

# *the Catalyst*



**ACS**  
Chemistry for Life™

Official publication of the Philadelphia Section, ACS  
<http://philadelphia.sites.acs.org>

January 2017  
Volume 102, No. 1



**Introducing Our New Chair  
Dr. Deborah H. Cook**

## HIGHLIGHTS

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## ADVANCE NOTICE

### FEBRUARY MEETING

Thursday, February 23, 2017

6:00 – 8:00 PM

**NOTE: This is the fourth Thursday**

**Tour and Tasting at the Philadelphia Distilling Company**

**25 East Allen Street  
Philadelphia, PA 19123**

<https://www.eventbrite.com/e/tour-and-tasting-at-the-philadelphia-distilling-company-tickets-29896664729>

See the FEBRUARY issue of *the Catalyst* for details,  
call the Section Office at (215) 382-1589 or email [PhilaACS@gmail.com](mailto:PhilaACS@gmail.com).

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Published monthly except July, August and December by the Philadelphia Section of the American Chemical Society. All views expressed are those of the editors and contributors and do not necessarily represent the official position of the Philadelphia Section of the American Chemical Society. Editorial matters should be sent to the attention of the Editor-in-Chief c/o the Philadelphia Section ACS, Department of Chemistry, University of Pennsylvania, 231 South 34<sup>th</sup> Street, Philadelphia, PA 19104-6323 or PhilaACS@gmail.com.

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## INTRODUCING OUR NEW CHAIR —Dr. Deborah H. Cook

Dr. Deborah Cook has been a leader in science and mathematics education for over 40 years. During her extensive career, she has worked at all levels of education from K-16 as well as in informal science education settings. After teaching high school mathematics and science, she transitioned to school administration and then to the NJ Department of Education where she was the Science Coordinator for the state. During that time she coordinated the development and adoption of the New Jersey Core Curriculum Content Standards in seven content areas and career readiness. She was then recruited by Rutgers University to direct the New Jersey Statewide Systemic Initiative (NJSSI), an NSF and State funded project to reform mathematics, science and technology education statewide. During that time, the NJ SSI partnership with several state colleges, business and industry received additional grant funding that influenced state educational policy for STEM and provided professional development, technical assistance, and support for most of New Jersey's 600+ school districts. Dr. Cook then went on to become the Vice President for Learning and Teaching at Liberty Science Center. More recently, she has worked as a consultant for the Trenton Public Schools, the Chemical Heritage Foundation, and as an Adjunct Professor at Rider University and Temple University.

Additionally, Dr. Cook serves on many advisory boards and is very active with the American Chemical Society where she has held leadership positions and served on many committees and task forces. At the local level, Deborah was active on the Chemical Education Topical Group, serving as Chair in 1981 and in 1986-1987. She was Section Secretary 1990-1991; and Chair-elect, Chair and Immediate past-chair 2004-2006. Deborah has served as Councilor in 2006-2008, 2011-2019. At the national level she has been a member of the Society Committee on Education (SOCED), 2009-2018, and currently serves as Chair of SOCED Committee A (Pre-college) and chairs a national task force to revise the ACS Guidelines and Recommendations for Middle and High School Chemistry which she also chaired from 2009-2012.

Deborah has a BS in chemistry from the University of the Sciences in Philadelphia and EdM and EdD degrees in science education from Temple University. She has several publications and has been recognized for her work and service with many awards. Deborah lives in Pennington, NJ with her two Maine Coon cats. She enjoys travel, the theater and yoga.

## Comments From the Chair



### Deborah Cook

I am honored to have been elected to serve as Philadelphia Section ACS Chair for 2017, especially since this is my second time serving in this capacity. Much has changed in the approximately 12 years since I was last Chair. Although Philadelphia is the second largest ACS Local Section with approximately 4300 members, our section has lost approximately 1500 members in that time period. This is due in part to the changing regional demographics and also to the overall reduction in National ACS membership. One of my goals for this

year is to increase participation at Section events by developing interesting and relevant programming.

With that in mind I have tried to assemble exciting venues and speakers for 2017. Our January meeting, to be held at the Yardley Inn in Yardley, Bucks County, is a partnership with the ChemPharma Professional Association. Our speaker, Dr. Allen Reitz, is the CEO of the Fox Chase Chemical Diversity Center (FCCDC). Dr. Reitz has had an extensive career in medicinal chemistry in the pharmaceutical industry. Prior to his tenure at FCCDC, he was associated with Johnson & Johnson in Spring House, PA. He is also affiliated with the University of Pennsylvania and with Drexel University School of Medicine. The meeting will include an informal networking opportunity for both ChemPharma and Philadelphia Section ACS members and friends.

