Spectroscopy Society of Pittsburgh November Meeting

Duquesne University – Bayer Learning Center (Pappert Hall)

Wednesday – November 16, 2011

Technology Forum Speaker's Presentation **5:30PM**
Social Hour **6:00PM**
Dinner in the City View Café (6th Floor) **6:30PM**
Business Meeting **8:00PM**
Technical Program Speaker's Presentation **8:15PM**

Deadline for Dinner Reservations **11/11/11**
On-line Reservations or Call Jenna Sabot at (412) 825-3220 ext 212

TECHNOLOGY FORUM - 5:30 PM
Clay Morgan, University of Pittsburgh

"Connecting Through Culture: Engaging Gen Y in the 21st Century"

The challenges of 21st century attention spans are changing the way traditional communication has worked. Many educators and leaders struggle to connect with up and coming students and workers who are more disconnected than ever before. Understanding the world of these millenials and how they've been conditioned is critical if we hope to find common ground with them in reality. Simply trying to squeeze these minds into the old way of doing things is no longer effective. Effective communication requires somehow entering into the world of those you wish to reach. One way to relate with this generation is through the culture they live and breathe. Tapping into their passion creates energy from which we can make connections and ignite discussion. We can access a plugged in world by using the very culture that competes with us for their diminishing attention.

Bio
Clay Morgan is a teacher, writer, and speaker from Pittsburgh, Pennsylvania. He is an adjunct professor of history, politics, and research at the University of Pittsburgh, Community College of Allegheny County, and the University of Phoenix. He's also been a freelance writer for the past decade and often writes about life and culture. Some of his recent work has appeared in *PopMatters*—an international magazine of cultural criticism—as well as in the *Pittsburgh Post-Gazette*. Clay also does a variety of work on the web including educational consulting activities centered on classroom management, student engagement, and bridging the gap between leaders and students. A "generational translator," he loves talking about using culture to connect with students.

TECHNICAL PROGRAM - 8:15PM
Professor Garon Smith, Department of Chemistry University of Montana

"Honey Bees: Flying Chemical Detectors"

Domestic honeybees (*Apis mellifera*) offer the potential of using free-flying organisms to search wide areas for the presence of toxic contaminants, explosives, landmines and dead bodies. As bees perform normal foraging, they may bring back residues of toxic substances that are bioavailable in a "passive search mode". This will be illustrated through the use of honeybees to find hazardous air pollutants (HAPs), toxic heavy metals and radionuclides in passive search experiments at Aberdeen Proving Ground, MD. A more powerful use of the honeybees is gained by conditioning them with scented sugar-syrups to conduct an "active search" for compounds of interest to the military. Video clips will demonstrate how the training is accomplished as well as present results of conditioning trials that show honeybees serve as real-time detectors for the TNT-family explosives at low pptr to ppq levels. This use is analogous to search dogs, except that a colony of bees can be trained in just a few hours, does not require a leash and will not set off any mines. During DOD-supervised field trials at the Southwest Research Institute in San Antonio, TX, honeybees yielded a 98.7% detection rate of plumes in the 0.7 – 13.0 ppt range with less than 1% false positive and false negative responses. Subsequent tests have pushed thresholds an order of magnitude lower. Bees will be shown as they are tracked by lidar techniques at an experimental mine field at Ft. Leonard Wood, MO. A plot of bee densities across the test grid was essentially identical to those derived from traditional instrumental techniques. I will introduce our newest use

of honeybees – searching for buried bodies by olfaction. Finally, as a humorous footnote, I will offer a video clip that follows bees through a maze in which they respond positively to the University of Montana "Griz" logo and avoid that of our rival Montana State University "Bobcats".

Bio

Garon Smith received his B.A. degree in Environmental Biology from the University of Colorado at Boulder in 1973 and his Ph.D. in Applied Chemistry from the Colorado school of Mines in 1983. He has previously served on the faculties of Colorado School of Mines, Colorado College and SUNY College at Fredonia. At The University of Montana in Missoula since 1991, Dr. Smith teaches the first half of the introductory chemistry sequence for applied science majors as well as upper division and graduate courses in analytical and environmental chemistry, honors seminars and the science of science fiction films. Since 1992, Dr. Smith has been the chemist for the University of Montana's well-publicized Bee Alert Project. Bee Alert uses honeybees to perform environmental sampling and to "sniff out" buried landmines and hidden explosive caches. While with the project, he held a Visiting Scientist position at the DOE Oak Ridge National Laboratory. Each May, in the guise of G. Wiz (short for Garon the Wizard), he performs feats of chemical magic for hundreds of grade school and high school students around the state. In 2004 he was voted UM's Most Inspirational Teacher by graduating seniors and received an Innovative Excellence in Teaching, Learning and Technology at the 15th International Conference on Teaching and Learning. UM President Dennison awarded him the Montana Faculty Service Award in 2006. He was honored in 2008 as Montana Professor of the Year by the Carnegie Foundation for the Advancement of Teaching and the Council for the Advancement and Support of Education. He accepted his award at a congressional reception in Washington DC. Garon's other research involves environmental applications of mass spectrometry, 3-D fluorescence spectroscopy, artificial neural networks and theoretical modeling of aqueous equilibrium chemistry. He has helped formulate biodiesel from vegetable oil, followed dispersion of pulp mill odors in mountain valleys and investigated the chemical nature of respireable particulates from sources such as forest fires, motor vehicles and snowflakes.

Dinner Reservations:
Please register on-line at http://www.pittcon.org/misc/societies/ssprsvp.php to make dinner reservations NO LATER THAN FRIDAY, November 11, 2011. This month's entrée is San Francisco Chioppino with Sourdough Toast. Dinner will cost $8 and checks can be made out to the SSP. If you have dietary restrictions, please indicate them 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.