders, to expand the image of the engineering profession as a positive force in improving the quality of life, and to demonstrate the value of diversity. At Penn, SWE achieves this mission through one of its events, Girls in Engineering and Related Science (GEARS) Day.

On March 28, 2015, we will be hosting GEARS Day 2015, which is a day-long camp intended to educate high school girls about the engineering profession and inspire interest in the STEM (science, technology, engineering, and math) fields. The event is on Penn's campus. Attendees will participate in hands-on workshops focusing on various engineering disciplines including bioengineering, chemical engineering, electrical engineering, mechanical engineering, and computer science. Some exciting past workshops include designing bridges and extracting DNA from fruit. Throughout the day, attendees will interact with engineering college students, professors, and professionals.

We hope that girls from your high school can attend GEARS Day and partake in all its wonderful workshops. We are releasing applications and will accommodate as many applicants as space and resources allow for GEARS Day. The application opens February 2, 2015 and will close on March 1, 2015. We will get back to you with final decisions by March 8, 2015. I have included a link below which leads to the application page. It would be great if you could publicize this event at your school and pass along this link to your female high school students.

Application link: <http://goo.gl/forms/wv0NuXkr7y>

We genuinely hope that GEARS Day 2015 will foster a stronger community of young women engaged in science, technology, engineering, and math fields in the Philadelphia area and we look forward to receiving applications. If you have any questions, feel free to contact me. Thank you for your time and consideration.

Sincerely,

Sindura
ensswe_gears-at-gmail.com

3. UPENN'S QUARKNET COLLABORATION OFFERS PAID SUMMER RESEARCH FOR SELECT HIGH SCHOOL STUDENTS

QuarkNet is a national collaborative project among physicists, high school students, and high school teachers, jointly supported by the NSF and the Department of Energy. Penn has been participating in the QuarkNet program since 2000. The High Energy Physics group at Penn is involved in a number of interesting experimental programs and we want to share some of our exciting results and our passion for the subject with high school students and teachers.

For the past few years the Penn QuarkNet program has involved a small team of high school students and one or two teachers working on a project to detect and measure cosmic rays (our low cost accelerator alternative). The QuarkNet program is full time for about six weeks – end of June to the beginning of August each year. Project work is interspersed with talks by Penn faculty and staff on physics topics. If all goes well, we will take a one day field trip to Brookhaven National Laboratory on Long Island to see some examples of large particle and nuclear physics experiments.

The program is open to greater Philadelphia area high school students who will be Juniors or Seniors in the fall of 2014. It provides a small stipend to cover expenses and the loss of burger flipping income. Applications (see links on the left) are due April 7, 2014. For questions or more information about the program, please e-mail Mitch Newcomer mitch-at-hep.upenn.edu or Rick Van Berg rick-at-hep.upenn.edu.

The Players: We are looking for four talented rising high school juniors or seniors interested in physics, engineering, or both, from the Philadelphia area, to work alongside teachers and physicists on research projects exploring the hidden nature of matter, energy, space and time.

The Big Questions: What are the origins of mass? Can we come up with a unified theory, which explains the basic forces of nature and how they are related? How did the universe begin and evolve?

The Research: Students participating in the six week program (beginning on June 23rd) will help design, construct and use for measurements an ionizing radiation detector; attend seminars on current methods and experimental work in High Energy Physics, Astrophysics, and Condensed Matter Physics; work with researchers in several of the ongoing projects in High Energy Physics at Penn; give a summary presentation on their work; and participate in a one day field trip to the Brookhaven National Laboratory (www.bnl.gov).

We are looking for four students interested in either Physics or Engineering, or both, who would like to carry this work forward (and produce an even better set of web pages). If you are interested, please fill out an application and send it, the essay, and a letter of reference to us before the April 7th deadline.

Candidates should be interested in a career in science or engineering and have some practical experience in building projects. While not required, experience in computer programming, electronics, and data analysis is a plus.

1. Application form (from www.hep.upenn.edu under the QuarkNet tab)
2. A four hundred word essay on, "My reasons for wanting to participate in the Penn summer high energy physics QuarkNet program"
3. A letter of recommendation from a school instructor.

A modest stipend will be provided for students accepted into the program.

Note: we do not have funds for housing and expect that students will commute, but the use of Penn dorm rooms can be arranged at the student's expense.

Deadline for applications is April 7th, 2015. There will be a decision on 4 student researchers by May the 2nd.

Submit all three parts by mail or electronically to:

Mitch Newcomer mitch-at-hep.upenn.edu
University of Pennsylvania
Department of Physics & Astronomy
209 South 33rd St. Philadelphia, PA 19104

For more information, check out http://www.hep.upenn.edu/HEP_website_09/QuarkNet/Overview.html

4. REGISTRATION FOR AAPT PHYSICS BOWL IS NOW OPEN

Enter your students in PHYSICSBOWL 2015 and receive national recognition for your school, your students, and your teaching excellence!

The registration process for the PhysicsBowl Contest is quick and easy.

