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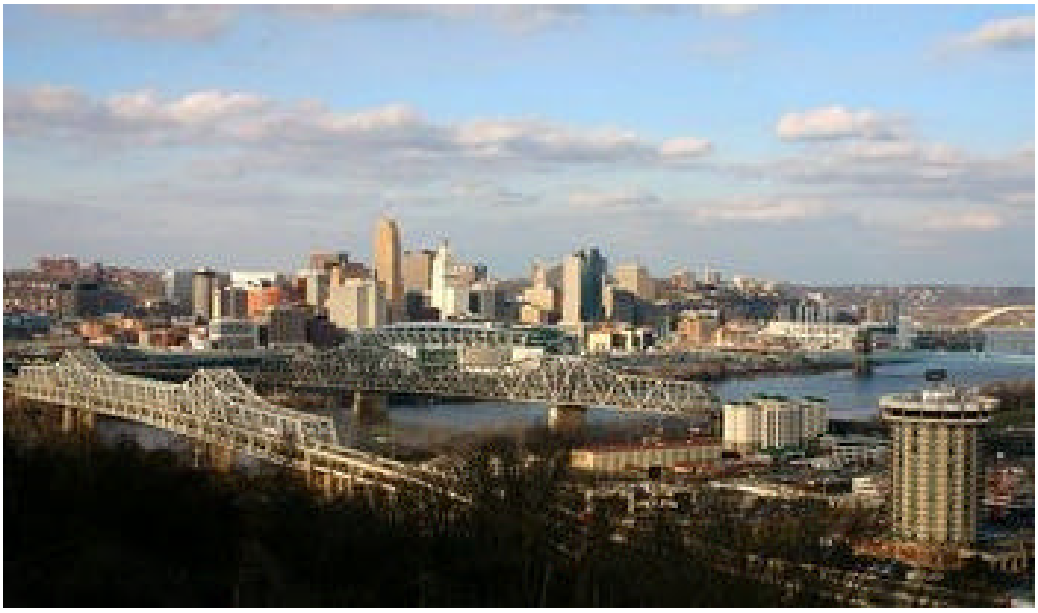
AES Newsletter



Inside this issue:

Many thanks to our Sponsors for contributions funding the 2005 meeting.

Bio-Rad Laboratories

CBS Scientific

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GE HealthCare

Kendrick Labs

Nonlinear Dyanmics

Procter & Gamble

Syngene

Our traditionally strong meetings, with sessions chaired by invited plenary speakers discussing state-of-the-art topics, would simply not be possible without funding from sponsors. These donations are greatly appreciated.

We also thank NIH for travel grant support.

Cincinnati - which Winston Churchill called America's most beautiful inland city, is ranked in the top ten by Fortune magazine, home to over 36,000 university students, bisected by the harmonious Ohio river and ... *starting October 31, 2005 will host the American Electrophoresis Society Annual Meeting.* **Cincinnati, here we come…..!**

News from our Meeting Organizers

We're proud to say that this meeting is looking very good. To summarize:

- The 2005 AES meeting will include 3 sessions (8:00 am, 12:30 pm and 3:30 pm) on Mon-Wed and 2 sessions (8:00 am and 12:30 pm) on Thurs. The enclosed program grid gives the complete schedule. Biosketches of the *nine* plenary speakers are presented on pages 2 and 3.
- An NIH travel grant for $10,000 has been distributed in the form of 21 individual travel grants awarded to students and postdocs in the amount of $476 each.
- Posters will remain up for the duration of the meeting, from Monday morning through Wednesday evening. A poster reception will be held on Tuesday evening at 6 pm, with hors d'oeuvres provided by GE Healthcare. Two drink coupons are enclosed for each member (cash bar for others).
- Don't forget the AES Banquet on Wed evening at the Bella Restaurant.

See you in Cincinnati!

