

the Catalyst



ACS Local Section
Philadelphia

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

February 2019
Volume 104, No. 2



February Speaker
Dr. Patrick Y.S. Lam
Distinguished Professor
Baruch S. Blumberg Institute

HIGHLIGHTS

Comments From the Chair	25
News Atoms	26
MARM 2019	31
Calendar of Activities	34

ADVANCE NOTICE

MARCH MEETING
Thursday, March 21, 2019
7:00 – 8:00 PM

Edgar Fahs Smith Lecture and Award
Presenter: Amy Rosenzweig, Northwestern University

University of Pennsylvania
Department of Chemistry
Carolyn Hoff Lynch Hall
Philadelphia, PA

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

the Catalyst

ACS Philadelphia Section

Founded April 15, 1899

STAFF

EDITOR-IN-CHIEF

Robin S. Davis

EDITORS

News Atoms: Alan Warren

Proof Editors: Anthony Addison
Georgia Arbuckle-Keil
Kendra Luther
Corrie Kuniyoshi
Marge Matthews
Alan Warren

ADVERTISING MANAGER

Victor Tortorelli

COMMUNICATIONS COMMITTEE

Chair: Liliana Suárez

Anthony W. Addison
Georgia Arbuckle-Keil
Matthew Bodek
Robin S. Davis
Vince Gale
Alan Heldon
Corrie Kuniyoshi
Kendra Luther
Marge Matthews
Victor Tortorelli
Alan Warren

CONTENTS

March Advance Notice	23
Comments From the Chair	25
ACS Career Consultants	25
News Atoms	26
February Board of Directors Meeting Info	26
February Joint ACS/CNN Meeting	27
Nominations Invited for Section Award	28
Call for Nominations in Pre-College Teaching	29
Call for Nominations in Undergraduate Teaching	30
MARM Meeting	31
Directory of Services	33
2019 Calendar of Activities	34

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 34th Street, Philadelphia, PA 19104-6323 or PhilaACS@gmail.com.

Advertising: Victor Tortorelli, vtortorelli@ursinus.edu

Comments From the Chair



Jim Murray

The Philadelphia region received its first taste of winter weather this past weekend with temperatures plunging to the single digits and wind chills below zero. Those are the things that we can do very little about. At the same time Philadelphia ACS kicked off its 2019 programming with a very insightful presentation by JP Northrop of Edward Jones Investments at the Workhorse Brewery in King of Prussia. JP's talk looked at issues in the current global economy and

what impact that has, or may have, on the chemical industry, especially how it relates to the region covered by the Philadelphia Section. This event was co-sponsored with ChemPharma and the AIChE. It was a well-attended event that brought together a number of professionals from varied backgrounds that are united by a simple theme: chemistry.

The February event is going to be co-sponsored with the Chemical Consultants Network (CCN), one of the Section's topical groups. The speaker will be Patrick Lam, Distinguished Professor at the Baruch S. Blumberg Institute. Many of you in the organic/medicinal chemistry fields will recognize the name Lam from the widely used Chan-Lam coupling reaction. This event will take place on February 13th at the Cynwyd Club in Bala Cynwyd, PA. Please register for the event and pass the word to your friends and colleagues.

At the end of January, Joe Martino (Chair-Elect) and I will attend the 2019 ACS Leadership Institute in Atlanta, GA. Joe and I are looking forward to attending and meeting with other leaders from across the whole of ACS and to share the good things that the Philadelphia section is doing and to learn what other sections and divisions do and bring back ideas to strength the section and its presence within ACS.

Our experiments are underway and it is time to analyze results and plan for the next adventure!

ACS CAREER CONSULTANTS

Would you like to speak to a local ACS Career Consultant? The Philadelphia Section career consultants can provide one-on-one career advice, resume reviews, or mock interviews. Please send an email request to acsphillycareerservices@gmail.com to set up an appointment.

NEWS ATOMS—*Alan Warren*

John Crocker, professor of chemical and biomolecular engineering at Penn was named a Fellow of the American Physical Society.

Marsha Lester, chemistry professor at Penn, received the American Physical Society's Herbert P. Broida prize for her contributions to chemical physics.

