



# Almanack



<http://sites.ieee.org/philadelphia/>

## PHILADELPHIA SECTION of the IEEE

Counties of Membership: Pennsylvania: Bucks, Chester, Delaware, Montgomery and Philadelphia.  
New Jersey: Burlington, Camden and Gloucester

### ALMANACK (Editor: Michael Mayor, P.E.)

- **Published ten times a year**, January through June, a Summer issue covering (July, August) and September through December.

*February Inputs Deadline: Friday, 01-27-2017*

### IEEE SECTION NIGHT

- **Meetings are conducted eight times per year on the 3<sup>rd</sup> Tuesday of the Month**, January through May and September through November.

### ADMINISTRATIVE COMMITTEE

- **ADCOM meetings are conducted on the 2<sup>nd</sup> Tuesday of the month**: January through June and September through December. Members are welcome to attend the meeting only. Reserve a seat by calling the office the Friday before the meeting (*Phone: 484-270-5136*)

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## JANUARY

| Sunday       | Monday                     | Tuesday              | Wednesday | Thursday  | Friday            | Saturday  |
|--------------|----------------------------|----------------------|-----------|-----------|-------------------|-----------|
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| New Year Day | New Year Day Observed      |                      |           |           |                   |           |
| <b>8</b>     | <b>9</b>                   | <b>10</b>            | <b>11</b> | <b>12</b> | <b>13</b>         | <b>14</b> |
|              | * Women in Engineering     | * ADCOM              |           |           |                   |           |
| <b>15</b>    | <b>16</b>                  | <b>17</b>            | <b>18</b> | <b>19</b> | <b>20</b>         | <b>21</b> |
|              | Martin Luther King Jr. Day | * IEEE Section Night |           |           |                   |           |
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**IEEE SECTION NIGHT**  
**Philadelphia Section**  
**Meeting**  
**Tuesday, Jan. 17, 2017**

**Sponsored by Magnetics (MAG)  
and Reliability (R) Societies**

*Note: In the event of bad weather please call the Sheraton after 1:00 PM the day of the meeting: 215-387-8000. Ask the front desk if the meeting has been canceled.*

**Tuesday, January 17, 2017.**  
**Dinner at 6:00 PM,**  
**First Speaker at 7:00 PM.**  
**Sheraton University City,**  
**3549 Chestnut St,**  
**Philadelphia, PA 19104,**  
**(215) 387-8000**

*Meal Cost: \$25.00 (students \$15.00).*

*The meal cost is higher but it is subsidized by the IEEE Philadelphia Section.*

*You can attend the talks only (with no dinner) for free, however, we ask that you register.*

**[Registration Link](#)**

*Parking is paid by the IEEE Philadelphia Section, make sure you have your parking ticket stamped at the meeting.*

**First Talk**

**Dual Talk: J&J Farm and Olbers' Paradox**

**Jack Nachamkin, Ph.D.**

**Abstract:** J&J Farm in Glen Mills, Pennsylvania is in its 16<sup>th</sup> year, continually evolving. With four greenhouses crops are grown all year round. Farm Manager David Pickering is in charge of day-to-day operations. Depending on

the seasons and weather there is plowing, seeding, harvesting, marketing, carpentry, electrical work, and myriad daily chores that are sometimes unpredictable. Aspects of these topics will be covered. Our main product is soil, which we are continually improving. High-tunnel greenhouse topics will also be covered.

Olbers' Paradox has puzzled scientists for centuries. Why is the night sky dark when a good telescope reveals almost innumerable numbers of stars in nearly every direction of the sky? And, why do some of the points of light in the sky "Twinkle" and some don't? Some speculative ideas to explain these phenomena applying quantum mechanics will be presented.

**Biography:** Jack Nachamkin Is a retired physicist, now an organic farmer, living in Glen Mills Pennsylvania. He began his career as post-doctoral fellows at Atomic Energy of Canada and Kansas University.



As a nuclear physicist in Los Alamos he was in charge of a small group that incorporated physics and mathematics into codes he wrote to describe fusion devices. In addition, he worked on superconducting magnets, vacuum electronics, and electric vehicles.