Future meetings are listed on the website in the Section calendar and in *the Catalyst*. In February, we will be one of the first groups touring the Philadelphia Distilling Company's new Fish-town facility. The tour includes a tasting of their hand-crafted gin and other specialties. In March, the Edgar Fahs Smith (EFS) Memorial Lecture will be held at the University of Pennsylvania. The EFS Lecture is the oldest named lectureship awarded by any ACS Local Section. In April, Dr. Mary Virginia Orna will be speaking on the *Lost Elements* as we present our Student Scholastic Achievement Awards. In May, Sam Kean, a noted science writer, will be speaking about his book, *The Disappearing Spoon*, as we present our Excellence in Education Awards at CHF to outstanding chemistry educators. I hope you will be able to attend these events.

I would like to close this column by pointing out that the strength of our Section lies with the strength not only of the leadership, but also you, the members. I am joined this year by Dr. Elizabeth Wagoner, Chair-elect; Dr. Rick Ewing, Immediate Past Chair; and returning officers, Dr. David Cichowicz, Treasurer and Mr. Alan Heldon, Secretary. We also have an excellent Board of Directors as well as a slate of Councilors who represent the Section at national meetings. If you can't attend our monthly meetings, please consider attending the many other activities that are coordinated by our Committee Chairs for Career Services, Chemical Consulting Network, Education and Community Outreach, Women's Chemistry, and Younger Chemists. Finally, I invite you to participate in Section activities by volunteering to help on any of the Section's

committees, projects, or outreach programs. I look forward to this year and hope to get to know more of you.

Respectfully, Deborah Cook

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## NEWS ATOMS—*Alan Warren*

### DEATHS

**Jose R. de la Vega**, emeritus professor of chemistry, November 20, 2015 at 90. After obtaining his doctorate at the University of Havana in Cuba, he helped establish the department of instrumental analysis and spectroscopy at the Cuban Institute of Health. In 1950 he joined Virginia Smelting and conducted research on by-products of the sugar industry.

In 1954 he joined the faculty of Villanova University in Cuba as chemistry professor and helped establish the Cuban Institute of Technological Research. In 1961 de la Vega came to Villanova's campus in Pennsylvania where he received the Lindback award for excellence in undergraduate teaching in 1967. Later he was the first recipient of Villanova's outstanding research award.

**Patricia L. Altieri**, research chemist, March 19, 2016 at 88. She was a research biochemist with Walter Reed National Military Medical Center for over 25 years, retiring in the 1980s. Her field of research was proteolytic enzymes.

**Earl W. Lane**, research chemist, April 6, 2016 at 88. He worked at Rohm and Haas on cation exchange resins and nonionic surfactants.

**Donald J. Koestler, Sr.**, retired chemical engineer, May 9, 2016 at 79. He was employed by Rohm and Haas for 40 years and then became an adjunct professor at Drexel University. He was co-founder of the North American Mixing Forum.

**James Edward Cochran, Jr.** No further details available.

**Henry "Hank" Francis Whalen, Jr.**, retired business executive, November 29, 2016 at 81. After working for First National Bank of Chicago and in business development for Rohm and Haas he joined PQ Corporation where he held various management positions including vice president that helped grow the company significantly during his 24-year career with the firm.

Whalen was president and a director of the Chemical Management and Resources Association, and received its award for executive excellence in 1988 and its distinguished service award in 1991. His service to the Commercial Development Association was recognized in 1998 when he was honored with its "Golden C" award. He was active in many other organizations including the Industrial Research Institute, the Council for Chemical Research, the National Association of Corporate Directors, the European Association for Business Research Planning and De-

velopment in the Chemical Industry, and the Asian Chemical Management and Research Association among others.

He also worked tirelessly at the local and national levels of the American Chemical Society. Hank served the Philadelphia Section ACS as publicity chair, public relations chair, director, councilor, and section chairman (1994). For the national ACS he served on and chaired numerous committees and was elected director-at-large 1995-1997 and chairman of the board 1999-2000. He established the Industry Relations Advisory Board to meet the needs of the society's industrial members.

Hank chaired the Division of Business Development and Management and served as councilor for over 16 years. In 2002 the division established the Henry F. Whalen, Jr. award for excellence in development and management within the chemical enterprise, and named Hank as the first recipient. He was a 56-year member of the society and was elected ACS Fellow in 2010.

Hank Whalen supported the Chemical Heritage Foundation and chaired its Joseph Priestley Society for over 15 years.

