



Society for Analytical Chemists OF PITTSBURGH



NOVEMBER MEETING

Monday, November 3, 2008
8:00 p.m.

Duquesne University
Laura Falk Hall

Dinner: City View Café (6th Floor)



MILTON L. LEE, PH.D.

H. TRACY HALL PROFESSOR OF ANALYTICAL CHEMISTRY
BRIGHAM YOUNG UNIVERSITY

**"Analytical Separation Techniques
Utilizing Axial Force Gradients"**



5:30 PM	Social Hour.....	Student Union – City View Café (6 th Floor)
6:30 PM	Dinner.....	Student Union – City View Café (6 th Floor)
7:30 PM	Student Affiliate Meeting.....	Mellon Hall – Room 410
7:40 PM	Business Meeting.....	Mellon Science Building – Laura Falk Hall
8:00 PM	Technical Meeting.....	Mellon Science Building – Laura Falk Hall

ABSTRACT:

Gradient focusing separation techniques involve at least one force gradient that compresses analyte bands as they move along a separation column or channel. In thermal gradient gas chromatography (TGGC), a temperature gradient from high to low temperature is applied along the column, which causes the chromatographic peaks to become narrower than observed in conventional GC because the leading edges of the peaks are always at lower temperature (lower velocity) compared to their respective trailing edges. Using a moving thermal gradient, analytes can be separated and eluted at their respective optimum isothermal temperatures. A similar focusing effect is observed when capillary electrophoresis (CE) is conducted in an electric field gradient along the separation channel from high to low field. This technique, called field gradient electrophoresis (FGE), causes analyte bands to compress in width because the leading edges of the bands are always at lower field (lower mobility) compared to their respective trailing edges. If a hydrodynamic counter-force is applied in FGE, the net force draws an analyte species to its unique equilibrium point where the net force is zero. This technique, called electric field gradient focusing (EFGF), has been shown to concentrate trace proteins by over 15,000 fold.

BIOGRAPHY:

Milton L. Lee received a B.A. Degree in Chemistry from the University of Utah in 1971 and a Ph.D. in Analytical Chemistry from Indiana University in 1975. Dr. Lee spent one year (1975-76) at the Massachusetts Institute of Technology as a Postdoctoral Research Associate before taking a faculty position in the Chemistry Department at Brigham Young University, where he is presently the H. Tracy Hall Professor of Analytical Chemistry. Dr. Lee is an author or co-author of over 500 scientific publications. Since 1980, he has given over 700 presentations on various aspects of his research, of which approximately one-third were invited lectures at major conferences and symposia. He is a member of the Scientific Committee for the International Symposia on Capillary Chromatography.

Dr. Lee is best known for his research in capillary separations and mass spectrometry detection. Following is a partial list of scientific awards that he has received for his achievements in research and professional activities: M.S. Tswett Chromatography Medal (1984), Keene P. Dimick Chromatography Award (1988), American Chemical Society Award in Chromatography (1988), Martin Gold Medal (1996), M.J.E. Golay Award (1998), American Chemical Society Award in Chemical Instrumentation (1998), Dal Nogare Award (1999), Eastern Analytical Symposium Award for Achievements in Separation Science (1999), the California Separation Science Society Award (2005), and the Pittsburgh Conference Analytical Chemistry Award (2008).

Professor Lee is also an entrepreneur and has been involved in transferring technology from his university research laboratory to the private sector. He has co-founded three analytical instrument companies, the most recent of which is Torion Technologies, which is commercializing hand-portable gas chromatograph-mass spectrometers. He is listed as a co-inventor on 20 issued or pending patents.

DINNER RESERVATIONS:

Please email Larry Senor, Arrangements Co-Chair at senor@pittcon.org, by Thursday, October 30, 2008 to make dinner reservations. Should you not have email, please call Larry at 724-327-4428. If you want to be placed on the permanent dinner list, let Larry know when you RSVP. The entrée for November is Roast Turkey and Stuffing with Cranberry Sauce. Dinner will cost \$8 (\$4 for students) and checks can be made out to the SACP. If you have any dietary restrictions, let Larry 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.