Leaving Los Alamos, he worked for Exxon Enterprises in Palo Alto California as a colloid chemist and designer of miniature electronic structures. At Lockheed Missiles and Space, he was the Principal Investigator on a large theoretical radar project. At McDonnell Douglas in San Diego he continued his radar work and was group leader for the radar theory section. Working for the Air Force on a Fellowship at Edwards Air Force Base he investigated “anomalous phenomena” and evaluated new claims for the Air Force Office of Innovative Technology on the West Coast. He developed a new theory of ball lightning. At Martin Marietta in San Diego he worked on radar, sonar, and aspects of signal processing ap-

plied to radar signatures. At Boeing in Philadelphia he worked on protection of aircraft from the effects of lightning, writing the first computer code to describe entire airframes struck by lightning. Jack Nachamkin has a number of patents in areas of electronics, physics, solar energy, and radar. He has written peer-reviewed papers in mathematics, nuclear physics, and the aspects of electro-mechanical plasma physics allowing a type of ball lightning to evolve. He has awards for his work from Lockheed, Boeing, and was voted an Exxon Enterprises Fellow. He won a Benjamin Franklin Key award from the IEEE for his lightning work. At present he runs J&J Farm in Glen Mills, and any Farmers Market he can get into.

## Second Talk

### Cybersecurity, AI, and the Internet of Things

**Dr. Marcello Balduccini**

**Assistant Research Professor**

**College of Computing and Informatics**

**Drexel University**

**Abstract:** In the public's perception, the internet is quickly evolving from an idillic world of entertainment and increased productivity to a warzone where nations and non-government organizations face each other and civilian population may be hit anywhere, at any time. In this talk, I will discuss these

worries, whether they are founded, and what can be done about it. In particular, I will review recent advances in cybersecurity and in artificial intelligence that have a potential to help curb security issues in the ever-growing internet of things.



**Biography:** Dr. Balduccini is an Assistant Research Professor at the College of Computing and Informatics of Drexel University. His research interests are focused on artificial intelligence and cybersecurity. Dr. Balduccini's recent projects include algorithms for reasoning in changing environment, techniques for information retrieval, and malware detection and mitigation. His



research has been funded by DARPA, NASA, IARPA, as well as various companies and industrial consortia. Prior to joining Drexel, he worked as a Principal Research Scientist at Kodak Research Laboratories, where he led projects focused on planning, scheduling, and workflow automation. Dr. Balduccini is affiliated with the Drexel University Cybersecurity Institute and has published over 70 refereed technical publications.



## MESSAGE FROM THE Chair

*Peter Silverberg, P.E.*



Thank you for voting me in as the chair for 2017. This should be in interesting year. So, even though the weather may be dreary, plenty of cheerful things are in store.

Our student chapters are holding events called Hackathons. It could be interesting to drop in and see what they can invent outside the constraints of a classroom. Drexel Dragonhack will be Jan. 14 and 15 in the Main Building (3141 Chestnut Street, Philadelphia). Rowan has its event in February (see their website for details).

Would you like to see what middle school kids can dream up? Future City has its regional contest January 21 at Archbishop Carroll High School in Radnor PA. The Section finances a prize and sends some judges. You can sign up to be a judge or helper at their web site

[www.futurecityphilly.org](http://www.futurecityphilly.org).

Just indicate “IEEE” with your organization.

Can education be fun? We have our next Section Night January 17 at the Sheraton University City. For \$25 you have dinner, free parking, and two technical talks for which you can get two Professional Development hours. We have eight of these section meetings a year (third Tuesdays) and could use presenters. If you want to be a presenter all you have to do is contact Fulvio Oliveto at

[feo3211@aol.com](mailto:feo3211@aol.com)

to get on the list.

I am spilling over with things to say, but there will be a message every month. I intend to be accessible, and so this is my contact information:

[psilverberg3@comcast.net](mailto:psilverberg3@comcast.net)

856.461.6615

Also, we have an office that is always a good place to start with queries. Section organization appears on pages 10,11 of this Almanack and the Section website can be found at:

<http://sites.ieee.org/philadelphia/>



## Philadelphia Section Looking for IEEE Awards Candidates

The Philadelphia Section IEEE Awards Committee needs your help in the process of nominating members (yourself included) to the Senior Member and Fellow membership grades, and to receive IEEE awards and medals.

The committee is seeking the names and biographies of individuals whose meritorious achievements in one of the areas of IEEE interest — Electrical Engineering, Computer Science and allied branches of Engineering, Arts and Sciences — deserve wide recognition. Many significant contributions to the profession that originated in Delaware Valley companies and universities are yet to be promoted and properly recognized by the IEEE.

The **Senior Member** grade is the highest professional IEEE grade for which application can be made. This grade requires the candidate to have been active professional practice for at least ten years. Evidence is requested for significant performance of the candidate over at least five of these years, as an engineer, scientist, educator, technical executive, or technical originator. The awards committee will gladly furnish application forms to interested members, and help in preparing the application.