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## RESULTS OF THE FALL 2016 ELECTION

Chair-Elect:	Elizabeth Wagoner
Treasurer:	David Cichowicz
Directors:	Anne DeMasi Kathleen Thrush Shaginaw Cynthia Palmer Joseph A. Martino II Kathryn Lysko
Councilors:	Deborah Cook Christine McInnis Marge Matthews Judith Currano
Alternate Councilors:	Kathryn Lysko Mark Forman Kathleen Thrush Shaginaw Steven Fleming

Congratulations to our elected officers, directors, councilors and alternate councilors!

**JANUARY MEETING**

Board of Directors Meeting  
Yardley Inn  
4:00 – 5:00 PM

**JOINT PHILADELPHIA SECTION NETWORKING EVENT  
with ChemPharma Professional Association**

**Thursday, January 19<sup>th</sup>**

**5:30 – 8:30 PM**

**Speaker: Allen Reitz,  
CEO, Fox Chase Chemical Diversity Center, Inc.**

**Yardley Inn  
82 E. Afton Ave,  
Yardley, PA 19067**

**Cost \$25  
Student with ID \$12.50**

**<https://www.eventbrite.com/e/january-meeting-tickets-28668132155>**

**Or by contacting section office  
PhilaACS@gmail.com  
(215) 382-1589**



## CALL FOR NOMINATIONS



### **The Philadelphia Section, American Chemical Society AWARDS FOR EXCELLENCE IN PRE-COLLEGE TEACHING**

The Philadelphia Section of the American Chemical Society will honor two outstanding science teachers with its Awards for Excellence in Pre-College Science Teaching. One award will be given to a full-time educator involved in teaching science in grades K-8. The second award will be given to a full-time educator at the secondary level (grades 9-12) who teaches chemistry. Nominees must teach in the Philadelphia Section's geographic area (Philadelphia, Montgomery, Delaware, Chester, Bucks, Burlington and Camden counties).

**Nominations for 2017 will be accepted until February 17, 2017.**

#### **Award for Excellence in Pre-College Teaching Nomination Packet Requirements**

- A **Nominator Recommendation** of not more than 750 words submitted by the nominator according to the guidelines outlined on the Recommendation Form.
- A **current curriculum vitae or resume** that includes a list of the nominee's honors, professional activities, and additional evidence of service to the profession. This must be limited to no more than two pages and the activities listed must have occurred within the past five years.
- A **statement by the nominees** of not more than 500 words that describes the nominee's teaching philosophy or commitment to the profession.
- **At least one, but not more than three, letters of support.** One letter, of no more than 400 words, must be from the teacher's current principal or supervisor. Additional letters of support, of no more than 400 words, may be sent by colleagues, members of the American Chemical Society who are familiar with the nominee's achievements, or former students and parents of former students.

The total nomination package should not exceed 30 pages. The nomination package may be emailed to [PhilaACS@gmail.com](mailto:PhilaACS@gmail.com) or a copy of the nomination materials may be mailed to:

Chair, Awards Committee  
Philadelphia Section, ACS  
Department of Chemistry  
University of Pennsylvania  
Philadelphia, PA 19104-6323

**The award recipient will be honored at our May 2017 Section meeting with a plaque and honorarium.**



## CALL FOR NOMINATIONS



### **Philadelphia Section, American Chemical Society AWARD FOR EXCELLENCE IN UNDERGRADUATE TEACHING IN THE CHEMICAL SCIENCES**

The Philadelphia Section of the American Chemical Society will honor an outstanding undergraduate teacher with its Award for Excellence in Undergraduate Teaching in Chemical Sciences. The award will be given to a full-time educator involved in teaching an undergraduate course in the chemical sciences (chemistry, biochemistry). Nominees must teach in an institution that is within the Philadelphia Section's geographic area (Philadelphia, Montgomery, Delaware, Chester, Bucks, Burlington and Camden counties).

**Nominations for 2017 will be accepted until February 17, 2017.** The nomination should consist of a letter of nomination, the nominee's resume and two letters of recommendation. Other supporting information, such as students' comments, is welcome. The total nomination package should not exceed 30 pages. The nomination package may be emailed to [PhilaACS@gmail.com](mailto:PhilaACS@gmail.com) or the nomination materials may be mailed to:

Chair, Awards Committee  
Philadelphia Section, ACS  
Department of Chemistry  
University of Pennsylvania  
Philadelphia, PA 19104-6323

For more information, please contact the Philadelphia Section, ACS office:  
phone: (215) 382-1589 or email: [philaACS@gmail.com](mailto:philaACS@gmail.com)

**The award recipient will be honored at our May 2017 Section meeting with a plaque and honorarium.**

## CHEMICAL CONSULTANTS NETWORK JANUARY 11, 2017 Meeting

### **THE CHEMISTRY OF WINE AND BEER MAKING**

Dr. Ron Bihovsky & Paul J. Yanisko, M.S.