Adrienne

Victor

For talk abstracts go to: http://aiche.confex.com/aiche/2005/techprogram/D1021.HTM

Mark Molloy — Director Biomedical Proteomics, Australian Proteome Analysis Facility, Sydney, Australia

I obtained my Ph.D. in Prof. Keith Williams' laboratory at the Australian Proteome Analysis Facility (APAF) at Macquarie University, Sydney, Australia. Here I developed novel methodologies for separating bacterial membrane proteins by 2-DE. These techniques included sequential extraction based on protein solubility and carbonate extraction (Molloy et al., *Electrophoresis* 1998, **19**, 837-844; Molloy et al., *Eur. J. Biochem.* 2000, **267**, 2871-2881). These methods are generally regarded as state-of-the-art, having been adopted widely following commercialisation by Bio-Rad Laboratories. I undertook post-doctoral studies with Prof. Philip Andrews at the University of Michigan Medical School to learn mass spectrometry before joining the proteomics group at Pfizer in Ann Arbor, MI. My recent research is focused on applying quantitative proteomic techniques for biomarker discovery in human health. I direct the biomedical projects at APAF and have research activities in proteomic sample preparation, TGF-beta cancer biology, phosphoproteomics and chemical proteomics. *Monday, 10/31/05 8:00 am Session TA006*

Anup K. Singh — Biosystems Research Dept, Sandia National Laboratories, Livermore, CA

Anup K. Singh, Ph.D. is a Principal Member of Technical Staff at Sandia National Laboratories in Livermore. He received his doctorate from North Carolina State University and his bachelor's degree from Indian Institute of Technology, Bombay, both in Chemical Engineering. He joined Sandia in 1995 and has led multiple projects relating to biosensing, clinical diagnostics and proteomics. His current research interests include application of microfluidic technology for clinical diagnostics and bioagent detection; development of single-cell analysis platforms for understanding host-pathogen interaction; and developing proteomics methods for identifying protein complexes in bacteria. He leads a group of >20 scientists and manages research projects over $5M per year. He has published over 40 scientific papers, presented over 50 talks at national and international conferences, and his inventions have led to multiple patents.
Monday, 10/31/05 8:40 am Session TA006

Hsin-Yao Tang — Molecular & Cellular Oncogenesis Program, The Wistar Institute, Philadelphia, PA

Dr. Hsin-Yao Tang received his Ph.D. from the Institute of Molecular and Cell Biology, Singapore. He subsequently moved to the Wistar Institute in Philadelphia for postdoctoral training in Dr. David Speicher's proteomics research group. In 2004 he was promoted to Staff Scientist, and in 2005 was appointed Manager of the Proteomics Research Mass Spectrometry Laboratory. He is also the lead investigator of the biomarker discovery team in the research group. His major research interest is in serum proteomics as it relates to development of more efficient protein profiling methods to identify novel serological diagnostic markers of cancers. He has recently developed a powerful serum protein profiling strategy utilizing multi-dimensional separation modes. His method is highly effective in identifying low abundance serum proteins, as demonstrated in the Human Proteome Organization's Plasma Proteome study published recently. He is currently using this multi-dimensional profiling strategy to identify potential biomarkers of human melanoma.
Monday, 10/31/05 12:30 pm Session TA001

Bradley Jarrold — Procter & Gamble Pharmaceuticals, Cincinnati, OH

In 1998 I received a Master of Science degree from The Ohio State University where I studied the temporal expression and spatial localization of the proteoglycan decorin during the development and progression of atherosclerosis and heart failure. Following graduation I spend a year at the Children Hospital Research Foundation in Cincinnati where my work focused on the characterization of a lysosomal acid lipase knockout mouse whose phenotype mimics that of a human cholesterol ester storage disease known as Wolman disease. For the past five years I have been working in the field of proteomics at Procter & Gamble Pharmaceuticals, where we utilize two dimensional gel electrophoresis as our main proteomic platform technology. Over the last couple of years we have conducted several proteomic studies using muscle tissue with some success. However, the dynamic range of protein expression in muscle has posed a challenge to detecting and analyzing low level proteins of interest. As expected, the contractile apparatus proteins (actin, myosin, and tropomyosin) tend to mask other proteins, decrease resolution, and inhibit optimal protein loading. My presentation will focus on methods to deplete muscle tissue lysates of these highly abundant structural proteins, there by allowing access to lower abundant more biologically relevant proteins.
Monday, 10/31/05 3:15 pm Session TA002

