



Pittsburgh Section

The Crucible



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Pittsburgh Section of the American Chemical Society

Election Results for the 2010 Slate of Officers

In accordance with the Bylaws of the ACS – Pittsburgh Section, Nick Tsarevsky (chair), Joe Jolson (secretary), and Rob Mathers (secretary-elect) met on October 27, 2009 and counted the ballots cast for the 2010 slate of officers. The official election results are summarized below:

Chair-elect:
Heather Juzwa

Secretary-elect
Michelle Blanken

Treasurer-elect
Emanuel Schreiber

Director (3-year term)
Christina Mastromatteo
Mordecai Treblow

Director (1-year term)
Toby Chapman

Councilor
Rich Danchik

Alternate Councilor
Joseph Jolson

**Happy
Holidays**



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Society for Analytical Chemists of Pittsburgh



January Meeting

Monday, January 11, 2010

8:00 PM

Duquesne University

Laura Falk Hall

“Nanostructure-Enabled Electronic Diagnostic Devices”

Shana O. Kelley, Ph.D.
University of Toronto, Canada

Abstract: The analysis of panels of molecular biomarkers offers valuable diagnostic and prognostic information for clinical decision making. Robust, practical platforms that detect low levels of biomolecules (< 1000 copies) are urgently needed to advance medical care by diagnosing and predicting the progression of cancer and other disease states. Electrochemical methods providing low cost and direct biomarker read-out have attracted a great deal of attention for this application, but have, to date, failed to provide clinically-relevant sensitivity. We hypothesized that controlled nanostructuring of electrode surfaces could promote surface accessibility and enhance capture rate and efficiency to solve this long-standing problem, and recently showed that the nanoscale morphologies of electrode surfaces control their sensitivities. In addition, we have worked towards integrating nanomaterials-based electrodes into a chip-based platform to facilitate multiplexed analysis in a robust, practical format. Our efforts to use this platform to detect nucleic acid and protein biomarkers in clinical samples to develop tests for infectious disease diagnosis, oncological management and pharmacogenetic/pharmacoproteomic profiling will be featured in this lecture.

Biography: Dr. Shana Kelley obtained her Ph.D. at the California Institute of Technology in Chemistry in 1999 and her B.A. *summa cum laude* from Seton Hall University in 1994. After a NIH postdoctoral fellowship at Scripps Research Institute, she began her independent career in 2000 at Boston College, was promoted directly to Full Professor in 2006, and moved that same year to University of Toronto. She is currently the Director of the Division of Biomolecular Sciences in the Faculty of Pharmacy, and a Professor of Chemistry, Pharmaceutical Sciences, and Biochemistry.

Shana's interdisciplinary research efforts are directed towards developing new technologies for biosensing using techniques and approaches that involve aspects of biological, analytical, organic, and materials chemistry. In particular, her group uses electrochemical methods to create new platforms for biomolecular detection. Most recently, her group has focused on the use of nanomaterials as sensor elements for multiplexed analysis systems.

Dr. Kelley has been recognized for her contributions with several awards. She was named one of “Canada's Top 40 under 40” just this past year. She has also been recognized with the Pittsburgh Conference Achievement Award, an Alfred P. Sloan Research Fellowship, a Camille Dreyfus Teacher-Scholar award, a NSF CAREER Award, a Dreyfus New Faculty Award, and was also named a “Top 100 Innovator” by MIT's Technology Review. Kelley was a co-founder of GeneOhm Sciences, a molecular diagnostics company acquired in 2006 by Becton Dickinson.

Dinner Reservations: Please email Julie Theys, Arrangements Co-Chair at theysj@pittcon.org, by Thursday, January 7, 2010 to make dinner reservations. Should you not have email, please call Julie at 814-563-7236. Dinner will cost \$8 (\$4 for students) and checks can to be made out to the SACP. If you have any dietary restrictions, please let Julie I know when you leave message.