DEATHS

Eugene C. Capaldi, research scientist, January 21, 2018 at age 80. He joined Atlantic Refining, later Arco Chemical, in 1963 and was named manager of the toxicology group in 1976. In 1986 he became manager of environmental, health and safety for Arco. He served on the board of directors of the Chemical Industry Institute of Toxicology for 14 years, including 2 years as chairman. He served twice as chairman of the health and safety committee of the American Chemistry Council, and retired from Arco in 1999. He was a 58-year member of ACS.

Ray E. Kuhn, semiconductor scientist, August 15, 2018 at age 90. He was employed by Lucent Technologies and was a 59-year member of ACS.

William R. Brennen, emeritus associate professor of chemistry at Penn, November 9, 2018 at 83. He served on the faculty from 1966 until retirement in 2005.

Robert Joseph Statz, retired polymer chemist, January 2, 2019 at 79. He retired from E.I. du Pont de Nemours in 2001 after a 34-year career. He held several patents and received the DuPont marketing excellence award for the discovery of Elvaloy®.

Philadelphia Section of the American Chemical Society

Board of Directors Meeting

Wednesday, February 13, 2019

3:30 – 5:30 PM

The Cynwyd Club

332 Trevor Lane

Bala Cynwyd, PA 19004

Joint Meeting- ACS Philadelphia Section and Chemical Consultants Network

FEBRUARY 13, 2019 MEETING

DISCOVERY OF A BLOCKBUSTER DRUG AND CHAN-LAM COUPLING REACTION

Patrick Y.S. Lam – Distinguished Professor, Baruch S. Blumberg Institute

DATE & TIME: Wednesday, February 13th 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: Thrombosis is the leading cause of death in developed countries, generating a significant need for novel antithrombotics with an improved safety profile. Utilizing Structure-Based-Drug-Design tools, focused screening, and ADME-T innovations, BMS/DuPont discovered a novel class of potent, selective and orally bio-available Factor Xa inhibitors culminating in **Eliquis® (Apixaban)**, with current annual sales of >\$5B. In 2015, the Eliquis discovery team received the ACS Heroes of Chemistry Award. During the optimization process, they also co-discovered the powerful **Chan-Lam Coupling** reaction of copper promoted C-element bond coupling via boronic acids, a complementary reaction to the Nobel prize-winning Suzuki-Miyaura C-C bond Coupling reaction. At the molecular recognition frontier, they pioneered the first rational use of **halogen bonding in SBDD**.

Biography: Patrick Lam is a distinguished professor at Blumberg and also a **drug discovery consultant**. He received his PhD from the University of Rochester (Dr. Louis Friedrich) and was a postdoctoral fellow at UCLA (Prof. Mike Jung and the late Prof. Don Cram, 1987 Nobel Laureate). He joined DuPont in 1984, moved to BMS in 2001, and retired in 2011 as a director. Patrick's work led to **eight clinical candidates** and was the group leader/co-inventor responsible for the discovery of **Eliquis® (Apixaban)**. He is internationally known as the co-discoverer of the powerful **Chan-Lam Coupling Reaction**. Patrick has 99 publications and 36 patents.

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

Reservation: [Click here to register to attend the event](#). Fee, including dinner and non-alcoholic beverages, is \$30 by reservation/cancellation deadline: **Monday, Feb. 11th, 2019**.

CONSULTANTS - OPPORTUNITY HERE!

PLEASE VISIT <http://www.chemconsultants.org/>

Are You Getting the Benefits of CCN Membership or Event Participation?

THE CHEMICAL CONSULTANTS NETWORK PROVIDES VALUABLE TOOLS FOR MEMBERS BEYOND THE MEETINGS AND NETWORKING. CHECK OUT OUR:

- [Valuable past presentations](#) – including methods and techniques on how to do consulting
- [Consultants' Directory](#) – find consultants who can help you solve your problems & meet your needs
- [Blogs](#) – did you know that chemists & chemical engineers can blog? Yes! On a broad range of subjects of value to all of us...
- [Resources](#) – useful & helpful information and references
- [Join!](#) Most valuable – post your consulting practice information – and have greater visibility!
- If you'd like to speak with one of our members, come to a CCN meeting

**CALL FOR NOMINATIONS
2019 ACS PHILADELPHIA SECTION AWARD**

Notice is hereby given that the ACS Philadelphia Section invites its members as well as Regional and Topical Groups to nominate candidates for the 2019 ACS Philadelphia Section Award.