The **Fellow** grade recognizes unusual distinction in the profession, and is conferred by the IEEE Board of Directors. IEEE Fellows are individuals of outstanding and extraordinary qualification and experience in IEEE fields of interest. Nominations to the Fellow grade are made by peers of the nominee, and are usually supported by other Fellows, by local IEEE Chapters and by an IEEE Society.

The IEEE also bestows recognition on its most outstanding members in the form of a Medal of Honor, IEEE Medals, Technical Field Awards, Service Awards, and Paper-Prize Awards. The IEEE Philadelphia Section will help nominators and nominees in preparing forms, locating appropriate nominators, endorsing candidates for awards and medals, and sometimes serving as the nomination body. We strongly encourage members of our Section to contact the committee for information, nomination kits, and general assistance in the process.



## The Philadelphia Section Awards available for nomination are:

### **Philadelphia Section Engineer of the Year Award**

The Philadelphia Section Executive Committee seeks nominations for the IEEE Delaware Valley Electrical Engineer of the Year Award. The Electrical Engineer of the Year will be recognized at the Section's Annual Awards Banquet. Nominees should be engineers who are members of the section, and who have demonstrated excellence in technical, scientific, academic, or managerial endeavors. The award emphasizes creative, important, and widely recognized work.

*\*Nominators are asked to submit a short letter of nomination (1-2 pages) and a resume of the candidate.*

### **Young Electrical Engineer of the Year Award**

The Philadelphia Section Executive Committee seeks nominations for the IEEE Delaware Valley Young Electrical Engineer of the Year Award. This person will be recognized at the Section's Annual Awards Banquet. The nominee must be under 35 years of age before January 1, 2016 and should be a graduate of an accredited curriculum with a degree in Engineering or a related field. The award emphasizes creative, important, and widely recognized work. An additional part of the judging

will be the candidate's contribution to professional, civic, and charitable affairs.

*\*Nominators are asked to submit a short letter of nomination (1-2 pages) as well as a resume of the candidate.*

### **Benjamin Franklin Key Award**

The IEEE Philadelphia Section invites nominations for its annual Benjamin Franklin Key Award to recognize an electrical engineer in the Philadelphia Section for outstanding technical innovation and technological contributions that have had significant practical applications. The award emphasizes technical innovation, such as a system (design and application), a significant improvement to a system, or patents of clear practical values. Emphasis will be put on tangible technical and technological achievements that demonstrate intellectual, industrial, economical or human benefits.

*\*Nominations should include:*

- 1. A description of the nominee's technical invention, system, project, or patent*
- 2. A proposed citation (30 words or less)*
- 3. The nominee's curriculum vitae*
- 4. Additional evidence demonstrating the invention, system, project, or patent*



## Philadelphia Section Corporate Technology Innovation Award

The IEEE Philadelphia Section invites nominations for its annual Corporate Technology Innovation Award. This award recognizes a company or corporation for its outstanding contribution to electro technology. The award emphasizes developments, projects, products, and other group achievements, that have been very innovative and successful.

*\*Nominations should include:*

- 1. A description of the nominee's technical accomplishment*
- 2. A proposed citation (30 words or less)*
- 3. Any additional appropriate information*

**Submit ALL nominations by December 15, 2015 to:**  
**Merrill W. Buckley, Jr., Awards Committee Chair**  
**IEEE Section Office, 11 Bala Avenue, Bala Cynwyd, PA 19004.**

Think carefully about your fellow workers and about your own contributions. Don't be shy! We really need your help. Call with the name of a potential awardee; even your own. For

more information, please call the Section office at 484.270.5136, or use email at [sec.philadelphia@ieee.org](mailto:sec.philadelphia@ieee.org), or contact any member of the committee:

Merrill W. Buckley, Jr. 484.573.5156  
Thomas Fagan 484.678.1078  
Dr. Victor Schutz 610.649.9331  
Donald C. Dunn 856.227.2458



# **The 7th IEEE Integrated STEM Education Conference (ISEC '17) Friend Center at Princeton University Princeton, NJ, March 11, 2017**

[ewh.ieee.org/conf/stem](http://ewh.ieee.org/conf/stem)