The AAPT Physics Bowl is an algebra-based, multiple-choice physics contest open to high-school students, covering a breadth of topics in physics. Students may compete in two divisions — there is an easier version of the test for first-year physics students, and a more challenging version for second-year students or anyone seeking a challenge.

[Register online](#) with a credit card, or if utilizing a purchase order, you may download a [PDF form](#), then complete and mail or fax, 301-209-0845 to the AAPT National Office. The registration deadline is March 9, 2015.

<http://www.aapt.org/Programs/PhysicsBowl/regonline.cfm>

<http://www.aapt.org/Programs/PhysicsBowl/regbymail.cfm>

Specific student names are not needed at this time, only the total number of students who plan to take the exam. Information regarding fees, exam formats and testing dates are available on the registration page at <http://www.aapt.org/Programs/PhysicsBowl/>. Past exams are available here: <http://www.aapt.org/Programs/PhysicsBowl/printexams.cfm>

(PLEASE NOTE: Only a faculty member from the school or host site may register. Student-initiated registrations are ineligible.)

5. GERMANTOWN ACADEMY SEEKS UPPER-SCHOOL PHYSICS TEACHER

The description of the physics opening at GA can be found at: <http://jobs.aapt.org/>

Germantown Academy, a coeducational PreK-12 independent school with 1,100 students in Fort Washington, PA, seeks a full-time, experienced, dynamic Upper School Physics Teacher to start in August 2015. This is a 10-month position. Germantown Academy offers an excellent array of benefits. Salary is highly competitive and commensurate with experience. Qualified applicants will meet the following criteria:

Upper School Physics

- Master's Degree in Physics (minimum), Ph.D. in Physics or closely allied field preferred
- Minimum 5 years teaching experience, more experience preferred
- Ability to teach a range of Physics classes within a well-developed "Physics First" program. Course load may include Physics 1, Physics 1-Honors, AP Physics C (Mechanics and E&M) and AP Physics 1 and 2
- Demonstrated commitment to integrate laboratory experiments and activities into the instructional program at all levels,
- Familiarity with the implications of physics education research on pedagogy and a demonstrated commitment to integrate those into the instructional program
- Interest in working with students as an advisor and extracurricular sponsor/coach

Candidates who meet these criteria should send a cover letter, resume, transcripts and a list of at least three current references to:

Ms. Rachel Elwood
Human Resources Director
Germantown Academy
340 Morris Road
PO Box 287
Fort Washington, PA 19034

Or to:

[hrdept -at- germantownacademy.org](mailto:hrdept-at-germantownacademy.org)

(From: <http://www.germantownacademy.net/community/work-at-ga/current-job-openings/index.aspx>)

6. SUMMER TEACHING OPPORTUNITY AT PRINCETON UNIVERSITY PREPARATORY PROGRAM

Princeton University Preparatory Program
2015 Summer Institute

FACULTY OPENINGS

Rising Senior Science

The Princeton University Preparatory Program (PUPP) seeks outstanding educators to join our faculty for our 2015 Summer Institute. PUPP provides academic and cultural enrichment for high-achieving, low-income high school students from Ewing, Lawrence, Hamilton, Princeton and Trenton public high schools. PUPP is a comprehensive three-year program that works with high school students beginning the summer after their 9th grade year and continuing through high school graduation. The cornerstone is a six-and-a-half-week summer institute on the Princeton campus. Summer academic courses range from literature and writing to college preparation and laboratory science. Courses are taught by a range of university affiliated faculty, staff and graduate students, as well as classroom teachers from the region. In addition, the summer institute includes a leadership retreat, college visits and trips to museums and cultural institutions. The 2015 Summer Institute planning begins in March 2015 and the institute runs from late June through mid-August.

Rising Seniors Science Course – Physical Sciences/Physics/Astronomy/Engineering - This course is taught to rising seniors and meets for 12, 90-minute sessions, as well 4 extended periods. Supported by a grant from Johnson & Johnson, Inc., the course is designed to teach students the fundamental principles of scientific thinking and experimentation that drive modern research and yet are often glossed over in high school science classes. Local high school science teachers and Princeton graduate students with strong foundational knowledge in the physical sciences, physics, ecology, and/or engineering and familiarity with University laboratory equipment and processes are sought to co-teach this course, potentially with another graduate student or with a high school science teacher. The curriculum will be co-created by the faculty team with input and supervision from the administration, as well as an eye toward the general theme of the summer institute.

We seek individuals who have enthusiasm for their subject area/research and an interest in or experience with working with high school students.