Parking: Duquesne University Parking Garage entrance is on Forbes Avenue. Upon entering the garage, you will need to get a parking ticket and drive to upper floors. Bring your parking ticket to the dinner or meeting for a validation sticker. Contact Dr. Mitch Johnson at Duquesne University if any difficulties arise.

ACS Energy Technology Group

Tuesday, December 1, 2009

The FutureGen Project

**Speaker: Steve Winberg, Vice President
CONSOL Energy Inc.**

Spaghetti Warehouse, 26th & Smallman Streets
Strip District, Pittsburgh PA
Free parking behind the restaurant
Social Hour 6:00 pm
Dinner 6:30 pm
Talk 7:30 pm.

FutureGen is a >\$2 billion public-private partnership to build the first-of-its-kind coal-fueled, near-zero emissions power plant in Mattoon, IL. It will use cutting-edge technologies to generate 275 MW of electricity while capturing and permanently storing carbon dioxide in the Mt. Simon deep saline formation. The integration of these technologies is what makes FutureGen unique. Researchers and industry have made great progress advancing technologies for coal gasification, electricity generation, emissions control, carbon dioxide capture and storage, and hydrogen production. But these technologies have yet to be put together and tested at a single plant - an essential step for technical and commercial viability.

Steve Winberg is CONSOL Energy's Vice President for Research & Development, and Coal Conversion & Power Development. Steve has 30 years of experience in the energy industry, ranging from power generation equipment design and installation to use of innovative fuels. Steve is Chairman of the FutureGen Industrial Alliance Board of Directors. He has worked on a variety of emerging energy initiatives including carbon capture and sequestration, coal-to-liquids, greenhouse gas reduction technology, fluidized bed combustion, emulsified fuels, fuel cells and coal-water slurry applications.

CONSOL Energy is a multi-energy producer of coal, gas and electricity. CONSOL produces both high-Btu coal and gas, the two fuels that collectively fuel two-thirds of all U.S. power generation, from reserves located mainly east of the Mississippi River.

For reservations, please call Al Mann by Monday, November 30, 2009 at 412-661-5947 or by email at alfred.mann@verizon.net

The cost of the dinner is \$16 including tax and gratuity.
Please specify your preference from the following menu choices:

- Spaghetti with meatballs
- 15-layer lasagne
- Four-cheese manicotti
- Fettuccini Alfredo
- Grilled chicken Caesar salad

Also indicate special needs such as vegetarian, gluten-free, etc.

Pittsburgh Section ACS Younger Chemists Committee

First Annual Holiday Party

**Join the YCC for a tasty
tour of the new
Hofbräuhaus with Ed,
the Brewmaster!**

**Tuesday,
December 1, 2009**

Hofbräuhaus
2705 South Water Street,
Pittsburgh, PA 15203

6:00 - 9:00 p.m.
Tour is 30 minutes

**Who Should Attend?
Chemists and Aspiring
Chemists 35 and under
and their guests**

Those in the YCC can do the tour for free, but their guests will be \$5.00 each.

People under 21 are welcome to attend the tour, but they are not welcome to taste the beer!

Following the tour, all are welcome and encouraged to attend a group dinner – Dutch style (separate checks)!

RSVP: by November 27 to Travis Sefzik, tsefzik@gmail.com or on our Facebook page!



SPECTROSCOPY SOCIETY OF PITTSBURGH



January Meeting, January 20, 2010

Duquesne University, Mellon Hall of Science
(Laura Falk Hall)

“Detection of Chemical, Biological and Explosive Agents Using Raman Spectroscopy”

Steven Christesen, Ph.D.