We welcome submissions for the **7th IEEE Integrated STEM Education Conference (ISEC '17)**, which will be held **Saturday, March 11, 2017** at Friend Center, Princeton University, Princeton, NJ. ISEC is known for presenting cutting-edge research in and experiences with integrated approaches to the study of science, math, and technology through experiences and activities based in engineering and other design disciplines. While all papers on methods of and experience with integrating education (or interdisciplinary education) in science, technology, engineering, and mathematics (STEM) studies are welcome, we are very interested in papers on STEaM initiatives that include assessment and evaluation of program outcomes via internal or external means. Other suggested categories include:

- Integration of Engineering (Design) into Traditional K-12 Curriculum
- Integrated Studies across the Curriculum: STEM \* Humanities \* Social Science
- Instructional Support for STE(a)M Concepts and Practices
- Integrated v. Disciplinary-focused Approaches
- Novel Implementations of Pre-College Initiatives and Outreach Programs
- Diversity-Aware Methods and Practices in STEM Education
- Implications of Integrated Education to Policies and Organizational Change
- Fundamental and Applied Educational Research in Integrated / Interdisciplinary Education

### **Important dates:**

***Submissions open: October 16, 2016***

***Submissions closed: 11:59 pm EST December 18, 2016***

***Acceptances sent: January 15, 2017***

***Final revisions due: February 5, 2017***

***Early registration deadline: February 28, 2017***



Submission instructions will be posted on the conference's web site by **September 30, 2016**; the author template is available there now. Your work must not have been published or submitted for publication elsewhere. Your submission(s) will be one (or more) of the following:

a work in progress (WIP) paper of 2 – 3 pages, a full paper of 4 – 8 pages, or an abstract for a poster by K-12 students. There is no preliminary abstract phase for WIP or full papers.

All accepted submissions will be scheduled for presentation at the conference and included in the local conference proceedings. All presented papers that follow the formatting instructions in the template will be submitted for archival in IEEE Xplore.

You will receive the following for the conference fee: admission to ISEC and its affiliated conference, the Trenton Computer Festival; conference proceedings; and breakfast and lunch. K-12 teachers can apply for CEU credits. The advance registration fee schedule is:

- \$140 IEEE member Attendee / Author
- \$160 non IEEE member Attendee / Author

- \$60 K-12 Teacher/Parent and Undergraduate Author
- \$50 Undergraduate Attendee
- \$40 K-12 Teacher/Parent Non-Author/Attendee and K-12 Student Author/Attendee

Information on the Trenton Computer Festival, which will be held on Saturday, March 18, 2017, is available at [tcfnj.org](http://tcfnj.org), and on the Information Technology Professionals Conference, to be held Friday and Saturday, March 17 - 18, 2017 is at:

[princetonacm.acm.org/tcfpro/](http://princetonacm.acm.org/tcfpro/).

You are also encouraged to submit abstracts to these conferences; see the web sites for date and submission information. ISEC 2017 is sponsored by the IEEE Princeton/Central Jersey Section with technical co-sponsorship by IEEE Region 1 and the IEEE Education Society.

Please visit us at:

[ewh.ieee.org/conf/stem](http://ewh.ieee.org/conf/stem),

follow us on Twitter @IEEE\_ISEC, and like us on Facebook.

Contact us at [ieee.isec@gmail.com](mailto:ieee.isec@gmail.com) for more information.

**We look forward to your participation in ISEC 2017.**



## Future City

The school year is off to a great start for the Future City Competition. To date, 40 schools have signed up and have started designing their cities of the future

### **Our greatest need at this stage of the competition is for mentors.**

Each school is assigned a mentor to work with the students and share their real-world experiences to help them develop their future city. Just 1 or 2 hours a week can make a big difference in how students approach their project and how they start to address it. The following is the current list of schools that need mentors:

- G.A. Stetson Middle School  
West Chester, PA
- Great Valley Middle School  
Malvern, PA
- Holy Family Regional Catholic  
School Levittown, PA
- Independence Charter School  
Philadelphia, PA
- JR Fugett Middle School West  
Chester, PA

- Sacred Heart Havertown, PA
- Southern Middle School Sinking  
Springs, PA
- St Albert the Great Huntington  
Valley, PA
- St Mary Schwenksville, PA
- Texas Avenue School Atlantic  
City, NJ

Please contact Karen R. McManuels,  
P.E.

[volunteer2015@futurecityphilly.org](mailto:volunteer2015@futurecityphilly.org)

if you are interested in working with any of the schools listed above. If you'd like to be a mentor but don't see a school in your area, send an e-mail and as schools are still registering for the competition.