Position opened until filled. Preferred consideration to applications received by February 15, 2015

Please send a CV and a letter of application highlighting relevant teaching/tutoring experience to:

Dr. Jason Klugman, Director
Princeton University Preparatory Program
41 William Street
Princeton, NJ 08540

Email submissions may be sent to: [jklugman -at- princeton.edu](mailto:jklugman-at-princeton.edu)

7. LASALLE UNIVERSITY HOSTS FREE AAPT WORKSHOP ON HEAT AND ENERGY

In the last few decades it seems that the time spent studying heat has been inversely proportional to the intensity of the economic and political debate on energy. Along with not serving the public well, this trend is a sadly missed opportunity to make physics more relevant. This workshop will provide a number of ways to correct that problem, and it will present them on a number of different levels. The main focus will be conceptual because this is both an effective use of demonstrations and the most widely needed support for introductory students of all ages; middle school to college undergrad. But we will also take the time to collect and analyze some data, to allow students to experience some scientific knowledge with traceable origins. This will be a broad pallet of examples that could have application from middle school to college.

Teachers will come and investigate topics of Heat Transfer, Convection, Conversion (Conservation of Energy), Heat and Motion, Brownian Motion, Second Law and Entropy and many more activities for the classroom.

Presenters: Jay Bagley ([bagleyjay -at- yahoo.com](mailto:bagleyjay-at-yahoo.com)) and Bill Berner ([berner -at- physics.upenn.edu](mailto:berner-at-physics.upenn.edu))

Sponsors: Saint Joseph's University, LaSalle University, SEPS AAPT, and the Philadelphia Regional Noyce Partnership.

Saturday, February 28, 2015
La Salle University
1900 West Olney Ave

Philadelphia PA 19141
Holroyd Hall, Rm 053

9:00 AM - 12:00 PM
Light breakfast served
Free parking provided

Registration is free, but limited to 24 people. The workshop is currently sold out, but if you're interested in being put on a wait list in case of cancellations, or have any other questions, please contact Greer Richardson (richards-at-lasalle.edu).

<https://www.eventbrite.com/e/physics-workshop-series-for-science-teachers-heat-and-energy-tickets-14897127710>

This is the second in a series of three workshops, including an October 2014 workshop on Force and motion, and an April 2015 workshop on Waves, Light, and Sound. Please watch your email for updates about the third workshop as we finalize it!

8. UNIVERSITY OF DELAWARE HOSTS 2015 TECHNOLOGY IN EDUCATION CONFERENCE

The University of Delaware is holding the 2015 University of Delaware Educational Technology Conference on Saturday, March 14, 2015. They would like to invite all educators to participate and share their experiences or successes with technology in the classroom. Presentation proposals and registration are now open. More information on our conference can be found on their website at www.udetc.udel.edu or you can call 302-831-8162. They will be happy to answer any questions regarding the conference, and hope that you will be able to participate!

9. GIRL SCOUTS OF EASTERN PENNSYLVANIA SEEKS RETIRED STEM EDUCATORS AS MENTORS

Girl Scouts is a national organization for girls with a current membership of 2.8 million girls and adults. Girls gain leadership knowledge and skills through experiences led by a group of dedicated volunteers. Volunteers influence girl's lives by sharing their talents and gifts and leading them through life's lessons. Volunteers enter an extensive network of men and women who have developed girls as leaders for the last 100 years and will continue to grow our future! Also, volunteers gain satisfaction in watching girls learn and grow.

GSEP is seeking STEM subject matter experts who are comfortable in front of youth...please come help us guide future leaders into these fields by serving in school leadership programs to girls. Share your love of mentoring youth and your knowledge of STEM concepts in a fun and engaging way. The curriculum exists, we are in schools all over Philadelphia and Allentown sharing this and you are most welcome to join a STEM team and help us! This position requires the following skills: General Education, Mentoring, Math / Science Instruction

Girl Scouts can't do it without you! Become a volunteer and impact girls in your community!

<http://www.volunteermatch.org/search/opp1886968.jsp>

10. NASTAR CENTER OFFERS FREE SUMMER PROFESSIONAL DEVELOPMENT PROGRAMS FOR TEACHERS

The NASTAR® Center in Southampton, PA, will once again host its popular professional development programs for teachers during the summer of 2015. Single-day programs for teachers are Monday – Friday, from 8:15 AM – 4:15 PM. The NASTAR Center is an approved provider of Act 48 professional development hours for Pennsylvania teachers. Out of state participants will receive documentation of attendance at NASTAR Center programs for submission to their local school districts. Each program is worth 8 hours of professional development.

The schedule for 2015 NASTAR Teacher Professional Development programs is as follows:

July 6, 2015, Monday	The Atmosphere and Weather
July 7, 2015, Tuesday	The Magic of Flight
July 8, 2015, Wednesday	Space Suits
July 9, 2015, Thursday	Rocket Science
July 10, 2015, Friday	Acceleration
July 13, 2015, Monday	Flight Physiology
July 14, 2015, Tuesday	K'NEX Energy, Motion and Aeronautics
July 15, 2015, Wednesday	Exploring the Solar System
July 16, 2015, Thursday	Rocket Science, Stage II
July 17, 2015, Friday	Space Payloads
July 20, 2015, Monday	The Atmosphere and Weather
July 21, 2015, Tuesday	Exploring the Solar System
July 22, 2015, Wednesday	Space Suits
July 23, 2015, Thursday	Rocket Science
July 24, 2015, Friday	Acceleration
July 27, 2015, Monday	Flight Physiology
July 28, 2015, Tuesday	K'NEX Energy, Motion and Aeronautics
July 29, 2015, Wednesday	500 Years of Flight
July 30, 2015, Thursday	Rocket Science, Stage II
July 31, 2015, Friday	Space Payloads