This Award shall be presented “to one member of the Section, or in exceptional circumstances to two members of the Section jointly, who by conspicuous scientific achievement has/have made important contributions to the field of chemistry and thereby aided the public appreciate of the profession.” (ACS Philadelphia Section Bylaw X, §1.) Any member of the ACS Philadelphia Section may be nominated. Recent awardees include Donna M. Huryn (University of Pennsylvania), Anthony W. Addison (Drexel University) and Marsha I. Lester (University of Pennsylvania).

INSTRUCTIONS FOR SUBMITTING NOMINATION

- 1) Nominators should provide a CV of the nominee showing education; employment and/or academic history; a list of publications, presentations and patents; and a record of other accomplishments pertinent to consideration for this award.
- 2) One or two seconding letters (at least one of which should be from a person in an organization other than that of the nominee) should be requested in support of the nomination.
- 3) Nominators and seconders should be identified with addresses, e-mail and telephone numbers so that they can be contacted, if necessary, for additional information.
- 4) Unsuccessful nominees from previous years may be renominated. In fairness to the nominee, however, renominations must be accompanied by an updating of the nominee’s biographical data and a list of accomplishments in order to make the nomination competitive. Unsuccessful nominees who have been considered three years in a row should not be renominated for the fourth year in succession without prior consultation by the nominator with the Chair of the Awards Committee

Nomination forms are available from the Section office at:

ACS Philadelphia Section
Department of Chemistry
University of Pennsylvania
Philadelphia, PA 19104-6323
(215) 382-1589; e-mail PhilaACS@gmail.com

The completed packet of nomination materials may be e-mailed to PhilaACS@gmail.com or mailed by **April 1, 2019** to the Chair of the Awards Committee at the Section Office address above.



**CALL FOR NOMINATIONS
2019 ACS PHILADELPHIA SECTION**

AWARDS FOR EXCELLENCE IN PRE-COLLEGE TEACHING

Notice is hereby given that the ACS Philadelphia Section invites its members to nominate candidates for the 2019 ACS Philadelphia Section Awards for Excellence in Pre-College Teaching.

The Awards honor two outstanding science teachers. 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 geographic territory of the ACS Philadelphia Section (Philadelphia, Bucks, Chester, Delaware and Montgomery Counties in Pennsylvania, and Burlington and Camden Counties in New Jersey).

Nominations for 2019 will be accepted until February 22, 2019.

INSTRUCTIONS FOR SUBMITTING NOMINATIONS

- 1) A **Nominator Recommendation** of not more than 750 words submitted by the nominator according to the guidelines outlined on the Recommendation Form.
- 2) 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.
- 3) A **statement by the nominees** of not more than 500 words that describes the nominee's teaching philosophy or commitment to the profession.
- 4) 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 ACS who are familiar with the nominee's achievements, or former students and parents of former students.
- 5) **The total nomination package should not exceed 30 pages.**

The nomination package may be e-mailed or sent to:

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

(215) 382-1589; e-mail PhilaACS@gmail.com

The Award Recipient will be honored at our May 2019 Section meeting with a plaque and an honorarium.



**CALL FOR NOMINATIONS
2019 ACS PHILADELPHIA SECTION
AWARD FOR EXCELLENCE IN UNDERGRADUATE TEACHING IN THE
CHEMICAL SCIENCES**

Notice is hereby given that the ACS Philadelphia Section invites its members to nominate candidates for the 2019 ACS Philadelphia Section Award for Excellence in Undergraduate Teaching in the Chemical Sciences.

This award will honor an outstanding, full-time educator involved in teaching an undergraduate course in the chemical sciences (i.e., chemistry, biochemistry). Nominees must teach in an institution that is within the geographical territory of the ACS Philadelphia Section (Philadelphia, Bucks, Chester, Delaware and Montgomery counties in Pennsylvania, and Burlington and Camden counties in New Jersey).

Nominations for 2019 will be accepted until February 22, 2019.