**Other volunteer opportunities as also available.** Please visit the website at [www.futurecityphilly.org](http://www.futurecityphilly.org) and "Click here to sign up as a Volunteer" on the top left of the page. There you can register to be a mentor, judge, or general volunteer.

**Judges and general volunteers are needed for the day of the competition, which is scheduled for January 21, 2017. It will be held again at Archbishop Carroll High School.**



## **IEEE Women in Engineering (WIE) Philadelphia Affinity Group**

**Meeting: Monday, January 9<sup>th</sup>, 2017 6:00pm to 7:00pm**

**Carrabba's Restaurant, Springfield Mall, 1250 Baltimore  
Pike, Springfield, PA 19064**

Open to all women, men and students in the Tri-State Area who are involved or want to be involved in STEM. We are looking for dedicated women engineers to volunteer. Computer, Information Technology, mechanical, electrical, civil, Chemical, Biomedical Engineers and others to share their story

and experience with students colleagues, and professionals in the workforce. We want to build a network to support professionals in STEM as well as students in STEM and young girls who are interested in taking STEM majors.

### **Topics:**

- How to grow our volunteers?
- What are the best STEM Programs to support?
- Social programs – Team building and getting to know you
- Membership – how to grow
- Conferences- Forums have been very successful and we are very proud. Next one is in Baltimore, Fall 2017
- How to go to a forum for free?

**Register by emailing Kate McDevitt at: [KMTR1011@yahoo.com](mailto:KMTR1011@yahoo.com)**

**Happy New Year! Hope you can make it!**

**Kate McDevitt**

**IEEE Philadelphia WIE Chair**

[Kmtr1011@gmail.com](mailto:Kmtr1011@gmail.com)



## Philadelphia Milestones Tour

By Peter Silverberg

You have visitors and they want to see the Philadelphia area. The tourist areas are in lots of guides, but you want to show them where electrical engineers made their marks. There are four IEEE Milestones in the city that should be on the “must see” list. (Best on weekdays, as buildings are sometimes closed weekends.) Here they are:

### Electronic Numerical Integrator and Computer.

The plaque can be viewed in the Moore School of Electrical Engineering, at the University of Pennsylvania, (*Note: The Moore School of EE is now part of the School of Engineering and Applied Science (SEAS).*)

University of Pennsylvania, School of Engineering and Applied Science,  
220 South 33rd Street, 107 Towne Building, Philadelphia, PA 19104-6391, 215-898-7246

### Birthplace of the Bar Code.

Drexel University, Bossone Research Enterprise Center.

Drexel University, 3141 Chestnut Street, (31<sup>st</sup> and Market Streets)  
Philadelphia, PA 19104, 215-895-2000

### First Technical Meeting of the American Institute of Electrical Engineers.

The Franklin Institute, 222 North 20th St., Philadelphia, PA 19103  
Questions Call or email us at 215-448-1200 or [guestservices@fi.edu](mailto:guestservices@fi.edu)

### Book “Experiments and Observations on Electricity” by Benjamin Franklin, 1751.

American Philosophical Society Library,  
Executive Offices & Museum Gallery,  
104 South Fifth Street, Philadelphia, PA 19106-3387, 215-440-3400



## PHILADELPHIA SECTION NOTES

### IEEE PHILADELPHIA SECTION OFFICERS

Chair: Peter M. Silverberg, P.E.: [psilverberg3@comcast.net](mailto:psilverberg3@comcast.net)

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Past Chair: Philip Gonski, P.E.: [philip.m.gonski@ieee.org](mailto:philip.m.gonski@ieee.org)

### ADMINISTRATIVE COMMITTEE (ADCOM)

ADCOM meets the second Tuesday of the month at the Sheraton University City, 3549 Chestnut St, Philadelphia, PA 19104. Members are welcome to attend. Reserve a seat by calling the IEEE Section Office by the Friday before the meeting.

### ALMANACK STAFF

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**Almanack Advertisement:** The Philadelphia Section of the IEEE encourages placement of technical, professional, promotional and commercial advertisements.

The Almanack is published ten times a year and is read by approximately 4,000 members in over 150 key industries.

For more information, contact:

[michael.mayor.pe@ieee.org](mailto:michael.mayor.pe@ieee.org).

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The Cost is \$100 for one-time blast, and \$250 for four blasts, i.e. one each week for a month. The advertisement should be the same for the four times.

### ADVERTISE ON OUR WEBSITE:

Advertisement cost is \$100 for one month and \$200 for three months.