Edgewood Chemical and Biological Center

6:00 PM - Social Hour; 6:30 PM - Dinner, City View Cafe,
8:15 PM - Technical Program

The Laser Standoff Detection Branch at the Edgewood Chemical Biological Center (ECBC) has an active research program on the application of Raman spectroscopy to the detection of hazardous materials including chemical, biological, and explosive agents. Included in these efforts are the measurements of the wavelength dependence of the Raman scattering signal for chemical agents and explosives, the application of spatially offset Raman spectroscopy for detecting and identifying subsurface contamination, Raman chemical imaging of fingerprints contaminated with explosives, surface-enhanced Raman chemical imaging for identification of bacteria, and the development of SERS analytical and spectroscopic figures of merit in support of the DARPA SERS S&T Fundamentals Program. The talk will cover each of these topics, but with an emphasis on the application of normal Raman spectroscopy to the standoff detection of chemical and explosive surface contamination.

Bio: Dr. Steven Christesen is a research scientist at the US Army Edgewood Chemical Biological Center in Edgewood Maryland and has over 25 years of experience in the spectroscopic detection of chemical and biological agents. He received a BS in chemistry from the College of William and Mary and a Ph.D. in physical chemistry from the University of North Carolina. Dr. Christesen is a lead scientist on the application of Raman spectroscopy and surface-enhanced Raman spectroscopy to the detection of chemical and biological agents, including the detection of agents in water and the UV Raman detection of agents on surfaces. Dr. Christesen helped pioneer the Army's fielded application of Raman spectroscopy to the identification of chemical agents in sealed glass containers. He has over 60 publications on these and other related topics as well as over 40 presentations at scientific conferences including invited talks at Pittcon and FACSS. Dr. Christesen is a member of the Society of Applied Spectroscopy, and the Optical Society of America, and he has chaired 5 SPIE symposia on optical sensors for chemical and biological detection.

Dinner Reservations: Please email Carolyn Benga at crbssp@yahoo.com or call (412) 487-0915 to make dinner reservations **NO LATER THAN FRIDAY, January 15, 2010**. This month's entrée will be Prosciutto Stuffed Chicken Breast served over Linguini w/ Marinara Sauce. Minestrone soup will begin the meal and Cheesecake with Raspberry Sauce will be served for dessert. Dinner will cost \$8 and checks can be made out to the SSP. If you have dietary restrictions, please let Carolyn know when you RSVP.

Parking Instructions: The Duquesne University Parking Garage is located on Forbes Avenue. Upon entering the garage, receive parking ticket and drive to upper floors. Pick up a parking chit at the dinner or meeting. If any difficulties arise, contact Dr. Mitch Johnson at Duquesne University.

Past Pittsburgh Section Chair Alexander Lowy Remembered

Alexander Lowy was born in Hungary on March 31, 1889 and came to the United States of America with his parents on September 14, 1901. After being brought up in New York City, he earned a Ph.D. in chemistry from Columbia University. In 1918, he became an assistant professor of organic chemistry at the University of Pittsburgh. In 1921, until his death in 1941, he was a full professor of organic chemistry at the University of Pittsburgh. Professor Lowy was active in the American Chemical Society (ACS) and the American Electrochemical Society. He started the Chapter of Sigma Alpha Mu Fraternity at Pitt in 1919 and went on to become their National Scholarship Chairman. In 1927 and 1928, he served as chair of the Pittsburgh Section of the ACS.

During his career, over 50 of the students that Alexander Lowy mentored made contributions to the chemical field. He was responsible for 100 publications including 70 journal articles, 15 books, and 15 patents. His journal articles included several in Science and the Journal of the American Chemical Society. He co-authored Introduction to Organic Chemistry and its companion guide, A Laboratory Manual of Organic Chemistry. His areas of expertise included coal combustion, dyes, and explosives.

Eventually, the Alexander Lowy Memorial Seminar Room in Clapp Hall will be moved to Room 307 Eberly Hall. Additional information on Alexander Lowy can be found at www.alexanderlowy.com.

*Contributed by Joseph Jolson
and Guy Berry*

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Well No. 19

Well No. 19 (q.v.) sits there pumping, pumping, pumping. The clap---clap---clap of its engine is letting us know “I’m still here.” And still there it is, a hundred feet from the shore of Moraine State Park, just north of Pittsburgh.