Gordon Anderson — Environmental Molecular Sciences Lab, Richland, WA

Since joining PNNL in 1983, I have specialized in the areas of microcomputer based data acquisition, developed various high-speed computer interfaces and worked in the area of robotics. I have applied these skills to FTICR mass spectrometer based proteomics research both in the areas of instruments development and automated data analysis. My lab focuses on serving the NIH-supported biomedical research community by developing and integrating new proteomic technologies for collaborative and service studies, disseminating the new technologies, and training scientists in their use. One project is aimed at the development of new quantitative approaches for cancer research involving Fourier transform ion cyclotron resonance mass spectrometry based on high mass measurement accuracy and multiplexed MS/MS measurements. Another biomedical project involves the application of advanced analytical methods to study the molecular basis of cancer at the proteome level. *Tuesday, 12:30 pm Session TA004*

Joel Bader — Biomedical Engineering Dept, Johns Hopkins University, Baltimore, MD

Dr. Joel S. Bader is an Assistant Professor in the Biomedical Engineering Dept at the Johns Hopkins University and a member of the High-Throughput Biology Center at the Johns Hopkins School of Medicine. Prior to joining Johns Hopkins, Dr. Bader worked for CuraGen Corporation in New Haven and Paris, most recently as Director of Bioinformatics. Dr. Bader's research focuses on two areas: 1. Mapping biological networks and pathways. Recent work includes a genome-scale experimental map of protein-protein interactions in Drosophila and a map of gene associations from genetic screens in yeast. Work in progress, in collaboration with CuraGen includes a disease-centric map of human protein interactions. 2. Algorithm development. We are developing new computational and theoretical approaches to analyze biological networks. These include graph theoretic models, probabilistic models, and dynamical models of network structure and function. In addition, we are working to develop computational methods to predict transcriptional regulatory networks on a genome scale. *Tuesday, 1:45 pm Session TA004*

Bruce Gale — Biomedical Microfluidics, University of Utah,

Dr. Gale, Director of the Utah State Center of Excellence for Biomedical Microfluidics and an Assistant Professor of Mechanical Engineering at the University of Utah since 2001, has been working in the area of microfluidics and micro-total-analysis systems (μ-TAS) for the past decade. His interests include lab-on-a chip devices that require a variety of microfluidic components for the completion of complex and challenging medical and biological assays. These components fall into 3 broad categories: sample preparation, sample separation or analysis, and detection. His work has recently involved micromachined particle separation systems and detectors, microarray manufacturing methods, and sensors related to these applications. Specifically, he is working to develop a microfluidic toolbox for the rapid design, simulation, and fabrication of devices with medical and biological applications. The ultimate goal is to develop platforms for personalized medicine, which should allow medical treatments to be customized to the needs of individual patients. *Wednesday, 8:00 am Session TA005*

David Ross — NIST

David Ross received his B.S in Physics from Caltech in 1992, and Ph.D. in low temperature physics from the University of California Irvine in 1996. After postdocs at the École Normale Supérieure in Paris and at NIST, he took a permanent position at NIST in 2001. He is the co-inventor of the temperature gradient focusing technique for simultaneous concentration and separation of samples in microfluidic systems. His current research focus is on the further development of the temperature gradient focusing technique as well as other novel microfluidic separation techniques. *Wednesday, November 2, 2005 12:30 pm Session TA008*