These programs are being offered AT NO COST TO TEACHERS. Since 2010, 168 teachers from 13 states have participated in professional development programs at the NASTAR Center. Special pricing for out of town participants has been arranged with a local hotel. For enrollment information, contact Greg Kennedy at (215) 355-9100, X 1512, or gkennedy-at-

nastarcenter.com. A registration packet may also be downloaded from the NASTAR Center website, www.nastarcenter.com.

11. SAVE THE DATE FOR 39th ANNUAL NJ SCIENCE CONVENTION

Save the date for the 39th Annual New Jersey Science Convention, which will be held October 13th and 14th, 2015, at the Princeton Marriott at Forrestal.

2015 Banquet Speaker: Dr. David Robinson, New Jersey State Climatologist

Interested in Participating as a Presenter? Consider submitting a program proposal or two! Especially those K-12 programs that address:

Hands-On Activities Focusing on Implementation of the NGSS
Effective and Appropriate Use of Technology in the Classroom
Elementary/Middle Lessons that Address Instruction and Implementation of NGSS
How to Address the Teacher Evaluation Process

Online program proposals are being accepted. The priority deadline to submit a program is April 15, 2015. Link to submit a program proposal: <http://www.njscienceconvention.org/submit-a-program-proposal-for-2015.html>

Please forward to colleagues who have quality programs to submit.

Additional convention information may be found on our website at:

<http://www.njscienceconvention.org>

Questions about Program Proposals may be addressed to:

NJSC Office Services

[njscienceconvention -at- gmail.com](mailto:njscienceconvention-at-gmail.com)

See you in October!

Nancy Evans Bennett and Lola Szobota

Convention Co-Chairs

12. AMERICAN ASSOCIATION FOR ADVANCEMENT OF SCIENCE SEEKS FIELD TESTERS FOR GRADE 4-12 ASSESSMENTS

Participate in Field Testing of Elementary, Middle, and High School Science Assessment Items

AAAS Project 2061 is developing assessment items to measure elementary, middle, and high school students' understanding of ideas about energy and recruiting teachers willing to field test multiple-choice test items with their students in Spring 2015.

- Students must be in 4th-12th grade
- Test may be administered online or in paper format
- Test should take no more than a single class period
- Registration deadline is March 31, 2015. Go to <http://www.aaas.org/news/teachers-needed-science-assessment0field-tests-0> for information and registration.

Visit the AAAS Science Assessment Website at assessment.aaas.org

13. PENN STATE ABINGTON SEEKS PART-TIME PHYSICS INSTRUCTORS FOR SPRING 2015

At Penn State Abington, we are hiring part-time physics instructors for several courses for the spring semester 2015. We require at least a MS degree in physics or a related field. Please consult <http://psu.jobs/Search/Opportunities.html>, choose Abington and Academic and search for job 54156. All applicants should apply online.

14. ARIZONA STATE UNIVERSITY OFFERS SUMMER MNS DEGREE IN PHYSICS OR CHEMISTRY

Attention high school physics & chemistry teachers! Would you like to earn the Master of Natural Science (MNS) degree in physics at Arizona State University (ASU)?

ASU is offering in-state tuition (a considerable savings) through WICHE, but you have to be a teacher in one of 15 eligible western states to apply for it. Good news: ASU postponed the deadline to apply to APRIL 1, 2015. Apply for in-state tuition at <http://physics.asu.edu/graduate/mns/financial>

(Mark McConnell, at a public school in Colorado, was accepted last year for in-state tuition for the 3 summers -- a huge saving! His school is paying part. We arranged his dorm housing, at \$20/day for a private bedroom and kitchen privileges.)

About the MNS degree:

Physics and chemistry teachers say that the ASU summer MNS degree program is of great value.

* includes Modeling Workshops: an effective implementation of STEM.

* aligned with NGSS.

* hands-on, minds-on, practical courses for the high school classroom.

Interdisciplinary courses make it useful for chemistry teachers too.

* Almost 70 high school teachers have earned the MNS degree since it was founded in 2001 by Prof. David Hestenes.

* Teachers love the courses. Teaching is satisfying because students learn more.

* It can qualify you to teach Dual Enrollment physics courses.

* It is similar to Finland's Master degree for high school physics teachers, in that courses combine content with research-based pedagogy, and teachers do research. (Finland is tops in the world in test scores of 15-year-olds, as you know.)

- * Most teachers take 3 summers, but some finish in two. Flexible; no cohorts.
- * Courses begin on June 8, 2015. 2 sessions in summer. 2nd session ends on July 31.