**DATE & TIME:** Wednesday, January 11<sup>th</sup>, at The Cynwyd Club, Bala Cynwyd, PA  
Networking, 5:30 PM; Dinner, 6:30 PM; Talk and Business Session, 7:30 PM

[Click here to register](#)

**Abstract:** Wine making and beer brewing are important industrial processes which can also be carried out on a smaller scale at home. Grapes are fermented into wine by the action of yeast which converts the sugar of the grapes into ethanol. When beer is brewed, the starch of a grain such as barley must first be converted into sugars before fermentation occurs. The tastes, aromas, and colors of various beers and wines come from compounds present in the grapes, grain, hops, and barrels, as well as metabolites produced during fermentation. Ron and Paul will describe the process and chemistry of wine and beer making, and will provide samples of the results.

**Biographies:** **DR. RON BIHOVSKY**, a medicinal and organic chemistry consultant and founder of [Key Synthesis LLC](#), a custom synthesis company specializing in synthesis of biologically active compounds, also performs experimental work and testifies as an expert witness. He was previously a medicinal chemist in the pharmaceutical and biotechnology industry, and conducted research natural product synthesis in academia. He has been making wine since he was in college.

**PAUL J. YANISKO. M.S.**, is an independent consultant with experience implementing industrial gases technology across the chemical process industries to achieve capacity increase and operating cost reduction at low capital investment and short payback period. Areas of expertise include process safety, process economics, development and commercialization, technology transfer, joint venture operation, and successful work in Asia and Latin America. He began brewing beer while in college.

**Location:** The Cynwyd Club, 332 Trevor Lane, Bala Cynwyd, PA 19004. [MAP DIRECTIONS](#)

**Reservation:** [Click here to register to attend the event](#), or e-mail [CCNReservations@aol.com](mailto:CCNReservations@aol.com) or call the CCN phone number at (877) 326-2959 and leave a message. Fee, including food and beverages (wine, beer & sodas), is \$30 by reservation/cancellation deadline: **Saturday, Jan 7<sup>th</sup>**. Dietary restrictions accommodated on a limited basis. There is no charge for talk only, but registration is suggested using contact information above. If notice received as email, do not reply; use only links or phone.

**2017 OFFICERS AND BOARD OF DIRECTORS****OFFICERS**

CHAIR	Deborah Cook
CHAIR-ELECT	Elizabeth Wagoner
SECRETARY	Alan R. Heldon
TREASURER	David Cichowicz
IMMEDIATE PAST CHAIR	Rick Ewing

**DIRECTORS**

2015-2017	2016-2018	2017-2019
Melissa Cichowicz	Christie McInnis	Anne DeMasi
Victor Tortorelli	James Tarver	Kathleen Thrush Shaginaw
Judith Summers-Gates	Jason Cross	Cynthia Palmer
John (J.P.) Northrop	Ella Davis	Joseph A. Martino III
Judith Cohen	Michael Castaldi	Kathryn Lysko

**COUNCILORS**

2015-2017	2016-2018	2017-2019
Ella Davis	Rick Ewing	Deborah Cook
Melissa Cichowicz	Anne DeMasi	Christine McInnis
Georgia Arbuckle-Keil	Tony Addison	Marge Matthews
John Tierney		Judith Currano

**ALTERNATE COUNCILORS**

2015-2017	2016-2018	2017-2019
Judith Cohen	James K. Murray, Jr.	Kathryn Lysko
James Tarver	Lee Hoffman	Mark Forman
Russ Phifer	Michael Castaldi	Kathleen Thrush Shaginaw
Carol Jean Bruner		Steven Fleming



### Ullyot Public Affairs Lecture

Chair-Elect Deborah Cook with Sir James Fraser Stoddart, 2016 Nobel Laureate in Chemistry, at the Chemical Heritage Foundation.