<http://sites.ieee.org/philadelphia/>

### IEEE Philadelphia Section Main Office:

11 Bala Avenue, Bala Cynwyd PA 19004, Phone: 484.270.5136

[sec.philadelphia@ieee.org](mailto:sec.philadelphia@ieee.org)

#### Rates

**Full Page: \$100**

**1/2 Page: \$50**

**1/4 Page: \$25**



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**[Bryan.weaver@ieee.org](mailto:Bryan.weaver@ieee.org)**

# CALL FOR PAPERS

<http://sensorapps.org>

**March 13-15, 2017**  
**Glassboro, New Jersey, USA**

Sensors Applications Symposium provides a unique opportunity for researchers and developers to share progress in sensor technologies, methods, applications, standardization, and commercialization. General and Special Sessions offer forums where participants can exchange ideas and gain information on the sensor state of the art. A mix of plenary, poster, demonstration, plug-fests, a sensor development workshop, and other networking activities ensure that your work will be seen.

Full paper submissions are encouraged - a full review process will be followed to ensure the high quality of those papers finally accepted and presented at the conference.



**2017 IEEE  
SENSORS APPLICATIONS  
SYMPOSIUM**

## Important Dates

|  |                      |
|--|----------------------|
| <b>Special Session Proposal Deadline:</b>          | <b>Sept 15, 2016</b> |
| <b>Full Paper Submission Deadline:</b>             | <b>Oct 31, 2016</b>  |
| <b>Acceptance/Rejection/Revision Notification:</b> | <b>Dec 20, 2016</b>  |
| <b>Final Paper Submission Deadline:</b>            | <b>Jan 20, 2017</b>  |
| <b>Final Decision Notification:</b>                | <b>Feb 1, 2017</b>   |

## TOPICS

### Sensor Applications

- Assisted Living for the Aging Population
- Biomedical Sensors for Medical, Biomedical
- Commercial Development
- Energy and the Smart Grid
- Energy Harvesting for Sensors
- Industrial Applications: Manufacturing, Process Monitoring
- Internet of Things
- Sensors for Aerospace: PicoSats, CubeSats
- Non-Destructive Evaluation and Remote Sensing
- Robotics and Automation
- Smart Agriculture
- Smart Buildings
- Smart Cities and Communities
- Transportation

### Sensor Technologies and Methods

- MEMS and Nano-Sensors
- Novel Sensing Technologies
- Flexible and Wearable Sensors
- Memristive Sensors
- Big Data
- Visualization
- Sensor Data Fusion
- Sensor Networks

### Sensor Standards

- ISO/IEC/IEEE Standards (P21451-1, P21451-1-4, P21451-4, P21451-2, and others)

### Technical Program Co-Chairs

Bruno Andò, Catania University  
Sangho Shin, Rowan University

### Special Session Chair

Eric Matson, Purdue University

### Parallel Events Chair

Justin Cappos, NYU

### Special Sessions

Special Session proposals are invited; these should include title, synopsis, at least one confirmed attendee (who will have to cover their conference registration and travel costs). Special Sessions typically have an extended introduction or overview presentation. Proposals should be sent to the attention of the Special Session Chair.

### Plug-Fest, Demonstrations

Plug-Fests are returning to SAS! The proliferation of Internet of Things (IoT) has added new urgency to many of the standards sponsored by the I&M Society. Attendees are invited to bring their current implementations of: P21451-1, P21451-1-4, P21451-4, P21451-2, and related standards. Demonstrations of other "show and describe" experiments and prototypes are encouraged. Contact the event organizers for any special power or other requirements.

### Best Student Paper Grant & Student Travel Grants

A tradition for SAS is to provide a certain number of Travel and Best Student Paper Grants. These competitive grants are announced after acceptance of the paper (Travel), and after presentation at the conference (Paper).

### Publication

Papers presented at SAS 2017 will be eligible for consideration for publication in a Special Issue of the IEEE Transactions on Instrumentation and Measurement.

### Sensor Application Development Workshop

Another year of Sensor Application Development Workshop! We will teach you how to build and deploy smartphone sensing applications under a day of effort! You will learn how to use a collaborative sensing platform. Winning team participants will get an Android device as prize.

