

the Catalyst



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February 2015
Volume 100, No. 2



February Meeting
Dr. Amanda Grannas
The Fascinating World of Snow Chemistry

HIGHLIGHTS

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ADVANCE NOTICE

MARCH MEETING

Thursday, March 19, 2015

Edgar Fahs Smith Memorial Lecture
Dr. Benjamin Widom, Cornell University

A Tale of Three Equations: Thermodynamics and Molecular Correlations
University of Pennsylvania

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

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Comments From The Chair



Dr. Bill Smith

We are off and running for 2015! Our Section started the year with a record turn-out for our January 15th meeting hosted by Solvay in Bristol, PA. Dr. Francine Palmer, Solvay's Director of Research and Innovation for North America began the evening with a presentation on Solvay's history of innovation and commitment to sustainability, diversity, and green chemistry. The main speaker, Dr. Amit Sehgal followed up with a wonderful presentation on developing sustainable chemistry practices

and products as an impetus for commercial innovation. He demonstrated how Solvay is working to meet the demand for greener solvent and surfactant formulations in hydraulic fracturing. The presentation included the use of Hansen Solubility modeling, alternative ecofriendly solvents that allow formulation of slurries without the use of glycol ethers, and environmentally friendly microemulsions which make solvents more effective. After the presentation, Solvay scientists took groups on a tour of their facility. It was wonderful to see what is going on in this dynamic environment and have some time with these very enthusiastic chemists!

Our next meeting will be on February 19th at Villanova University. Our featured speaker is Dr. Amanda Grannas who will deliver a presentation entitled: *The Fascinating World of Snow Chemistry (and why you shouldn't eat the yellow snow)*. Amanda has been researching the interesting photochemistry of pollutant molecules found on the surface layers of arctic ice crystals. She is a dynamic and entertaining speaker in high demand and we are pleased that she has accepted our invitation. She has promised to include some of her famous music videos and tell a tale or two.

Thank you for all that you do! For those wishing to get more involved with our Section, my door is always open. willsmith2@aol.com (215) 638-7453

Dr. Francine Palmer, Research and Innovation Director NA, welcoming attendees to the January meeting at Solvay.



FEBRUARY MEETING

**THE PHILADELPHIA SECTION,
AMERICAN CHEMICAL SOCIETY**

presents

Dr. Amanda Grannas

Department of Chemistry
Villanova University

*The Fascinating World of Snow Chemistry
(and why you shouldn't eat the yellow snow)*

East Lounge, Dougherty Hall
Villanova University
800 Lancaster Avenue
Villanova, PA 19085

Thursday, February 19, 2015

6:00 PM

Dinner following the talk

Dinner cost: \$35; Students with ID: \$15

RESERVATIONS should be made by calling Mrs. Libby Harper at the section office, (215) 382-1589, by **5:00 PM** on **Thursday, February 12th**. Cancellations, if necessary, cannot be accepted after **NOON** on **Tuesday, February 17th**. **UNCANCELLED RESERVATIONS WILL BE BILLED.**

PARKING: Main parking lot across Lancaster Avenue from the campus. For map and directions go to www.villanova.edu.

The Board of Directors will meet at 4:00 PM in Room 215A Mendel Science Center.

SPEAKER'S ABSTRACT AND BIOGRAPHY

Dr. Amanda Grannas

Associate Professor of Chemistry, Villanova University

*The Fascinating World of Snow Chemistry
(and why you shouldn't eat the yellow snow)*

Abstract: Recent studies illustrate the previously overlooked importance of snow and ice as reactive chemical media in the environment. It has been shown that snowpack plays an important role in processing atmospheric species such as mercury, nitrogen oxides, alkyl halides, ozone, carbonyl compounds and molecular halogens. Photochemical transformations of anthropogenic organic contaminants in snow and ice have also been observed. The active chemistry occurring in snow and ice can have significant, and sometimes surprising, impacts on the overlying atmosphere and surrounding ecosystems. Although myriad studies have observed active chemistry occurring within irradiated snowpacks, the fundamental mechanisms and processes often remain poorly understood. This talk will focus on the evolution of our understanding of snow/ice chemistry and its impact on the environment.