***ResMed: Residential School on Medicinal  
Chemistry and Biology in Drug Discovery***  
June 12-16, 2017  
Drew University, Madison, NJ

This graduate level course concentrates on the fundamentals that are useful in drug discovery spanning initial target assay evaluation through clinical development. Several case histories of recent successful drug development programs will also be presented. The five-day program covers:

Principles of Med Chem	DMPK
Cheminformatics	Toxicophores
Lead ID & Optimization	GPCRs
Epigenetics	Kinase Inhibitors
Fragment-based Drug Design	Ion Channels
Structure-based Drug Design	Enzyme Inhibitors
Drug-like Properties	Bioisosteres
Plasma Protein Binding	Preclinical Tox
Molecular Modeling	Clinical Dev
Protein-Protein Interactions	Case Histories
Antibody-Drug Conjugates	

**W. Greenlee, V. Gullo and R. Doll –Co-organizers**

*Attendees will be staying at The Madison Hotel*  
[www.drew.edu/resmed](http://www.drew.edu/resmed)  
e-mail: [resmed@drew.edu](mailto:resmed@drew.edu)  
phone: 973/408-3787; fax: 973/408-3504

683<sup>rd</sup> BOARD OF DIRECTORS MEETING  
October 19, 2016  
Drexel University, Philadelphia, PA

Present: David Cichowicz, Melissa Cichowicz, Deborah Cook, Jason Cross, Ella Davis, Anne DeMasi, Rick Ewing, Alan Heldon Christie McInnis, Kathleen Shaginaw, William Smith, Judith Summers-Gates

Excused: Judith Cohen, Cynthia Palmer, Elizabeth Wagoner

Absent: Douglas Hausner, JP Northrup, Tom Straub, James Tarver, Victor Tortorelli

Also present: CJ Bruner, Joe Martino

The 683<sup>rd</sup> Board Meeting of the Philadelphia Section, ACS, was called to order at 4:20 PM. A quorum was present.

Note: Due to technical problems, the Section was unable to log onto the Section's meeting at a distance service by computer. While a telephone log-on was eventually successful, the start of the meeting was delayed by about 20 minutes. Apologies to any members unable to participate because of this delay.

Prior to the beginning of official business, the Secretary Heldon led the meeting in recognizing Chair Elect Cook's excellent research, design and the execution of the *Landmarks in Chemistry* banners created for the Philadelphia Section's hospitality booth at the August National Meeting.

1. Officers

A. Chair, Rick Ewing, [ewingwre@comcast.net](mailto:ewingwre@comcast.net)

- The Chair is working with the Section Administrator preparing the collected print editions of *the Catalyst* for archiving. U. Penn is ready to proceed with this project.
- Various interesting items of memorabilia in the Section office have been identified as suitable for display.
- Working on "Volunteer of the Year" recognition.
- November Meeting at Chemical Heritage Foundation – Ulliot Lecture
- November Younger Chemists Committee event November 15<sup>th</sup> – Bill Carroll, past president ACS.
- December (holiday) Meeting will be in Yardley. A short holiday Board Meeting at 5:00 will precede the meal. The target date is December 8<sup>th</sup>.
- Budget submission deadline is October 24<sup>th</sup>.
- Consensus on "recycling" the Section's old office computer. The old computer was replaced 2-3 years ago but is still in the office.
- Form of voting for councilors was tabled for future discussion.

B. Chair-Elect, Deborah H. Cook, [deborahcook72@gmail.com](mailto:deborahcook72@gmail.com)

- Discussion of 2016 and 2017 Ulliot presentations
- January 19, 2017 Meeting will be at Yardley Inn
  - Joint meeting with ChemPharma Group and Bio Pharma Networking Group (BPNG).
  - Cash bar, dinner pricing is being negotiated
  - Anticipated attendance ~90.
- The High School Student Award package is being changed to confirm with MARM and National. This is being done so that new forms do not need to be completed if the package is sent to MARM and National.
- Advertising of the award and communication procedures are being upgraded.
- The location and theme of the February 2017 Meeting are under consideration.
- Date and location of Younger Chemists Committee's Poster Session have not been determined. March 20, 2017 is possible as is holding it as part of the February Meeting.
- March 2017 Meeting – Edgar Fahs Smith Award – U. Penn.
- April and May Meetings are still under development.

C. Secretary, Alan Heldon, [alan.heldon@live.com](mailto:alan.heldon@live.com)

Brief report on continuing progress of Innovative Project Grant (IPG) project.

D. Treasurer, David Cichowicz, [cichowic@lasalle.edu](mailto:cichowic@lasalle.edu)

The monthly investments summary for 2016 was submitted.

The Section has received the local Section dues from National for the first half of 2016.

The Section is comfortably under budget for 2016.

E. Past-Chair, Bill Smith, [willsmith2@aol.com](mailto:willsmith2@aol.com)

Report deferred. Unavoidably delayed.

## 2. Committees

A. Tellers Committee, Tom Straub, [straub@lasalle.edu](mailto:straub@lasalle.edu)

Chair reporting for Tom Straub, the Section has conducted a thorough outreach to all potential Section Members eligible to vote in the Section fall election.