Visit <http://modeling.asu.edu/MNS/MNS.html> for info & a tentative list of courses through 2016.

To apply to ASU for the MNS degree program, click on "ASU logistics and the application process". Start now, and submit it well before April 1, 2015. (This is a separate application. Both are needed.)

Questions? ask jane.jackson-at-asu.edu, 480-965-8438.

Josh Clearman wrote: "This is an affordable, summer based content degree in physics or chem. It is a very good and challenging degree that is an alternative to an Ed masters. I am a grad of this program and recommend it highly." Josh is a Dean at Green River CC and formerly taught high school physics in Florida.

Financial aid for teachers nationwide:

- 1) Teachers in high poverty (usually Title I) schools nationwide can get FORGIVABLE Stafford loans.
See <http://modeling.asu.edu/MNS/MNS.html>
- 2) New out-of-field physics teachers nationwide can apply for TEACH grants of up to \$2000 per summer if you teach in a high-poverty school. See <http://modeling.asu.edu/MNS/MNS.html>
- 3) Ask your principal to request NCLB Title II-A funds from your school district.
- 4) Teachers in small rural schools can ask their principal for funds from the Small, Rural School Achievement program (REAP) of the U.S. Department of Education. <http://www2.ed.gov/nclb/freedom/local/reap.html>

MNS degree TIPS:

- * The GRE is no longer required.
- * Teachers can transfer up to TWELVE credits into the degree program!

Some teachers take PHS 530, modeling workshop in mechanics, BEFORE they apply for the MNS degree. (We will also hold the Modeling Workshop in mechanical waves & sound, led by Michael Crofton.) Consider doing that, next June 8-26.

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peace,

Jane Jackson, Co-Director, Modeling Instruction Program
Box 871504, Dept. of Physics, ASU, Tempe, AZ 85287
480-965-8438/fax:965-7565 <http://modeling.asu.edu>
[Jane.Jackson-at-asu.edu](mailto:jane.jackson-at-asu.edu)

For 24 years, Modeling Instruction has helped teachers attain knowledge and skills needed to benefit their students. Modeling Instruction is designated as an Exemplary K-12 science program by the U.S. Department of Education. The American Physical Society recognized it with the 2014 Excellence in Physics Education Award.

The American Modeling Teachers Assn (AMTA) is expanding the work: <http://modelinginstruction.org>. AMTA is a 100Kin10 Partner.

15. HOUSING REIMBURSEMENT AVAILABLE FOR SUMMER MODELING WORKSHOPS IN NYC

STEMteachersNYC is very pleased to announce that they have received funding that will allow us to offer lodging reimbursement to teachers from outside the NYC area who attend any of our four workshops this summer.

Reimbursement of up to \$750 is available for our 3-week Chemistry, Mechanics, and Middle School Modeling Workshops. Reimbursement of up to \$250 is available for our 1-week Graphical Problem Solving in Physics Workshop.

Applications are now being accepted at <http://lodgingsu15.eventbrite.com>.

Applications will be considered and decisions made on a rolling basis, so if you are interested, I encourage you to apply for the reimbursement and to sign up for the workshop of your choice as soon as possible!

The complete upcoming schedule of spring and summer workshops is attached as a PDF. Please note the dates on your calendar and plan to register and attend. Please also forward to others and post on the web, via Twitter and other social media.

Summer 2015 Workshops:

Mechanics Modeling Workshop (led by Paul Bianchi and Zhanna Glazenburg), July 20 - Aug 7 (3 weeks). Teachers develop eight explicit models integrating the often disparate concepts of kinematics, Newton's Laws, circular motion, energy, momentum . . . Details and registration: su15mech.eventbrite.com

Chemistry Modeling Workshop (led by Donghong Sun and Tammy Gwara), July 20 - Aug 7 (3 weeks). Participants work through the core units of a high school chemistry course, including the following topics: particulate structure of matter, energy and kinetic molecular theory, stoichiometry, and energy and chemical change. Details and registration: su15chem.eventbrite.com

Middle School Science Modeling Workshop (led by Kelli Gamez-Warble and Deb Pardee, with Colleen Megowan, guest leader), July 13 - July 31 (3 weeks). Teachers practice using the NGSS Science and Engineering Practices with students, utilizing resources to support Modeling Instruction in a variety of classrooms, including units on physical, life, and earth and

space science. Teachers will engage in both deep content and thoughtful pedagogy, thereby gaining competence in guiding student thinking. Details and registration at <su15mns.eventbrite.com>

Graphical Problem Solving for Physics Workshop (led by Kelly O'Shea and Mike Pustie), July 13 - July 17 (1 week). Graphical methods are elegant, connect with calculus, and support students who struggle with formulaic problem solving. We will use diagrams (including vector addition, bar charts, and slopes and areas on various graphs) as problem solving tools in mechanics. Participants will practice solving problems themselves as well as using student-centered discussion techniques by means of several modes of "whiteboarding" (<http://kellyoshea.wordpress.com/whiteboarding/>). Details and registration: <su15-graphical.eventbrite.com>

16. SUMMER MODELING WORKSHOPS IN PHYSICS AND CHEMISTRY OFFERED AT ARIZONA STATE UNIVERSITY

Arizona State University in Tempe offers four Modeling Workshops (June 8-26, June 15-26, and July 6-24, 2015) for high school physics, chemistry, and physical science teachers. This STEM program can lead to an interdisciplinary Master of Natural Science (MNS) degree.

