



Spectroscopy Society of Pittsburgh February Meeting

Duquesne University – Mellon Hall (Laura Falk Lecture Hall)

Wednesday – February 20, 2013

Technology Forum Speaker's Presentation **5:30PM**

Social Hour **5:30PM**

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 2/15/13

TECHNOLOGY FORUM – 5:30PM

Bill Sarris, Sarris Candies

“Chocolate Making Process”

He will speak about chocolate, the different types, how they are made, how they taste and why they taste the way they do. There will be a variety of different types of chocolate for tasting as he speaks about each variety.

Bio

William Frank Sarris was born in Canonsburg, PA in 1953. As a graduate of Canon McMillan High School he had expectations of entering the field of medicine. He continued his education at Washington & Jefferson College in Washington, PA until graduating in January 1975 with a degree in chemistry. Because of the early graduation, he had the opportunity to teach chemistry and physics at Upper St. Clair High School.

In 1976 Bill was married to his high school sweetheart, Jamie. They have two daughters, Athena and Candace and two Grand Children Landen and Lucca. Both daughters are involved in both Sarris Candies and Gardners Candies. A 1977 trip to Germany to purchase chocolate equipment moved Sarris Candies into the fundraising business and retail chocolates that we see today. From 1978 through 1996 Sarris Candies has seen nine major expansions and additions.

The mail order catalog was developed in 1980 as a means of letting customers purchase chocolate who lived too far away to visit the Canonsburg location. By 1982 the opportunity to offer Sarris Chocolates through card stores, grocery stores and specialty stores became a reality. Since then Sarris Candies is available throughout the tri-state area and beyond in over 1200 locations.

In 1995 Sarris Candies entered the cyber stage with the development of an internet site. This gave Sarris the opportunity to expand their market to a global clientele and ship chocolate worldwide.

In 1997 Bill Sarris acquired Gardners Candies in Central Pennsylvania. Since Sarris Candies had no more room to expand, the purchase was necessary to increase Sarris production as well as reestablish Gardners Candies as an entity in Central Pennsylvania.

In 2010 with the passing of Frank Sarris, father and founder of Sarris Candies, Bill has taken the experience and expertise handed down from his father to continue the legacy of Sarris Candies.



TECHNICAL PROGRAM – 8:15 PM

Dr. Vittal Yachandra, University of California, Berkeley

“Where Water is Oxidized to Dioxygen: Structure of the Photosynthetic Mn₄Ca Cluster From X-Ray Spectroscopy”

Oxygen, that supports all aerobic life, is abundant in the atmosphere because of its constant regeneration by photosynthetic water oxidation, which is catalyzed by a Mn₄CaO₅ cluster in photosystem II (PS II), a multi subunit membrane protein complex. X-ray and other spectroscopy studies of the electronic and geometric structure of the Mn₄CaO₅ cluster and the changes as it advances through the intermediate states at cryogenic temperatures have been important for understanding the mechanism of water oxidation and these results will be summarized. Although the structure of PS II and the catalytic intermediate states have been studied intensively over the past several years, an understanding of the sequential chemistry of light absorption and water-oxidation requires a new approach beyond the conventional steady state crystallography and X-ray spectroscopy at cryogenic temperatures. The femtosecond X-ray pulses of the free-electron laser (XFEL) allows us to outrun X-ray damage at room temperature, and the time-evolution of the photo-induced reaction can be probed using a visible laser-pump followed by the X-ray-probe pulse. XFELs can be used to simultaneously determine the light-induced protein dynamics using crystallography and the local chemistry that occurs at the catalytic center using X-ray spectroscopy under functional conditions. Given the role of PS II in maintaining life in the biosphere and the future vision of a renewable energy economy, understanding the structure and mechanism of the photosynthetic water oxidation catalyst is an important goal for the future.

Bio

Vittal Yachandra received his B.Sc. and M.Sc degrees in Chemistry from Loyola College, University of Madras, and the Indian Institute of Technology at Kanpur. In 1975 he moved to the U.S. and received his M.S. from the University of Chicago, and his Ph.D. from Princeton University in 1982, working with Prof. Thomas Spiro on resonance Raman spectroscopy of iron-sulfur proteins and X-ray spectroscopy of Zn and Co carbonic anhydrase. Photosynthetic water oxidation and the Mn₄Ca catalytic cluster became his research interests, when he moved as a postdoctoral fellow to the Melvin Calvin Laboratory at the Lawrence Berkeley National Laboratory in 1982, where he became a Staff Scientist in 1985. Since then his research focus has been the use of X-ray spectroscopy and EPR to study the Mn₄Ca water-oxidizing catalyst in photosynthesis. His recent interests are in studying artificial photosynthetic inorganic water-oxidizing catalysts, and the use of femtosecond X-ray laser facilities to study the time-evolution of photosystem II in natural photosynthesis to capture the intermediate states of the catalytic reaction. He is presently a Senior Scientist in the Physical Biosciences Division at the Lawrence Berkeley National Laboratory at Berkeley.



Dinner Reservations:

Please register on-line at www.ssp-pgh.org to make dinner reservations NO LATER THAN FRIDAY, February 15, 2013. This month's entrée is Pan Roasted Rib-Eye Steak. Dinner will cost \$8 and checks can be made out to the SSP. If you have any 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.