B. Younger Chemists Committee, Christine McInnis

Younger Chemists Committee event November 15<sup>th</sup> will feature two speakers; keynote speaker will be ACS past president Bill Carroll.

C. Career Services, Joe Martino, [acsphillycareerservices@gmail.com](mailto:acsphillycareerservices@gmail.com)

1) Career Services has made headway this past month in its efforts to program workshops and events for the Section. These include:

- Support by ACS Career Consultant Lori Spangler for a career event at Temple University sponsored by Temple's CST Career Services Department on September 27<sup>th</sup>. This event was well received, with a mix of science majors seeking career advice. Another career event at Temple took place on October 14<sup>th</sup> with support provided by ACS Career Consultant Joe Martino. Similar turnout was observed. Temple's CST Career Services would like to continue the relationship with the Section's Career Services and explore different support opportunities.
- Support for a joint meeting between the ACS Philadelphia Section, the ChemPharma Professional Association and the BioPharma Networking Group (BPNG) is continuing. The event will take place on January 19, 2017 at the Yardley Inn in Yardley, PA. The informal format will feature hors d'oeuvres, networking, introductions of the groups and information on Career Services. A panel discussion will take place, with topic to be determined. Terms for the meeting were submitted to ChemPharma and BPNG by the Section for each group's respective consideration.
- Collaboration between the ACS Philadelphia Section, the ACS Princeton Section and the ACS Trenton Section regarding a multi-section career event continues. This event will be in the format of a panel discussion with a topic to be determined. Career Services has requested assistance for panelists with expertise in the financial and recruiting sectors. The event is tentatively begin considered for April 2017; however, Career Services has expressed concern that there would be multiple conflicts between the Easter and Passover holidays as well as the ACS National Meeting in San Francisco, also scheduled for April 2017. The timing of the meeting will be addressed with the other sections. This event will not be a part of the Section's monthly meeting series, but strictly a Career Services event.

2) In addition to cancelling the November 15<sup>th</sup> Career Club event in support of Philly YCC's career event featuring Bill Carroll, Career Services has also pledged financial support for the November 15th event with Bill Carroll. This financial support is up to \$1,600.00, which represents the total unspent budget for Career Services for 2016. Considering Career Services' willingness to cancel events and financially support this event for the good of the Section, it is the expectation of Career Services and its Chair that funding for Career Services for 2017 be increased, especially considering the number of potential events Career Services is planning for 2017.

D. Education Committee, Bill Smith, [willsmith2@aol.com](mailto:willsmith2@aol.com)

October 2016 Education and Outreach Committee Report:

1. National Chemistry Week Illustrated Poem Contest

- For Grades K-12
- Students write a poem on this year's theme, Solving Mysteries Through Chemistry, and illustrate the poem



- Each non-winning student will receive an “honorable mention” certificate from the section
- Winners of first through third place entries will receive an award certificate and a money prize ranging from 25 dollars to 50 dollars
- The Section’s first place winners will be forwarded to National for possible further recognition

2. The Committee received and distributed 1,250 NCW activity books suitable for all grades; elementary through high school. The distribution went mainly to the United Way of Bucks County for their science program, PAGES, Historic Bristol Day participants, and to Bristol middle and high school.

3. The committee worked with National to establish Solvay in Bristol as a venue for Project SEED for 2017. Solvay will take at least one high school intern this summer for a paid internship. Previous to this, there were no Project SEED venues in the Section’s boundaries. The committee will continue to work to increase the Project SEED venues.

4. Planning for this year’s Philadelphia Science Carnival (April 29<sup>th</sup>) has begun.

E. PAGES<sup>tm</sup>, Kathy Shaginaw, [katt@verizon.net](mailto:katt@verizon.net)

November 5<sup>th</sup> at Chestnut Hill College. Program advancing well.

Approval of the June and September, 2016 Minutes was deferred for e-voting.

There being no additional business before the Board, the meeting was adjourned at 5:01 PM.

Respectfully submitted,

Alan R. Heldon, Secretary, [alan.heldon@live.com](mailto:alan.heldon@live.com)

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## NANOARRAY SNIFFS OUT and DISTINGUISHES MULTIPLE DISEASES

*Diagnosis and Classification of 17 Diseases from 1404 Subjects via Pattern Analysis of Exhaled Molecules*  
*ACS Nano*

Before modern medical lab techniques became available, doctors diagnosed some diseases by smelling a patient’s breath. Scientists have been working for years to develop analytical instruments that can mimic this sniff-and-diagnose ability. Now, researchers report in the journal *ACS Nano* that they have identified a unique “breathprint” for each disease. Using this information, they have designed a device that screens breath samples to classify and diagnose several types of diseases.