Modeling Instruction is designated as an Exemplary K-12 science program and a Promising K-12 Educational Technology program by the U.S. Department of Education. It won the "2014 Excellence in Physics Education" award of the American Physical Society.

Two-year-college faculty and pre-service teachers are welcome, too.

Suggested ASU application deadline is May 10, to avoid an ASU late fee.

Details are at <http://modeling.asu.edu/MNS/MNS.html> .

ASU resident tuition/registration is expected to be about \$1900 for a 3-credit course. (Non-resident ~\$1100 per credit.) Non-degree registration is easy & quick! (No transcripts needed).

Low-cost apt & family housing can be arranged by Jane Jackson. (In summer 2014, on-campus housing was \$400 for 3 weeks; each teacher had a private bedroom.)

FINANCIAL AID:

* We hope to have funding for Arizona teachers to apply for a \$1300 tuition scholarship.

Starting in Feb., teachers can download an application form at

<http://modeling.asu.edu/MNS/MNS.html>

(the MNS webpage), and submit it to [Jane.Jackson -at- asu.edu](mailto:jane.jackson-at-asu.edu).

* Teachers worldwide can apply to reserve a seat for non-credit (no tuition, they need not apply to ASU). \$200 registration fee. CEUs. Limited to 20% of enrollment. Priority to teachers who commit to leadership. Download application form starting in Feb. 2015 (same URL as above).

* Ask local service organizations (Rotary, etc.) for financial support: see

<http://modeling.asu.edu/MNS/ServiceOrgs-financialHelp.doc>

* Degree-seeking teachers can apply for forgivable Stafford loans and TEACH grants, if they teach at a high-poverty school (usually Title I). See

http://modeling.asu.edu/MNS/ASUfinanAid_MNSdegree.htm

* Degree-seeking teachers in 15 western states can apply for in-state tuition, via the WICHE/WRPG agreement. The WRPG deadline to apply is April 1. Download the application at

<https://physics.asu.edu/graduate/mns/financial>

Questions? Reply to jane.jackson-at-asu.edu

Two summer sessions: June and July 2015. (3 graduate credits unless otherwise noted)

MODELING WORKSHOPS in 2015:

June 8-26: PHS 530/PHY 480: Methods of Teaching Physics I

(modeling workshop/mechanics. Jeff Steinert, instructor. 8-3:30MTWTh 8-12 F)

June 8-26: PHS 594/PHY 494: Modeling Workshop in Mechanical Waves & Sound

(Michael Crofton of Minneapolis, MN. 8-3:30 MTWTh. 8-12 F)

June 15-26: CHM 594: Modeling Instruction in High School Chemistry II (2nd semester & AP chem)

(Phil Root. 8-3:30 MTWTh. 8-12 F. 2 credits)

July 6-24: CHM 594/CHM 480: Methods of Teaching Chemistry/Modeling Instruct- HS Chem I

(Russ Shaffer. 8-3:30 MTWTh. 8-12 F at Carl Hayden HS, Phoenix)

OTHER GRADUATE COURSES (in JULY: take 6 credits in 5 weeks)

June 29-July 30: PHS 581/CHM 581: Structure of Matter

(Bob Culbertson. 11:10-2pm MTWTh at ASU-Tempe)

June 29-July 30: PHS 550: Physics & Astronomy

(Carl Covatto. 3:40-6:30pm MTWTh at ASU-Tempe)

Also: PHS 598: Leadership Workshop (1 credit):

(Jim Archambault. alternate Friday afternoons in June & July at ASU-Tempe)

Teachers wrote:

* Great chem workshop.

* It was, without a doubt, the single greatest professional development experience of my career.

- * ASU's summer program is a national treasure!
- * Thanks to taking physics modeling course work, I am highly qualified in physics.
- * I learned more about teaching and physics this summer than in 5 years of college!
- * I LOVE this program!

Modeling Workshops nationwide in high school physics, chemistry, and biology (about 60 in 20 states) are described at <http://modelinginstruction.org/workshops-2015> and at <http://www.phystec.org/pd>.

Each MODELING WORKSHOP has these features:

- * aligned with Common Core Math Standards and ELA.
- * aligned with Arizona Science & Math Standards
- * includes all 8 scientific practices of NRC Framework for K-12 Science Education.
- * addresses multiple learning styles.
- * addresses naive student conceptions.
- * collaboration, creativity, communication, and critical thinking.
- * systems, models, modeling.
- * coherent curriculum framework, but not a curriculum; thus flexible.
- * compatible with Socratic methods, project-based instruction, Cambridge curriculum, etc.
- * science & math literacy.
- * authentic assessments.
- * high-tech and low-tech options for labs.