Minami Yoda — Dept of Mechanical Engineering, Georgia Institute of Technology,

Minami Yoda joined the Georgia Institute of Technology in 1995, and is currently an Associate Professor in the G. W. Woodruff School of Mechanical Engineering. She received her B.S from Caltech, and her M.S. and Ph.D. from Stanford University, and has spent time at both the Technical University of Berlin, Germany and the Delft University of Technology, the Netherlands. Her current research interests are in micro- and mesoscale transport, electro-osmotic flows (EOF), optical diagnostics and hindered Brownian diffusion. Over the last four years, her group has used total internal reflection fluorescence microscopy (TIRM) to measure colloidal particle velocities within about 300 nm of the wall in EOF of aqueous electrolyte solutions. Their most recent results for near-wall mobility are consistent with the velocity deficit predicted by theory within the electric double layer. She is currently an Associate Editor for Experiments in Fluids, and will serve on the 2005–06 Defense Science Study Group of the Institute for Defense Analyses. *Thursday, November 3, 2005 8:00 am Session TA010*

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Electrophoresis past, present and future

Results of AES Councilor Elections

Three positions were open for elections, the Secretary and two councilors seats and three members volunteered to run, so voting is unnecessary. We are once again lucky that our applicants, tapped by the council, are of the highest caliber. Their biosketches are below. They will be formally approved at the Cincinnati meeting in November.

Sheldon Engelhorn Mr. Engelhorn co-founded NOVEX in 1987, a biotechnology research tools company. During his tenure at NOVEX he held a number of senior management positions, including Vice President R&D, Executive Vice President Corporate Development, President and CEO. NOVEX achieved 35M in annual sales prior to its merger with Invitrogen in 1999. Mr. Engelhorn began his career at the University of California, San Diego, as a Staff Research Associate in the Metabolic Disease Division of the UCSD medical school. He has multiple publications in chromatography and electrophoresis and holds a number of patents, including patents on NOVEX's key technologies. He currently serves as Chairman for IO-Informatics (www.io-informatics.com).

Sheldon Engelhorn
New Councilor
November 2005

Robert 'Bob' Marchmont, Ph.D., Marketing Director, Gene & Protein Discovery, GE Healthcare. Has over twenty five years experience in sales, marketing and business development, mainly in the protein chemistry / proteomics arena. He was co-founder of Biometra UK in 1990 and then Phoretix International 1992. He joined the Board of Nonlinear Dynamics in 1993 and held a number of senior management positions over the next 8 years. He joined Scimagix Inc in California as Business Area Director, Proteomics, involved in sales, marketing and product development of their proteomics software platform. In March 2005, Bob returned to the UK and is currently Global Marketing Director for the 2D Labeling and Detection portfolio of GE Healthcare's Gene & Protein Discovery group. This includes responsibility for GE Healthcare's complete 2D product range including the Ettan 2D-DIGE platform and their Life Sciences Imaging sector. Dr. Marchmont received his Ph.D. in Biochemistry from the University of Manchester Institute of Science and Technology, UK in 1981, and his B.Sc. in Biochemistry in 1977. He was a post-doctoral research fellow for the UK Cancer Research Campaign 1981-1983.

Bob Marchmont
New AES Secretary
November 2005

Cornelius (Neil) Ivory received his B.S. in chemical engineering from the University of Notre Dame (1974) and a Ph.D. in chemical engineering from Princeton University (1980). Following a tour as 'Visiting Scientist' in the bioseparations branch of NASA's Marshall Space Flight Center in Huntsville, Alabama, he moved to academia and presently teaches in the chemical engineering department at Washington State University. His major research interests are in biological separations via electrophoresis and electrochromatography. Recent work has included use of microfluidic chips for protein separations.

Neil Ivory
New Councilor
November 2005

Average Cincinnati weather for November 1-7:
High 60° F, Low 39° F