Nominations should consist of the following:

- 1) A letter of nomination.**
- 2) The nominee's resume.**
- 3) Two letters of recommendation.**
- 4) The total nomination package should not exceed 30 pages.**

The nomination package may be e-mailed or sent to the Chair of the Awards Committee at:

ACS Philadelphia Section
Department of Chemistry
University of Pennsylvania
Philadelphia, PA 19104-6323
(215) 382-1589; e-mail PhilaACS@gmail.com

The Award Recipient will be honored at our May 2019 Section meeting with a plaque and an honorarium.



**Hosted by the Maryland
Section of the ACS
May 30th – June 1st, 2019
UMBC, Baltimore, Maryland**

www.MARM2019.org

Major Symposia

Combating the Opioid Crisis with Chemistry
Atmospheric and Environmental Chemistry
Nanotechnology
Spectroscopy and Homeland Security
Photonic Materials
Optimization Methods in Chemistry
Food Chemistry
Outstanding Young Investigators in Organic Chemistry

Undergraduate and Employment Programming

Career Pathways and Resume Review
Panel Discussions: Recent Chemistry Grads Share Their Experiences
Chemistry Jobs - Employers' Perspectives
Challenges for International Chemistry Students and Professionals
A Special Undergraduate Luncheon with Chemistry Trivia and Prizes

Special Women Chemist Committee Programming

Leadership Workshop: Collaborating Across Boundaries
Panel Discussion: Science Policy & Government - A Bridge Between Research and the Public, and a Path for Non-Traditional Chemists

Chemagination a competition for High School Students

Programming for Post-Secondary Educators

Technology in the Undergraduate Classroom
Humanizing Science: The Key Roles of Mentoring and Building Community

Session for Primary and Middle School Teachers

Bringing Forensic Science Back to Your Classroom



The Visible Difference In Laboratory Science Expositions

Join thousands of chemists and scientists from around the world at Pittcon, an all-in-one event offering a high-caliber technical program, skill-building short courses and a dynamic exposition showcasing the latest scientific instrumentation and services. We are proud to have the ACS as a co-programming partner again for Pittcon 2019. Don't miss the ACS Poster Session, Symposia, Awards Lecture and other presentations lead by your fellow members.

Pennsylvania Convention Center | Philadelphia, PA | March 17 - 21 | www.pittcon.org



DIRECTORY OF SERVICES

CAREER DEVELOPMENT

Being a part of one of our teams can help you develop organizational and meeting skills as well as help you to network with people from the largest area companies. Public Relations, such as sending out meeting notices and press releases, can help you to develop a network and help you get noticed!

All committees are looking for new members and several are looking for "take charge" chairs. Some, like the Teller's Committee, involve minimal work—one night per year and pizza provided. Others, like positions on Communications or Social Committees, involve one or two hours per month.

Committee details can be found at:

www.membership.acs.org/p/philadelphia

or by calling the Philadelphia Section Office (215) 382-1589.

Custom Synthesis of Chemicals

Gram to Commercial Production
On-time Delivery, Quality & Competitive Price

TYGER Scientific Inc.

324 Stokes Ave. Ewing, NJ 08638

Phone: 888-329-8990

Email: sales@tygersci.com

SURPRISE

our editor by calling and saying you appreciate the quality and content of our newsletter. Our editor works hard to maintain a publication of interest to our membership. Oh, and by the way you could also give credit to our advertisers who financially support us.

VOLUNTEER

Committees seeking team members

- ✓ Career Services
- ✓ Chemical Health & Safety –
- ✓ Diversity
- ✓ Industrial Relations
- ✓ Legislative Liaison
- ✓ Liaison
- ✓ Membership
- ✓ Planning
- ✓ Public Relations
- ✓ Social
- ✓ Student Affiliate Mentor
- ✓ Awards
- ✓ Continuing Education
- ✓ Natl Chemistry Week
- ✓ Program
- ✓ Publications
- ✓ Tellers
- ✓ Web Page
- ✓ Younger Chemists
- ✓ Women Chemists

Contact the Section Office at

PhilaACS@gmail.com or

(215) 382-1589

Put "Volunteer" in the subject line or leave a message including contact information.