Exhaled breath contains nitrogen, carbon dioxide and oxygen, as well as a small amount of more than 100 other volatile chemical components. The relative amounts of these substances vary depending on the state of a person’s health. As far back as around 400 B.C., Hippocrates told his students to “smell your patients’ breath” to search for clues of diseases such as diabetes (which creates a sweet smell). In more recent times, several teams of scientists have developed experimental breath analyzers, but most of these instruments focus on a single type of disease, such as cancer. In their own work, Hossam Haick and a team of collaborators in 14 clinical departments worldwide wanted to create a breathalyzer that could distinguish among multiple diseases.



The researchers developed an array of nanoscale sensors to detect the individual components in thousands of breath samples from patients who were either healthy or had one of 17 different diseases, such as kidney cancer or Parkinson's disease. By analyzing the results with artificial intelligence techniques, the team could use the array to classify and diagnose the conditions. The team used mass spectrometry to identify the breath components associated with the diseases. They found that each disease produces a unique volatile chemical breathprint, based on differing amounts of 13 components. They also showed that the presence of one disease would not prevent the detection of others – a prerequisite for developing a practical device to screen and diagnose various diseases in a noninvasive, inexpensive and portable manner.

# DIRECTORY OF SERVICES

## PROMOTE YOUR PRODUCTS AND SERVICES • ADVERTISE IN THE CATALYST

The Catalyst readership is greater Philadelphia's largest source for chemical and biochemical buyers. The Catalyst reaches more than 5,400 readers each month. It has been estimated that these buyers annually purchase more than \$150,000,000 of:

- EQUIPMENT
- SUPPLIES
- CONSULTING SERVICES

Placing an advertisement in The Catalyst is the lowest cost method of reaching this select audience.

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[www.mboservices.net](http://www.mboservices.net)

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## SURPRISE

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**PHILADELPHIA SECTION, ACS  
CURRENT CALENDAR OF ACTIVITIES**

Date and time	Event	Location
Wednesday, January 11 5:30 – 8:30 PM	Chemical Consultants Network (CCN); Presenters: Dr. Ron Bihovsky & Paul J. Yanisko, MS, <i>The Chemistry of Wine and Beer Making</i>	The Cynwyd Club, Bala Cynwyd, PA <a href="http://chemconsultants.org/event-2396145">http://chemconsultants.org/event-2396145</a>
Thursday, January 12 11:30 AM–2:00 PM	Joseph Priestley Society; Presenter: Robert Margolskee, director and president, Monell Chemical Senses Center: <i>How the Chemical Senses of Taste and Smell Shape Human Health and Nutrition</i>	Chemical Heritage Foundation 315 Chestnut Street Philadelphia, PA 19106 <a href="https://www.chemheritage.org/event/joseph-priestley-society-robert-margolskee">https://www.chemheritage.org/event/joseph-priestley-society-robert-margolskee</a>
<b>Thursday, January 19 5:30 – 8:30 PM</b>	<b>Philadelphia ACS Section Event; Joint Meeting of Philadelphia Section ACS, and the ChemPharma Professional Association. Speaker: Allen Reitz, CEO, Fox Chase Chemical Diversity Center, Inc.</b>	<b>Yardley Inn 82 E Afton Ave, Yardley, PA 19067 <a href="https://www.eventbrite.com/e/january-meeting-tickets-28668132155">https://www.eventbrite.com/e/january-meeting-tickets-28668132155</a></b>
Thursday, January 26 8:00 PM	The GSK lecture at Philadelphia Organic Chemists Club; Prof. Karl A. Scheidt, Northwestern University: <i>Pursuing the Molecular Medicine Potential of Natural Products through Precision Synthesis</i>	University of Pennsylvania Department of Chemistry Carolyn Hoff Lynch Hall Philadelphia, PA <a href="http://www.pocclub.org/">http://www.pocclub.org/</a>
Thursday, February 9 11:30 AM–2:00 PM	Joseph Priestley Society; Presenter: Ray Miller, retired chief business officer, Verdezyne. <i>Growing Sustainably: Lessons Learned in Developing and Launching New Businesses in the Chemical Industry.</i>	Chemical Heritage Foundation 315 Chestnut Street Philadelphia, PA 19106 <a href="https://www.chemheritage.org/event/joseph-priestley-society-ray-miller">https://www.chemheritage.org/event/joseph-priestley-society-ray-miller</a>
<b>Thursday, February 23 6:00 PM – 9:00 PM</b>	<b>Philadelphia ACS Section Event; Tour and Tasting at the Philadelphia Distilling Company</b>	<b>Philadelphia Distilling Company 25 East Allen Street Philadelphia, PA 19123 <a href="https://www.eventbrite.com/e/tour-and-tasting-at-the-philadelphia-distilling-company-tickets-29896664729">https://www.eventbrite.com/e/tour-and-tasting-at-the-philadelphia-distilling-company-tickets-29896664729</a></b>
Thursday, February 23 8:00 PM	Women in Chemistry Lecture at Philadelphia Organic Chemists Club; Presenter: Dr. Erin F. DiMauro, Amgen: <i>Case Studies in Rapid Generation of High Quality Leads Using Structure- and Property-Guided Design</i>	University of Pennsylvania Department of Chemistry, Carolyn Hoff Lynch Hall Philadelphia, PA <a href="http://www.pocclub.org/">http://www.pocclub.org/</a>
Thursday March 16 11:30 AM–2:00 PM	Joseph Priestley Society; Presenter: Rachel King, CEO, GlycoMimetics. Reflections on Building a Biotech Company: The Story (so far!) of GlycoMimetics	Chemical Heritage Foundation 315 Chestnut Street Philadelphia, PA 19106 <a href="https://www.chemheritage.org/event/joseph-priestley-society-rachel-king">https://www.chemheritage.org/event/joseph-priestley-society-rachel-king</a>
Thursday March 16 8:00 PM	Philadelphia Organic Chemists Club Industrial Award; Presenter: Dr. Spencer D. Dreher, Merck: <i>Enabling Modern Catalysis in Drug Discovery and Development: From Collaboration to Chemo-informatics</i>	CAROLYN HOFF LYNCH hall at the Department of Chemistry, University of Pennsylvania <a href="http://www.pocclub.org/">http://www.pocclub.org/</a>
<b>Thursday March 23 6:00 PM.</b>	<b>Edgar Fahs Smith Lecture and Award; Presenter: Peter Rossky, Rice University</b>	<b>University of Pennsylvania Department of Chemistry Carolyn Hoff Lynch Hall Philadelphia, PA</b>

