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Foreword

The *28th International Symposium and Exhibition on High Performance Liquid-Phase Separations and Related Techniques* (HPLC 2004) was held on 12–18 June 2004 in the Pennsylvania convention center in Philadelphia, Pennsylvania, USA. The first 2 days featured nine short courses and the next 4.5 days had three concurrent sessions of talks for most of the conference. Eleven vendor seminars were held throughout the week.

Two plenary lectures, a special memorial session for Csaba Horváth, and a mini-symposium on high-speed liquid chromatography were presented during the conference. Over 1400 people from 37 countries were in attendance. The conference featured 149 lectures and 432 poster presentations. The equipment exhibition contained 98 booths with 81 exhibitors. The traditional conference dinner was held at the Franklin Institute on Wednesday night of the conference week. The conference ended on Friday, 18 June at noon with a toast to this and future conferences. Two reviews of this event have been published. One review is written by Dr. Robert Stevenson in *Am. Lab. News Ed.*, 36, No. 21 (October) (2004) 4–12. The other review is written by Dr. Ronald Majors in LC*GC, September (2004) 870–882.

The Monday morning program opened with a marching band that highlighted Philadelphia's patriotic history. The band was the Alexandria Royal Fifes, Drums, and Trumpets. Ben Franklin then read a declaration that the week of 14–18 June was declared Separation Science Week in the city of Philadelphia by the honorable Mayor John Street. The 2004 Martin Gold Medal was awarded to Dr. Terry Berger for his pioneering work in supercritical fluid chromatography.

Two plenary lecturers were given after the initial festivities. The first lecture was given by Professor Ruedi Aebersold, of the Systems Biology Institute in Seattle, Washington and now at the ETH in Zurich, Switzerland. His lecture was titled "Quantitative proteomics: current status, challenges and new directions." This lecture highlighted the complexity required to perform a full proteomics analysis and what could be expected using the current separation approaches including two-dimensional gel electrophoresis, alternatives such as multidimensional column chromatography, detection schemes such as matrix-assisted laser desorption ionization time-of-flight and multiple mass spectral approaches. The current database approach for identifying peptides was discussed along with ways to enhance the success of these approaches. The importance of liquid chromatography was emphasized throughout this lecture. The second plenary lecture was given by Professor Richard Mathies of the University of California, Berkeley, CA, USA. His lecture was titled "Microfabricated devices for genetic analysis." This lecture showed very advanced microstructures that were machined with advanced photolithography and optical masking techniques. These devices allow microanalysis in 384 concurrent channel devices with volumes of 2–3 μl. These are typically used for DNA sequencing although other applications were discussed. Professor Mathies provided a very clear view of the future of these types of high throughput analysis devices and also gave a preview of how to implement liquid phase separations in spacecraft.

After the plenary lectures an hour and one-half memorial to Professor Csaba Horváth of Yale University's Department of Chemical Engineering was presented. Professor Horváth passed away shortly before the conference and was one of the founders of high-performance liquid chromatography. Horváth's daughter, Donatella, attended this session and other sessions at the conference. The speakers for this session included Professor Georges Guiochon, of the University of Tennessee and Oak Ridge National Laboratory, Professor William Hancock and Professor Barry Karger both of the Barnett Institute of Northeastern University, Dr. John Frenz of Genentech, Professor Peter W. Carr of the University of Minnesota, and Dr. Imre Molnar of the Molnar Institute in Berlin, Germany.

The HPLC 2004 program included just about every aspect of liquid phase separation science and the intention was to provide a diverse set of subjects while emphasizing the richness of pharmaceutical and biotechnology related science that pervades this area in the USA. Chromatography, capillary electrophoresis, mass spectrometry, column technology, validation practices, preparative chromatography, and many leading-edge applications of these technologies were all discussed. A strong session on fundamental separation science was also included as were sessions on detectors, applications of liquid chromatography to bioterrorism, sample preparation and multidimensional liquid chromatography. Rather than

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highlight the talks in these sessions I refer the reader to one of the reviews of the conference mentioned above and to the excellent papers contained in this volume of the *Journal of Chromatography A*.

A special symposium of four lectures presented on different approaches to speed up liquid chromatography was held on Thursday morning. A number of different points of view were shared on how to best conduct the fastest methods of analysis and these were represented by the use of ultra high pressures, presented by Professor James W. Jorgenson, of the University of North Carolina, the use of small particle diameters with relatively short columns by Dr. William Barber of Agilent Technologies, the utilization of high temperature columns by Professor Peter W. Carr, of the University of Minnesota, and the use of monolithic columns by Professor Nobuo Tanaka, of Kyoto Institute of Technology, Kyoto, Japan. Although all of these approaches seem valid and can be combined with other approaches, no single approach clearly has a defining advantage in all aspects of fast analysis. The audience saw an area that is clearly receiving a critical amount of attention. However, more work in the future will be needed to see how these technologies evolve and if one dominates.

The poster sessions were held on Tuesday, Wednesday, and Thursday of the conference and were graciously managed by Dr. Ron Majors, of Agilent Technologies, who also served as the manager of the poster awards selection committee. The winners of the posters competition were announced in the two reviews given above. The poster evaluation committee worked hard and diligently to grade the posters and I thank them for their hard work. In addition, I want to thank the convention center staff that provided excellent facilities management and Barr Enterprises who superbly managed the logistical aspects of the conference. The scientific and organizing committees did a great job prior to the conference and I am indebted to them for such dedication and attention to detail.

Liquid phase separation science, in all of its forms, is an extremely active and dynamic scientific area in which to perform research and extend the leading edge of the resulting technology. The application of these techniques is central to such diverse research areas as medicine, bioanalysis, bioterrorism, nanotechnology and materials science besides polymer analysis, preparative chromatography and manufacturing processes, just to name a few. More scientists and engineers are needed to do basic research in the separation sciences. Scientists in biochemistry, medicine, materials science, and the basic chemical sciences are needed to expand the applications of these techniques. We look forward to seeing you in Stockholm for HPLC 2005 and to learn of the many exciting new developments that have taken place in liquid phase separation science.

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