Models and theories are the purpose and the outcomes of scientific practices. They are the tools for engineering design and problem solving. As such, modeling guides all other practices.

peace,
Jane

Jane Jackson, Co-Director, Modeling Instruction Program
Box 871504, Dept. of Physics, ASU, Tempe, AZ 85287
480-965-8438/fax:965-7565 <http://modeling.asu.edu>
Jane.Jackson-at-asu.edu

For 24 years, Modeling Instruction has helped teachers attain knowledge and skills needed to benefit their students. Modeling Instruction is designated as an Exemplary K-12 science program by the U.S. Department of Education. The American Physical Society recognized it with the 2014 Excellence in Physics Education Award.

The American Modeling Teachers Assn (AMTA) is expanding the work: <http://modelinginstruction.org>. AMTA is a 100Kin10 Partner.

17. CALL FOR ABSTRACTS FROM 2015 AAPT NATIONAL MEETING AT UNIVERSITY OF MARYLAND

The 2015 AAPT National Summer Meeting will be at the University of Maryland. If you would like to present a paper and/or a poster at a National Meeting (always a good idea), please check the link below to see how the process works.

Deadline for submission is February 25, about two weeks from now. Questions can be addressed to NJAAPT's Dave Maiullo (maiullo-at-physics.rutgers.edu) or AAPT's Tiffany Hayes (thayes-at-aapt.org).

<http://www.aapt.org/Conferences/sm2015/>

18. APS APRIL MEETING IN BALTIMORE, MARYLAND

The April Meeting of the American Physical Society will be held April 11-15, in Baltimore, MD, and will include sessions on physics education and outreach.

For more information: <http://www.aps.org/meetings/april/scientific/index.cfm/>

19. JOIN THE CHESAPEAKE SECTION OF THE AAPT FOR THEIR ANNUAL SPRING MEETING

The Spring 2015 meeting of the Chesapeake Section of the American Association of Physics Teachers is coming up on March 28 2015 at University of Virginia in Charlottesville. The Chesapeake Section includes physics teachers throughout Virginia, Maryland, Washington D.C., and Delaware. We hope that you will be able to attend, and perhaps submit a paper or physics demo.

Conference Fee: \$20 which includes continental breakfast, coffee break, buffet lunch, and conference registration. The fee will be collected at the conference. We will meet in the Physics/J Beams Lab Building 0221 in room 204. (See link to an interactive map below.)

Please RSVP to Carl Mungan (mungan-at-usna.edu) if you are coming to the conference. In addition, if you are interested in any of the opportunities listed below, let me know. (But I encourage you to email me now your preliminary interest just in attending, for our planning purposes.)

Contributed Talks: 15 minutes including questions. Please send Title and Abstract to Carl Mungan by March 16.

Physics Demos: 8 minutes including questions. Send the Title (and optionally an Abstract) of your demonstration to Carl Mungan by March 16.

You may present both a talk and a demo if you like. There will be prizes for best talks (in various categories) and demos. Students at any level are also encouraged to attend and/or present. Our meeting room will have a computer with projector and screen. We suggest bringing your presentations on a flashdrive or CD and copying them to the room's computer during a break.

Draft Agenda:

9:00 am – 9:30 am Registration & Breakfast

9:30 am – Noon Contributed Talks & Demos Part I

12:00 pm – 1:00 pm Lunch

1:00 pm – 4:00 pm Contributed Talks & Demos Part II

4:00 pm – 4:30 pm Business Meeting (open to everyone)

5:00 pm – 6:00 pm Tour of the Physics Department (not yet confirmed)

6:30 pm – 8:00 pm Social Gathering at a Local Inexpensive Restaurant: let me know if you are interested (not included in conference fee)

Please let Carl Mungan (mungan-at-usna.edu) know if you are interested in the tour or/and Social Gathering.

Parking: Free parking at lot R1 behind the Dell buildings (off Bonnycastle Drive). Pay garage across Emmet Street at Central Grounds Parking.

Interactive Campus Map at <http://mapviewer.gis.virginia.edu/public/>

We don't have a conference hotel selected, but feel free to email us for advice if you need help finding one.

The details of the meeting are included in the attachment. We hope to see you there.

The Fall 2014 talks are posted at www.csaapt.org website for your reference.

To accommodate our long distance guests, we have arranged for the conference hotel rate:

Conference hotel: [Inn at Darden](#) at the Darden School of Business and at the [University of Virginia](#)

100 Darden Blvd, Charlottesville, VA 22903

P. 1-434-243-5000 | F. 1-434-243-5063

Guestrooms feature complimentary Wi-Fi, work desk & lounge chair, flat screen TV, microwave, mini-fridge, and coffeemaker.