Biography: Dr. Amanda Grannas, Associate Professor of Chemistry at Villanova University, completed her BS in chemistry and math at Juniata College in Huntingdon, PA. She obtained her PhD in analytical chemistry from Purdue University working with Dr. Paul Shepson. Her thesis work focused on atmospheric and snow/ice chemistry of carbonyl compounds in the remote Arctic, including a 4-month field study in Alert, Canada (82°N latitude). Having fallen in love with field work, Dr. Grannas continued her field-based studies as a postdoctoral researcher at The Ohio State University, working with Dr. Patrick Hatcher (studying black carbon in soils and organic matter in ice cores using high-resolution FTICR-MS techniques) and Dr. Yu-Ping Chin (studying photochemical degradation of pollutants in Arctic surface waters).

She then joined the Villanova faculty in 2005 and has established a thriving research group focused on environmental and atmospheric chemistry and has mentored over 40 research students in her lab to date. She has a diverse range of expertise, and her recent projects include the study of snow and ice photochemistry, the fate of organic pollutants in the Arctic, and the development of advanced analytical techniques used to study ice cores. She is a prominent and internationally known expert in snow chemistry and has participated in a number of field campaigns in both the Canadian and Alaskan Arctic and has included a number of Villanova students in her fieldwork. Dr. Grannas' research has been supported by the EPA, the Camille and Henry Dreyfus Foundation, and the National Science Foundation, including a prestigious Faculty Early Career Development (CAREER) Award from NSF. Additionally, Dr. Grannas was one of seven faculty nationwide to be named a 2013 Henry Dreyfus Teacher-Scholar. She is also the founding Co-Director of the Villanova Center for Energy and Environmental Education.

NEWS ATOMS—*Alan Warren*

Ella Davis has been named vice president of the Committee for Action Program Services – Analytical Training Laboratories. CAPS-ATL is associated with STEMiversity in Milledgeville, GA, which provides STEM training to students in middle school through college as well as to professionals.

DEATHS

Margaret Powell Fisher, 55+ year member of ACS. No further details available.

Melvin Ira Kohan, nylon expert, November 6, 2014 at 93. He edited two books on the nylon plastics industry and received the Lavoisier medal from DuPont for outstanding research. He was a 60+ year member of ACS.

Stephen Arthur Edgerton, chemistry teacher, December 16th at 86. He taught high school science for 41 years at several schools including Westtown, Penn Charter, Willingboro and Moorestown Friends. He headed the science department at some of the schools and received a number of teaching awards as well as the ACS Middle Atlantic regional award in high school chemistry. For many years he was director of Camp Dark Waters, a Friends camp in Medford. Steve's outside interests included photography and woodworking.

Note: News Atoms seeks to report on people in the field of chemistry in the greater Philadelphia area. If you have news about new hires, significant promotions, honors and awards, and those who have recently passed away, send it by email to philcatalyst@aol.com or by mail to the Philadelphia Section ACS.

DELAWARE VALLEY SCIENCE FAIRS

It's not too late! Judging for the Delaware Valley Science Fairs will be starting in early March. Judges and mentors are always needed. Check the website **www.dvsf.org** for more information and to volunteer.

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CALL FOR NOMINATIONS



**The 24th Annual
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 from the Delaware Valley 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 2015 will be accepted until Thursday, February 26, 2015. The nomination package should consist of a letter of nomination, the nominee's resume and at least two letters of recommendation. Other supporting information, such as students' comments, is welcome. However, the total nomination package should not exceed 30 pages. The nomination package may be emailed to PhilaACS@aol.com or a copy of the nomination materials may be mailed to:

Dr. Rick Ewing
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@aol.com

Award recipients will be honored at our May 2015 Section meeting with a certificate and an honorarium.