Micron Analytical Services

COMPLETE MATERIALS CHARACTERIZATION
MORPHOLOGY CHEMISTRY STRUCTURE

SEM/EDXA • EPA/WDXA • XRD XRF • ESCA • AUGER • FTIR • DSC/TGA

Registered with FDA • DEA GMP/GLP Compliant

3815 Lancaster Pike Wilmington DE. 19805

E-Mail micronanalytical@compuserve.com

Voice 302-998-1184, Fax 302-998-1836

Web Page: www.micronanalytical.com

ADVERTISING INDEX

ACS	33
Micron Inc.	33
Pittcon 2019	32
Robertson Microlit Labs	33
Tyger Scientific, Inc.	33



Robertson Microlit Laboratories

Where speed and accuracy are elemental

Elemental CHN, S, X, Analysis (same day service)

Metals by ICP-OES, ICP-MS, A/A

FTIR, UV/VIS Spectroscopy

Ion Chromatography

GC-MS

Polarimetry

DSC, TGA, melting point

KF Aquametry, Titrimetry

1705 U.S. Highway 46 • Suite 1D • Ledgewood, NJ 07852 • 973.966.6668 • F 973.966.0136

www.robertson-microlit.com • email: results@robertson-microlit.com

Rapid Results • Quality • Accuracy • Competitive Pricing

Advertising: vtortorelli@ursinus.edu

PHILADELPHIA SECTION, ACS CURRENT CALENDAR OF ACTIVITIES

Date and Time	Event	Location/Information
Thursday, February 7 6:00 PM Dinner 7:00 PM Talk	ACS Delaware Section Meeting co-hosted with UD Women in Chemistry: <i>It takes a Village to Raise a Child: New Product Development in Industry</i> by Christie McInnis (Dow)	University of Delaware Dinner 6:00 PM, Lammot DuPont Laboratory, Room 201 Seminar 7:00 PM, Brown Lab 219 Webpage: https://www.delawareacs.org/
Wednesday, February 13 5:30 PM Networking 6:30 Dinner 7:30 PM Talk & Business Session	Chemical Consultants Network / Philadelphia ACS Joint Meeting: <i>Discovery of a Blockbuster Drug and Chan-Lam Coupling Reaction</i> by Patrick Y. S. Lam (Baruch S. Blumberg Institute)	The Cynwyd Club 332 Trevor Lane Bala Cynwyd, PA 19004 http://chemconsultants.org/
Thursday, February 14 11:30 AM Networking 12:15 PM Luncheon 1:00 PM Program	Joseph Priestley Society Meeting: <i>Material Matters: The Past and Present of the Rare Earth Elements Essential to Our Future</i> by Roger Turner	Science History Institute 315 Chestnut Street Philadelphia, PA 19106 See webpage for details: https://www.sciencehistory.org/event/joseph-priestley-society-luncheon-201902
Thursday, February 28 6:30 PM Social Hour 7:30 PM Seminar	Philadelphia Organic Chemists Club: <i>Stereocontrolled Cationic Cyclizations for Building Complex Molecules</i> by Allison J. Frontier (U of Rochester)	Chemistry Department - University of Pennsylvania Carolyn Hoff Lynch Lecture Hall 34 th and Spruce Streets Philadelphia, PA 19104 http://www.pocclub.org/
Thursday, February 28 3:30 PM – 5:00 PM	Topics in Drug Design Lectures: <i>Physical Properties in Drug Design</i> by Nicholas A. Meanwell (BMS/Baruch S. Blumberg Institute)	Baruch S. Blumberg Institute 3805 Old Easton Road Doylestown, PA 18902
Thursday, March 21 7:00 PM Lecture 8:00 PM Dinner	Philadelphia ACS Section Meeting Edgar Fahs Smith Lecture by Professor Amy Roszensweig (Northwestern)	Chemistry Department - University of Pennsylvania Carolyn Hoff Lynch Lecture Hall 34th and Spruce Streets Philadelphia, PA 19104 See the March <i>Catalyst</i> for details
Monday, April 15 6:00 PM	Philadelphia ACS Section Meeting Student Scholastic Achievement Award Banquet	Widener University See the March <i>Catalyst</i> for details
Please check the individual websites for additional updated information		
All content submissions are due on the 15 th day of the month prior to publication		