Thursday, April 13 11:30 AM–2:00 PM	Joseph Priestley Society; Noah Clay, director, Quattrone Nanofabrication Facility, School of Engineering and Applied Science, University of Pennsylvania: JPS Symposium, <i>Emerging Companies Based on Inventions at the Singh Center for Nanotechnology of the University of Pennsylvania</i>	Chemical Heritage Foundation 315 Chestnut Street Philadelphia, PA 19106 <a href="https://www.chemheritage.org/event/joseph-priestley-society-noah-clay">https://www.chemheritage.org/event/joseph-priestley-society-noah-clay</a>
Thursday, April 13 8:00 PM	Philadelphia Organic Chemists Club Sigma-Aldrich Student Choice Lecture; Presenter: Dr. Spencer D. Dreher, University of North Carolina at Chapel Hill: <i>New Avenues in Synthesis via Organic Photoredox Catalysis</i>	University of Pennsylvania Department of Chemistry, Carolyn Hoff Lynch Hall Philadelphia, PA <a href="http://www.pocclub.org/">http://www.pocclub.org/</a>
<b>Thursday, April 20 5:00 PM</b>	<b>Philadelphia ACS Section Event; Speaker: Mary Virginia Orna, Professor, The College of New Rochelle: <i>Lost Elements</i>; and Student Scholastic Achievement Awards</b>	<b>TBD</b> <a href="http://www.maryvirginiaorna.net/">http://www.maryvirginiaorna.net/</a>
Saturday, April 22 9:00 AM–1:30 PM	The Philadelphia Area Girls Enjoying Science™ (PAGES) Mini-Conference for 6 <sup>th</sup> Grade Girls	Chestnut Hill College Philadelphia, PA 19118 <a href="http://www.PAGESprogram.org">www.PAGESprogram.org</a>
Thursday, May 18 6:00 PM	Philadelphia ACS Section Event; Speaker: Sam Kean, Science Writer: <i>The Disappearing Spoon</i> ; and Excellence in Teaching Awards	Chemical Heritage Foundation 315 Chestnut St. Philadelphia, PA
Thursday, May 25 8:00 <sup>pm</sup>	The Teva Lecture at Philadelphia Organic Chemists Club; Presenter: Dr. Sean P. Brown, Amgen: <i>Interdiction at a Protein-Protein Interface: Structure-Based Design of Mcl-1 Inhibitors</i>	University of Pennsylvania Department of Chemistry, Carolyn Hoff Lynch Hall Philadelphia, PA <a href="http://www.pocclub.org/">http://www.pocclub.org/</a>