CALL FOR NOMINATIONS



**The 13th Annual
Philadelphia Section, American Chemical Society
AWARD FOR EXCELLENCE IN UNDERGRADUATE TEACHING IN
CHEMICAL SCIENCES**

The Philadelphia Section of the American Chemical Society will honor an outstanding undergraduate teacher from the Delaware Valley 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 2015 will be accepted until Thursday, February 26, 2015. The nomination should consist of a letter of nomination, the nominee's resume and at least two letters of recommendation. Other supporting information, such as students' comments, is welcome. However, the total nomination package should not exceed 30 pages. The nomination package may be emailed to PhilaACS@aol.com or the nomination materials may be mailed to:

Dr. Rick Ewing
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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@aol.com

The award recipient will be honored at our May 2015 Section meeting with an honorarium and a plaque.

NOMINATIONS INVITED



FOR THE 2015 PHILADELPHIA SECTION, AMERICAN CHEMICAL SOCIETY AWARD

The Philadelphia Section invites its members and regional and topical groups to consider recommending candidate(s) for the Philadelphia Section Award.

This Award recognizes an individual, “who, by conspicuous scientific achievement through research, has made important contributions to man’s knowledge and thereby aided the public appreciation of the profession.” Any member of the American Chemical Society, Philadelphia Section, may be nominated for this award. Recent awardees include: Feng Gai (University of Pennsylvania), Ahmed Abdel-Magid (Therachem Research Medilab), and Marisa Kozlowski (University of Pennsylvania).

INSTRUCTIONS FOR SUBMITTING NOMINATION

- (1) The nominator should provide detailed biographical data of the nominee, showing educational and employment data, a list of publications 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 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 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. Contact the Administrative Secretary, Mrs. Libby Harper at: Philadelphia Section, ACS, Department of Chemistry, University of Pennsylvania, Philadelphia, PA 19104-6323; (215) 382-1589; email PhilaACS@aol.com.

The completed packet of nomination materials may be emailed to PhilaACS@aol.com or mailed by **April 1st** to Dr. Rick Ewing, Chair, Awards Committee, at the Section Office address above.

2014 ACS FELLOW JUDITH SUMMERS-GATES

Judith Summers-Gates was elected as an ACS Fellow on the basis of her dedication to science and dedication to serving the American Chemical Society, at both the Local Section and National levels. Judy received a BS in unified science (biology, chemistry, physics) from Drexel University (1990).

Judy started her career at the Department of Defense's Personnel Support Center as a Physical Science Technician performing physical and chemical testing on virtually every commodity used by the Armed Forces and their dependents. In 1990 she moved to the Food and Drug Administration in Philadelphia, PA where she was an analytical chemist. She distinguished herself as an expert in the isolation and identification of colorants and additives in foods, drugs, cosmetics and medical products. She retired from the FDA in 2014.

In the Philadelphia Local Section some of the offices Judy has held are: Chair-elect (2009); Chair (2010); Past-Chair (2011); Board of Directors (2002-present); Communications Committee (2004-2014); National Chemistry Week Coordinator (2006-2014); PAGESTM (Philadelphia Area Girls Enjoying ScienceTM) classroom presenter (2005-2014); National Meeting Hospitality Committee (2004); ACS Peer Mentor (2000-2014); Mentor to ACS Scholar/Project SEED Student; ACS Speakers Bureau presentations (2002-2014). She served as Board Member of the Delaware Valley Science Council (2002-2010).

Judy's participation at the national level are: Councilor (2010-2012); Alternate Councilor (2004-2009, 2013-2015); Member of the Analytical Chemistry and Professional Relations Technical Divisions; Member of the Committee on Chemists with Disabilities (CWD) (1996-present, Chair (2000-2005, 2009-2011); CWD Liaison to Committee on Minority Affairs and Committee on Community Activities; Member of Joint Subcommittee on Diversity (2005-2012); Member of ACS Presidential Task Force on Implementing the ACS Diversity Reports (2010); Program Review and Advisory Group (2009); and Member of the US Committee for International Year of Chemistry (2011). The following are some of the awards that have been presented to Judy: George Washington Carver Award for promoting science education (2012); Food and Drug Administration Commissioner's Citation (2007); National Louis Braille Award for Service to the Visually Impaired (2005); Food and Drug Administration National Award for EEO Activities (2000); and American Association for the Advancement of Science Resource Directory of Scientists and Engineers with Disabilities (1979-present).

