



## 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](mailto: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 coauthored *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](http://www.alexanderlowy.com).

*Contributed by Joseph Jolson  
and Guy Berry*

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