**Additional topics for workshops and sessions are solicited and welcome. Please contact the conference organizers.**

**General Chairs:** John Schmalzel, Rowan University • Salvo Baglio, University of Catania



The Montgomery County Intermediate Unit  
Ursinus College  
The Montgomery County Science Teachers Association  
[www.mcsta.org](http://www.mcsta.org)

## The Montgomery County Science Research Competition 2017

Dear Friend of Science Education,

December 29, 2016

The Montgomery County Science Teachers' Association and Ursinus College are cosponsors of the Montgomery County Science Research Competition. This year, the 60<sup>th</sup> Montgomery County Science Fair will be held March 7<sup>th</sup> through March 10<sup>th</sup> at Ursinus College (601 E. Main Street, Collegetown, PA 19426). Over 500 students will be presenting their projects in disciplines including math, ecology, computer science, biochemistry, physics and engineering, and microbiology. Students put a lot of time and energy into a scientific problem, carrying out an experiment, interpreting results, and then presenting the information both visually and verbally.

As the coordinator for Special Awards, I am again looking for individuals in the community to serve as Special Award judges. Your knowledge of the scientific process enables us to better assess students and distribute awards in a more impartial manner.

Judging takes place on Wednesday, March 8th with High School grades 9-12 (Div A, B, C, & D) judged from 9am – 12 noon and Middle School (Div E) judged from 2pm-5pm.

If you are interested in serving as a Special Awards judge, please return the enclosed form to me either by mail, fax, or email by February 1, 2017. Additional information regarding directions and judging information will be sent to you. In addition, please recruit any colleagues who might also enjoy the experience. If you have any contacts for a sponsoring a Special Award, I would appreciate any new way to honor our students' hard work (especially at the Middle School level).

On behalf of the Montgomery County Science Teachers' Association, I want to thank you for considering judging at the Montgomery County Science Research Competition. The parents, teachers and most importantly, the students, will appreciate your donation of time and expertise. Your assistance may be just the encouragement one of our students needs to ignite a lifelong interest in science.

Sincerely,

*Valerie AS Denny*

Valerie AS Denny

Special Awards Chairperson

Montgomery County Science Teachers' Association

449 Larchwood Road

Springfield, PA 19064

[mrsdenny2002@yahoo.com](mailto:mrsdenny2002@yahoo.com)

610-543-3944 (phone)

610-667-1286 (fax)



The Montgomery County Intermediate Unit  
 Ursinus College  
 The Montgomery County Science Teachers Association  
 www.mcsta.org

**The Montgomery County Science Research  
 Competition 2017**

Judges Information Form – Montgomery County Science Research Competition  
**Wednesday, March 8, 2017 – Ursinus College, Collegeville, PA**  
 (NOTE: Day has changed from previous years)

Name: \_\_\_\_\_

Position/Title: \_\_\_\_\_

Company or Organization: \_\_\_\_\_

Address: (Indicate: Home or work) \_\_\_\_\_

Phone number:(\_\_\_\_\_) \_\_\_\_\_

Email: \_\_\_\_\_

**Students compete in two divisions: High School and Middle School**  
**Most projects are individual projects, however there are some team projects.**

**Judging times are as follows:**

**High School: 9:00 to Noon (Continental breakfast available at 7:30 AM.**

**Projects can be previewed without the students present at this time as well)**

**Lunch: 11:30-13:00 (Hot lunch provided for all judges)**

**Middle School: 2:00 to 5:00 PM. (Student projects can be previewed after 12:30  
 without the students present)**

When are you available to judge?

\_\_\_\_\_ A.M. (High School)                      \_\_\_\_\_ P.M. (Middle School)                      \_\_\_\_\_ Both

All judges are invited to have lunch with us. Will you be staying for lunch? \_\_\_\_\_

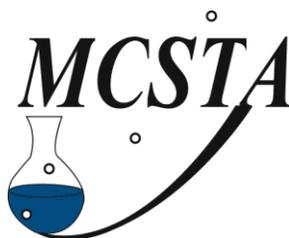
*Projects categories are as follows: Behavioral & Social Science, Biochemistry, Botany, Chemistry, Computer Science, Earth and Space, Engineering, Environmental Science, Mathematics, Medicine & Health, Microbiology, Physics, Zoology, and Consumer Science*

What divisions do you feel most comfortable judging? (List in order of preference)

| Level<br>(High School or Middle School?) | Category | AM, PM or Both? |
|--|----------|-----------------|
|  |          |                 |
|  |          |                 |
|  |          |                 |

Do you have any relatives, close friends, neighbors, etc. competing in this fair? \_\_\_\_\_  
 If so, indicate age division and category if known. \_\_\_\_\_