Each year the George Washington Carver and Delaware Valley Science Fairs are held in Philadelphia for grades 4-12. For many years Judy has been a judge at these fairs.

On the ACS website for the 2014 list of ACS Fellows Judy has stated her contribution to the science profession: "Performed extensive peer mentoring and advocacy for under-represented groups in STEM from 1996 to 2014." Her comment about contribution to the ACS community is "Served as a member of the Chemists with Disabilities Committee since 1996 and as its Chair for nine years.

Served as a Councilor, Chair, and Board member of the Philadelphia Local Section and as a member of the ACS Presidential Task Force on Implementing CPT's Diversity Reports."

The above is good indication of why Judy was chosen as one of the 2014 ACS Fellows.

Can eating blueberries really help you see better in the dark?

["Blueberry Effects on Dark Vision and Recovery after Photobleaching: Placebo-Controlled Crossover Studies"](#) *Journal of Agricultural & Food Chemistry*

Blueberries are super stars among health food advocates, who tout the fruit for not only promoting heart health, better memory and digestion, but also for improving night vision. Scientists have taken a closer look at this latter claim and have found reason to doubt that the popular berry helps most healthy people see better in the dark. Their report appears in ACS' *Journal of Agricultural & Food Chemistry*.

Wilhelmina Kalt and colleagues note that studies published decades ago provided the first hints that blueberries might improve people's night vision. Later lab experiments appeared to shore up these early findings. For example, anthocyanins, which are pigment molecules in blueberries and other plants, encourage the regeneration of key molecules in the eye involved in perceiving light. But reviews of the earlier clinical research that tested the effect of blueberries on night vision in human subjects revealed that the studies were poorly controlled. Kalt's team wanted to revisit the matter with a new set of carefully designed experiments.

The researchers found that a blueberry-supplemented diet did not improve sight in the dark, but they did help subjects recover normal vision after exposure to a bright light. The enhancement, however, was small and not likely noticeable to most healthy people, the researchers concluded. But they added that anthocyanins might improve visual health among people who have existing eye disorders, though this remains to be demonstrated with well-designed studies.



**CHEMICAL CONSULTANTS NETWORK
FEBRUARY 11, 2015 MEETING**

Introduction to Industrial Biotechnology and Renewable Chemicals

Dr. Keith Wing

[Click here to register](#)

Date and Time: Wednesday, February 11, at The Cynwyd Club, Bala Cynwyd, PA; Networking, 5:30 PM; Dinner, 6:30 PM; Talk and Business Session, 7:30 PM.

Abstract: We live in a petro and natural gas world and this makes sense. However, for a number of reasons, society needs to invest/research sustainable ways to make chemicals such as from agricultural residues/feedstocks, and industrial biotechnology provides the key toolsets for this. Biotechnology already plays a critical, profitable role in the discovery and manufacture of pharmaceuticals and specialty chemicals. This talk will briefly review the concepts, approaches and general state of the art to make compounds such as organic acids, alcohols, polyols, olefins etc. which play important roles as industrial chemicals, monomers, life and food science constituents etc. There is an ongoing drive in the chemical, biotech and genomics arenas to decrease costs, create good businesses and to make intelligent use of feedstocks in a manner that is environmentally sustainable.

Biography: Keith Wing is a currently a consultant in industrial biochemistry and strategic planning, specializing in Ag and renewable chemical markets. He worked for 7 years at Rohm and Haas and 21 years at DuPont in both agrochemical discovery and DuPont Central Research and Development. His PhD is from UC Riverside/Davis and he did his post-doc at UC Berkeley. He has worked on teams which have led to six commercialized insecticides with novel modes of action, a commercialized food pathogen kit and a biomass degradation enzyme mix currently in bioethanol pilot plants. He is a co-inventor on a number of insecticide and enzyme biotechnology patents and publications, and has led/worked on teams which successfully discovered novel products which maximize user benefit/cost and provide practical business outcomes. He has a strong interest in economic approaches to sustainable chemistry such as from agricultural residues and currently consults in this area.

