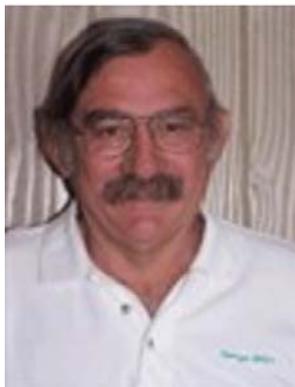


### **Dr Terry Berger** **Winner of the 2004 Chromatographic Society Martin Medal**



Terry A. Berger was born in 1946 in rural Minnesota, U.S.A. He received a PhD in analytical chemistry from Imperial College, University of London, in 1975, after graduate work at Florida, Wisconsin and Perdue. One of his five projects was an electrochemical detector for hplc.

He taught in Brazil for a year, then worked for several years on projects related to the space program, including an electrolyzer to convert the Martian atmosphere into fuel (CO or CH<sub>4</sub>) and oxidizer (O<sub>2</sub>), triply redundant sensors, fuel cells, hydrogen generators, and in-situ re-generation of reagents for use in total organic carbon (TOC) and total oxygen demand (TOD) analyzers. Most of his GC work was behind the scenes at HP/Agilent for 18 years where he was a strong proponent of very fast GC, qualitative analysis using many parallel phases, miniaturization, pressure programming, quantitative hydrogen generation, portable GC and GC-MS, and many non-standard detectors. He holds the “world record” for the highest efficiency GC separation (1.3 million effective plates). Some of his suggestions such as pressure programming were incorporated into commercial products. His pulsed amperometric HPLC detector was commercialized by HP/Agilent but with a different flow cell from his original wall-jet design. He was the first electrochemical consultant/theoretician on the HP CE projects in the early 1990’s.

Dr. Berger is considered by many to be the father of modern Supercritical Fluid Chromatography (SFC). Starting in 1985, he spent more than a decade systematically undoing many of the misconceptions about packed column SFC. In the process he deconvoluted density and solvent strength effects. He showed that, contrary to several proposed theories, very long columns with large pressure drops were feasible. He introduced the use of additives and systematically studied their effect on peak shape and retention. He demonstrated the separation of broad classes of compounds and, against the common perception, showed that packed column SFC was broadly applicable to small drug-like molecules. He specified the feature set of the Hewlett Packard SFC G1205A which was commercially released in 1992. More recently he led a team in the development of separator technology which allows quantitative recovery of solutes without cyclone separators or aerosol generation. This development won a R&D 100 award as one of the 100 most important technical developments of 2000.

## Martin Medal

He started Berger Instruments in 1995, to take over the manufacture of the HP SFC adapting it to better fit the needs of the pharmaceutical industry. He held the posts of president, Vice President and Chief Technical Officer. Berger Instruments recently became a part of Mettler-Toledo AutoChem.

Dr. Berger's book, "Packed Column SFC" was published by the Royal Society of Chemistry in 1995. He has also published 8 book chapters, plus approximately 50 scientific papers in refereed journals, plus >20 application notes. He has presented or participated in more than 20 short courses on SFC for various organizations, has given more than 300 invited oral presentations, hundreds of posters, and has received or has in process, approximately 30 patents in GC, SFC, and HPLC. He has written 3 encyclopedia entries and an ASTM description of SFC.

He has been the Editor for Gas Chromatography for the journal Chromatographia since 1991. He has been a reviewer for all the major chromatography journals and for the National Science Foundation.