**Please return this form via email to [mrsdenny2002@yahoo.com](mailto:mrsdenny2002@yahoo.com)  
 or by fax to attn: Valerie Denny 610 667-1286 by February 1, 2017**



The Montgomery County Intermediate Unit  
Ursinus College  
The Montgomery County Science Teachers Association  
[www.mcsta.org](http://www.mcsta.org)

## The Montgomery County Science Research Competition 2017

Dear Colleague in Science,

January 1, 2017

On behalf of the Montgomery County Science Teachers' Association, I would like to take this opportunity to introduce you to the Montgomery County Science Research Competition. Throughout the year, students work on research projects under the direction of a sponsor or teacher. As a culmination of their work, the students representing the public, private and parochial schools of Montgomery County, display their research and share their discoveries with judges from industries and universities in the local area.

This year, the 60<sup>th</sup> Montgomery County Science Fair will be held on March 7- March 10 at Ursinus College. Over 500 students will be presenting their projects in disciplines including math, ecology, computer science, biochemistry, physics and engineering, behavioral sciences and botany with students competing at the High School and Middle School levels. While there is a recognition given to the best of these projects in each category, special awards further encourage the students. An award given by a respected company or organization adds prestige and value to the work these young scientists have completed.

The research done by Montgomery County students is impressive. Some students have patents pending, and several have spent the summer working at the labs of prominent scientists in the area and some have even been published. Montgomery County students continue on to other regional and international fairs where they do very well, coming home with medals, special awards and scholarships.

We are asking that you please consider supporting our students by sponsoring one or more Special Awards this year. You may decide the category and age division of your award, such as high school botany, horticultural or environmental science. We request that you would consider making the Special Award a monetary award and also consider sending a judge (or judges). Judging takes place on Wednesday, March 8 with the high school students presenting their projects in the morning and the middle school students presenting their projects after lunch. You are also welcome to present your award at the awards ceremony on March 10<sup>th</sup> at Ursinus College.

Attached you will find a form that should be returned to me either by mail, fax, or email if you are sponsoring an Award. An additional form regarding judging is also included.

Thank you again for your consideration. Your assistance may be just the encouragement one of county's students needs to ignite a lifelong interest in science.

Sincerely,

*Valerie AS Denny*

Valerie Denny

Special Awards Chairperson

Montgomery County Science Teachers' Association

449 Larchwood Road

Springfield, PA 19064

[mrsdenny2002@yahoo.com](mailto:mrsdenny2002@yahoo.com)

610-543-3944 (phone) 610-667-1286 (fax)



The Montgomery County Intermediate Unit  
Ursinus College

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www.mcsta.org

The Montgomery County Science Research Competition 2017

**SPECIAL AWARDS Sponsorship Form**  
**Ursinus College – March 8, 2017**

Company or Organization: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

Phone number: (\_\_\_\_) \_\_\_\_\_

Email: \_\_\_\_\_

Number of Awards you would like to sponsor: \_\_\_\_\_

Nature of the Award (i.e. monetary value, gift, etc) \_\_\_\_\_

We can distribute the award(s) for you, if you wish. Please make checks out to:

MCSRC Special Awards Fund and send to:

Valerie Denny  
449 Larchwood Road  
Springfield, PA 19064

Students compete in two **divisions**: High School and Middle School

Most projects are individual projects however there are some team projects.

Projects **categories** are as follows: Behavioral Science, Biochemistry, Botany, Chemistry, Computer Science, Earth and Space, Engineering, Environmental Science, Mathematics, Medicine, Microbiology, Physics, Zoology, and Consumer Science

Name of Award(s) that you would like to sponsor: (please indicate the division as well as the category if applicable)

\_\_\_\_\_  
\_\_\_\_\_

Will you be sending judges? \_\_\_\_\_ How many? \_\_\_\_\_

Please include the judges' names and addresses so that information may be sent to them.

*Judging times are as follows:*

*High School: 9:00 AM- Noon (Continental breakfast available at 7:30. Projects can be previewed without the students present at this time as well)*

*Lunch: 11:45-1:00 (hot lunch provided at the college)*

*Middle School: 2:00 – 5:00 PM. (Student projects can be previewed after 12:30 without the students present)*

Do you wish to present the awards in person at the awards ceremony? \_\_\_\_\_

The awards ceremony will be held on Friday, March 10 (Time TBD) at Ursinus College.

Form should be sent to: Valerie Denny 449 Larchwood Road, Springfield, PA 19064  
or Fax to: Valerie Denny @ 610-667-1286 or email information to mrsdenny2002@yahoo.com