

Professor Mary Jean Wirth **Winner of the 2015 Chromatographic Society Jubilee Medal**



Professor Wirth was trained in nonlinear optical spectroscopy completing her Ph.D. in 1978. Over the course of her career, she has displayed a most impressive combination of creativity and a boldness to continually explore important new research areas of high impact. She began her independent professional career in ultra-fast spectroscopy of liquids, then evolved to become a surface scientist studying chromatographic silica, and today she is developing silica-based materials for cancer biomarker discovery.

Her initial research was investigating single-molecule spectroscopy in the early days of the field, the 1990's, to understand why proteins have great "stickiness" with respect to silica. This led her to become a materials scientist designing new chromatographic materials for protein separations, and today she has focused this effort on protein biomarkers, and she has expanded the technologies she has impacted to include ultrahigh-performance chromatography, sieving electrophoresis, capillary isoelectric focusing, MALDI, and protein microarrays and latterly slip flow chromatography.

Mary is among the rare scientists to make significant contributions in both separations and spectroscopy. Mary's work began impacting the field of chromatography in the early 1990's. She invented a new way of making chromatographic stationary phases, called "horizontal polymerization", where a two-dimensional siloxane polymer is formed over the silica surface. It is a variation of self-assembled monolayers, which was a hot topic at the time of her invention in the early 90's.

Since moving to Purdue, Mary's group has developed a means of packing submicrometer particles in capillaries to profoundly improve peak sharpness for proteins. This technology was combined with a highly non-adsorbitive coating developed by her team which led to the discovery of slip flow chromatography. This form of chromatography saw peak widths reduce by a factor of 30 in a single

Jubilee Medal

publication compared with a factor of 2 from the previous 20 years of research. She initially published three articles in this area of chromatography, which has now thousands of publications following on from her initial studies.

With her research crossing different areas of analytical chemistry, Mary has been much sought after for organizing symposia, with the most notable example being Chair of the Gordon Conference on Analytical Chemistry in 1995. She is one of the few Iddles Lecturers at the University of New Hampshire who is not in the National Academy of Sciences. She has also given distinguished lectures at the University of Texas-Austin and Texas A&M, among others. She is invited to give a keynote lecture at the IUPAC conference in Japan in May of 2011. In recognition of her scientific excellence and breadth, Mary was also elected Fellow of the AAAS.

Mary has been recognized with many awards for her prestigious work, including three national awards: the Gold Medal Award from the NY Section of the Society for Applied Spectroscopy (2005), the ANACHEM Award from the Detroit Section of the American chemical Society (2005), and the ACS Division of Analytical Chemistry Award in Spectrochemical Analysis (2006), Dal Nogare Award from the Chromatography Forum of the Delaware Valley and the Chromatographic Society are delighted to extend that honour list with the Silver Jubilee award for 2015.