The Energy Technology Group was introduced to Well No.19 Engine House & Pumping Station on Sunday, October 18 following arrangements made by Al Mann. Ten members and guests drove the 45 miles from Pittsburgh to be treated to a “private” tour by guides Tom Downing and Ned Stokes, who volunteer their time educating visitors in the history of how Pennsylvania Crude was pumped from the late 19th century through the early 20th century from the Muddy Creek Oil Field. The well was drilled to a depth of 974 feet, where oil-bearing sandstone was encountered. Eighty quarts of nitroglycerine were lowered into the narrow hole and “shot” to “open” the sandy soil for oil flow. Well No. 19 was drilled in 1932 and produced oil for more than 30 years. The well is now operated during demonstrations only and oil drawn is reintroduced into the ground.

Well No.19 is located in the Barr Tract at Muskrat Cove on the shore of Lake Arthur Moraine State Park, Butler County, near the Forestry & Regional Park Office. Access is via US 422.

A Bessemer gas engine, with gas originally supplied from a nearby gas well, provides belt-driven power to the well-head pumping jack. The engine, built in 1913, has an 8 ½ - inch diameter piston with a 15-inch stroke, producing about 15 hp. This is a rare opportunity to see a working oil well and associated pumping equipment from the early days of the petroleum industry.



Hundreds of small oil wells dotted the landscape from Titusville - where Drake’s Well is located -- to Pittsburgh. Upwards of 200 wells, pumping anywhere from 25 to 900 barrels per day, dotted the area.. Lake Arthur and Moraine State Park filled in Muddy Creek Valley in 1966 when the lake was formed and the park built. Well No. 19 was preserved as a relic of the local Pennsylvania oil boom and is still operating for demonstration purposes. Access [http://](http://www.muddycreekoilfield.com/)

www.muddycreekoilfield.com/ or call 724-368-8811 for more information. The site is open certain days and hours.

This is an excellent opportunity to observe a pumping operation, especially in view of possibly one of the most critical energy/environmental issues facing the State of Pennsylvania: how to balance the drilling for Marcellus shale - oil and gas - with the environment. Allegheny National Forest, just North of Moraine, is one of the most - if not the most - heavily drilled federal public lands anywhere. It is a veritable pincushion of drill pads, storage tanks, roads, clearcuts and holding ponds. Unfortunately, the balance of energy and the environment will be one of the most divisive issues of the future.

The snacks made by Sibyl Treblow, Mordecai’s wife, rounded out a perfect autumn afternoon.

Submitted by Tom Ruppel

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Spectroscopy Society of
Pittsburgh

Technology forum

Wednesday
January 20, 2010

James R. McCarville
Port of Pittsburgh
Commission

“Technology, Innovation
and Economic
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Crucible Deadline

The deadline for items submitted to *The Crucible* is the 1st of the month prior to publication.

For example, all items for the January 2010 issue must be to the editor by December 1, 2009.

The Crucible

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Pittsburgh Area Calendar

Tuesday, December 1

Pittsburgh Section ACS Younger Chemists Committee

First Annual Holiday Party

Hofbrauhaus, 2705 South Water St., Pittsburgh, PA

Tuesday, December 1

ACS Energy Technology Group

The FutureGen Project

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Spaghetti Warehouse, 2601 Smallman St, Pittsburgh

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Society for Analytical Chemists of Pittsburgh

"Nanostructure-Enabled Electronic Diagnostic Devices"

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Duquesne University, Laura Falk Hall

Wednesday, January 20

Spectroscopy Society of Pittsburgh

Technology Forum

"Technology, Innovation and Economic Development on the Waterways"

James R. McCarville, Port of Pittsburgh Commission

"Detection of Chemical, Biological and Explosive Agents Using Raman Spectroscopy"

Steven Christesen, Ph.D., Edgewood Chemical and Biological Center
Duquesne University, Mellon Hall of Science (Laura Falk Hall)

*Additional chemistry related seminars and events in the Pittsburgh area can be found
on the Pittsburgh Section's website at <http://membership.acs.org/P/Pitt>*