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

Reservation: [Click here to register to attend the event](#), or e-mail CCNReservations@aol.com or call the ACS office at (215) 382-1589 (leave message on voicemail if necessary). Fee, including food and beverages (wine, beer & sodas), is \$25 by reservation/cancellation deadline: Saturday, February 7th.



Younger Chemists Committee Annual Poster Session

Hosted by the American Chemical Society and the Younger Chemists Committee Philadelphia Section

Tuesday, March 31, 2015 5:30 – 8:30 PM
Athletic Recreation Center, University of the Sciences
Bobby Morgan Arena
897 S. 43rd St., Philadelphia, PA

Call for Abstracts

For more information or to submit an abstract visit www.PhillyYcc.org or contact
Renee Harris at rharris1004@gmail.com

Registration Deadline is March 1, 2015



**Younger Chemists
Committee**

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ResMed: Residential School on Medicinal
Chemistry and Biology in Drug Discovery
June 7-12, 2015
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

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

For more information and application forms:
www.drew.edu/resmed
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**PHILADELPHIA SECTION, ACS
2015 CURRENT CALENDAR OF ACTIVITIES**

Date	Event	Locations
Monday, Feb. 9	Delaware Valley Mass Spectrometry Discussion Group: Carmen Fernández-Metzler, Bonnie Baker, Victoria King and Richard C. King, PharmaCadence Analytical Services: <i>Chemoplexing: LC-MS Quantification for Systems Biology</i>	Room 115 Mendel Hall Villanova University Villanova, PA http://science.widener.edu/svb/msdg/
Wednesday, Feb. 11	Chemical Consultants Network: Dr. Keith Wing: <i>Introduction to Industrial Biotechnology and Renewable Chemicals</i>	The Cynwyd Club Bala Cynwyd, PA www.chemconsultants.org
Monday, Feb. 16	American Institute of Chemical Engineers: Robert C. Fry, DuPont Economist's Office: <i>Economic Outlook 2015</i>	Crowne Plaza -- Wilmington North Claymont, DE http://aiche-philadelphia.org/events
Thursday, Feb. 19	Amanda Grannas, Villanova University: <i>The Fascinating World of Snow Chemistry (and why you shouldn't eat the yellow snow)</i>	East Lounge, Dougherty Hall Villanova University Villanova, PA
Tuesday, Feb. 24	The Chromatography Forum of the Delaware Valley: Ronald E. Majors, LC-GC No. America: <i>Top 10 HPLC/UHPLC Column Myths</i>	D'ignazio's Towne House Media, PA http://www.cfdv.org
Thursday, Feb. 26	Philadelphia Organic Chemists Club: Neil K. Garg, University of California Los Angeles: <i>Total Synthesis of Indole Alkaloids</i>	Chemistry Building, University of Penna. Philadelphia, PA http://www.pocclub.org/
Thursday, March 19	Edgar Fahs Smith Lecture: Benjamin Widom, Cornell University: <i>A Tale of Three Equations: Thermodynamics and Molecular Correlations</i>	Chemistry Building University of Pennsylvania Philadelphia, PA
Tuesday, March 31	Younger Chemists Committee Annual Poster Session	University of the Sciences Philadelphia, PA www.PhillyYcc.org
Thursday, April 16	Undergraduate Scholastic Achievement Awards	McCall's Meeting and Conference Center Upper Darby, PA
Saturday, April 18	Philadelphia Girls Enjoying Science Program for Sixth Grade Girls (PAGES™)	Chestnut Hill College Philadelphia, PA www.pagesprogram.org
Thursday, May 21	Philadelphia Section Teaching Awards	TBA
Thursday, June 18	Luncheon Honoring Our Fifty-year Members	TBA

**249th ACS Spring National Meeting
March 16-20, 2015
Dallas, TX**

**250th ACS Fall National Meeting
August 16, 2015
Boston, MA**