All reservations must be made individually with the hotel by calling 1-434-243-5000

Single: \$116* per night for the nights Friday, March 27 – Saturday, March 28, 2015

Please refer to the CSAAPT room block when securing your reservation. The cut-off date is March 13, 2015

*(all rates are subject to state and local taxes currently assessed at 10.3%)

20. SWARTHMORE COLLEGE HOSTS TELESCOPE OPEN HOUSE SECOND TUESDAYS

The Swarthmore Department of Physics and Astronomy (located in Swarthmore, PA) hosts a telescope open house each month. It is on the second Tuesday of the month and is held from 8 to 9 PM when it is standard time and from 9 to 10 PM when it is daylight savings time.

The open houses are held at the new [Peter van de Kamp Observatory](#) on the roof of the Science Center. Here is a [map and directions](#): http://astro.swarthmore.edu/observatory_directions/index.html

Note: They cancel the open house if it is too cloudy. A notice will be posted on the [department page](#) (<http://www.swarthmore.edu/physics-astronomy>), but sometimes not until the last few hours before the open house is due to start, as [the weather \(and weather forecast\)](#) can change quickly.

21. NJAAPT HOLDS SPRING DEMO SHOW AT PRINCETON

NJAAPT is planning to conduct a physics demo show at Princeton on Friday evening, April 24, 2015. The purpose of this email is to ask for volunteers to present their favorite demos or lab activities. Please email John Valente (jvalente-at-ctemc.org) if you are interested in presenting; further information will be available later for those interested in attending. No need to email the demos you will present and the time you will need. That info will be asked for in a follow-up email. The show will be conducted the show in the physics demo lecture hall at Princeton.

22. 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

The next teachers lecture will be given by Prof. Dan Hammer, Bioengineering, at 5:30 pm on Thursday, Feb. 12, 2015, in the LRSM Reading Room, 3231 Walnut St. Philadelphia.

His topic will be 'Artificial Cells.' This will be followed by pizza and refreshments. Bring a colleague or a good student with you, if you wish. Please e-mail, if you need more information. Parking is on-street using Pay and Display kiosks or #21 or #42 bus which stop outside our building westbound on Walnut St. and eastbound via Chestnut. St. We are also convenient for 30th St Station (10 minute walk) and University Station (8 minute walk.)

More information about the LRSM's outreach lectures is available at the link below. For more information, or to get on the mailing list to be notified about upcoming lectures, please contact Andrew R. McGhie at 215-898-6461 or at mcghie-at-lrsm.upenn.edu.

There is some further information and a list of past lectures at: <http://www.lrsm.upenn.edu/outreach/teachers.html>

23. LRSM SCIENCE CAFES AT ST DECLAN'S WELL AND STONEY'S BRITISH PUB

LRSM also offers a series of science cafes, open to the public. The Science Cafés, which are science talks for laymen about

materials-related topic of current interest, will take place at 7:30 pm at Stoney's British Pub, 3007 Concord Pike, Wilmington DE and Saint Declan's Well, 3131 Walnut St. Philadelphia, PA, at 6:00 pm.

Upcoming
science
cafes:

March 9,
2015

Carl Grossman
Physics, Swarthmore College
British Pub "The Theremin & Early Electronic Music"

Lev Termen, aka Leon Theremin was a brilliant electronic engineer and inventor. Besides developing some of the earliest applications of precision high frequency measurements (RF, radio frequency), he invented the first electronic musical instrument, the "therphone," more commonly known as the "Theremin." In the late 20s, Theremin was touring and performing electronic music in venues such as Carnegie Hall and the Academy of Music. Composers, accomplished musicians, and the public were fascinated by Theremin and his inventions, but by the early 30s, he fell into obscurity and financial disarray. Finally, in 1938, he returned to Russia and ultimately a labor camp (Gulag) in Siberia. He resurfaced after the fall Soviet Union and was able to return to the US through the efforts of electronic music enthusiasts such as John Chowning, director of Computer Research in Music and Acoustics at Stanford University, and Robert Moog of synthesizer fame. Carl will bring and demonstrate a Theremin.

March 18,
2015

Carlos Perez
MSE, University of Pennsylvania
Saint Declan's Well "Energy Storage"

Full schedule here: <http://www.lrsm.upenn.edu/events/sciencecafes/>

24. COOL LINKS:

How to build a model of the simplest electric train, using an AA battery, magnets, and wire: <http://laughingsquid.com/how-to-make-an-extremely-simple-electric-train-from-household-parts/>

What would happen if the earth was flat: <https://www.youtube.com/watch?v=VNqNnUJVCVs>

Find your local acceleration due to gravity, courtesy of the National Geodetic Survey: https://www.ngs.noaa.gov/cgi-bin/grav_pdx.pl

How to measure Planck's constant using Legos: <http://www.technologyreview.com/view/533401/how-to-measure-plancks-constant-using-lego/>

How basic physics (the ideal gas law) may defeat DeflateGate: <http://www.thedailybeast.com/articles/2015/01/24/basic-physics-may-defeat-deflategate.html?via=ios>

25. 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>