



## **SEPTEMBER MEETING**

**Wednesday, September 9, 2015**



**DUQUESNE  
UNIVERSITY**



in Pittsburgh

5:30 PM	Social Hour _____	Student Union – City View Café (6 <sup>th</sup> Floor)
6:30 PM	Dinner _____	Student Union – City View Café (6 <sup>th</sup> Floor)
7:30 PM	Student Affiliate Meeting _____	Student Union – Room 609
7:40 PM	Business Meeting _____	Mellon Hall of Science – Laura Falk Hall
8:00 PM	Technical Meeting _____	Mellon Hall of Science – Laura Falk Hall

**Deadline for Dinner Reservations: Wednesday, September 2, 2015**

**[ONLINE RESERVATION FORM](#)**

### **TECHNICAL PROGRAM – 8:00 PM**

**Stephen G. Weber, Ph.D.**

Professor and Director of Graduate Studies

Professor of Clinical Translational Science

University of Pittsburgh

### **“Design and application of analytical measurement systems using capillary liquid chromatography for online analysis of neurochemical processes.”**

Two related research projects will be described which are dedicated to making measurements in an awake rat's brain or cultured brain slices that require consideration of the “sample” and the measurement as a single unit. One is the determination of neurotransmitters, dopamine and serotonin, in specific areas of the rat brain. Such measurements have been made for decades by microdialysis sampling followed by quantitation by high performance liquid chromatography or HPLC. The limitation has been speed: typical data rates are 10 – 20 minutes per sample. This is not fast enough understand many important events occurring in the brain. By using capillary liquid chromatography to accommodate sub-microliter samples we have been able to improve the measurement speed to one minute per sample revealing unexpected phenomena.

While small molecule neurotransmitters have a specific function to carry a signal, neuropeptides have a variety of functions in the brain. While the production of neuropeptides and their interactions with receptors on neurons has been the focus of much attention, the fate of peptides in the extracellular space has been less studied. A method has been developed to determine the activity of enzymes, ectopeptidases that hydrolyze neuropeptides in the extracellular space of cultured brain slices. The method reveals for the first time significant differences in the activity of certain ectopeptidases that inactivate enkephalins in different brain areas. A major effort is underway to improve the throughput of this measurement by investigating multiple ectopeptidases at the same time. This has led us to the development of “temperature-assisted focusing” in capillary liquid chromatography. It improves sensitivity and chromatographic resolution without significant effort.

**BIOGRAPHY:** **Stephen Weber** received his BA with dual majors, Chemistry and Biology, from Case-Western Reserve University, in 1970. He did undergraduate research in gas chromatography with Dr. Irving Sunshine in the Forensic Toxicology group at the Cuyahoga County Coroner's Office. He then enlisted in the U.S. Navy. After Hospital Corps School at the Great Lakes Naval Station he was recruited to the clinical lab at the Naval Hospital there where he, among other things, helped to establish a drug analysis lab. He went to the University of Maryland in 1974 to work with Prof. William Purdy, an early pioneer in bioanalytical chemistry. Following Prof. Purdy to McGill, he received his PhD in Chemistry in 1979 for developing an electrochemical immunoassay using an electrochemical detector. He began his independent career in 1979 at the University of Pittsburgh in the Department of Chemistry where he is today Professor and Director of Graduate Studies and Professor of Clinical Translational Science. The research of Steve's graduate students and postdocs has encompassed electroanalytical chemistry as well as separations including microextractions, molecular recognition, capillary electrophoresis and liquid chromatography. He has over 200 publications and has given nearly 250 invited presentations on his research group's work. He has served on the Editorial Board of *Analytical Chemistry* for a three-year term and is currently on the Editorial Board of Trends in Analytical Chemistry and the Journal of Chromatography A. Recent awards include the Pittsburgh Award of the ACS (2008), the University of Pittsburgh Provost's Award for Excellence in Mentoring (2012), the Palmer Award from the Minnesota Chromatography Forum (2015), and the Dal Nogare Award of the Chromatography Forum of the Delaware Valley (2016)



**DINNER RESERVATIONS:** Please complete the [Online Dinner Reservation Form](#) NO LATER THAN Wednesday, September 2, 2015. The form is also located under the Meeting Notice on website [www.sacp.org](http://www.sacp.org). Should you not be able to access the form, please call 412-825-3220, ext 204 for Valarie Daugherty, SACP Administrative Assistant to make your dinner reservation. The entrée choice for September is Meatloaf with Mushroom Gravy (No pork contained in the meatloaf). Please let us know if you have any dietary restrictions. Dinner will cost \$10 (\$5 for undergraduate students). Checks can be made payable to either the SACP.

**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. Should any difficulties arise, please contact Duquesne University.