

## **48th International Symposium on High Performance Liquid Phase Separations and Related Techniques (HPLC 2019)**

The 48<sup>th</sup> International Symposium on High Performance Liquid Phase Separations and Related Techniques was held in the University of Milano-Bicocca in Milan (Italy) from the 16<sup>th</sup> to the 20<sup>th</sup> of June 2019. This year, the symposium was chaired by Professor Alberto Cavazzini from the University of Ferrara, and Professor Massimo Morbidelli from the Polytechnic University of Milan.

This symposium, originated in 1973 in Interlaken (Switzerland), is an international forum that covers the fundamental and practical aspects of high-performance liquid chromatography in its various forms, along with the complementary separation techniques such as electrophoresis, electrochromatography, field-flow fractionation, supercritical fluid chromatography and hyphenated techniques. In addition, microfluidic, nanofluidic and chip separations, diagnostic systems, and other leading technologies together with applications and quality assessment and control in a wide variety of fields are also considered.

In this edition, there were more than 1300 participants, highlighting the great attendance to this event from scientists all over the world. The conference covered up to 14 scientific themes with 830 contributions, including 308 oral communications and 506 poster presentations divided in 6 different poster sessions. The HPLC conference featured a big sponsor exhibition with over 40 companies presenting their products and services together with 12 vendor seminars. This edition also encouraged younger scientists to actively participate in the conference. Among the initiatives, two new contests were presented: The Separation Science SLAM, in which the finalists had to present the most important results of their research in only 5 minutes; and the HPLC Tube, which awarded the best self-produced video on HPLC research. There were 24 applications for each contest, with 6 and 10 finalists, respectively.

The congress started on Sunday with short courses with 278 attendees and taught by leading industrial and academic scientists to improve the productivity and to solve separation problems. Sunday afternoon, the chairs welcomed the attendees at Milan's "Giuseppe Verdi" Conservatory, followed by the awards and fellowships presentation. Afterwards, a musical pause in honor for Leonardo Da Vinci's death 500<sup>th</sup> anniversary was carried out by Martin J. Kemp from Oxford University and the young musicians of the Conservatory. Finally, the opening ceremony was closed by Prof. Attila Felinger from the University of Pécs with a plenary lecture entitled 'The art of chromatography'. The opening finished with a welcome standing cocktail in the inner court of the conservatory.

The next days, four parallel sessions were run in different halls covering the different topics: fundamental aspects of separations such as column efficiency, retention and selectivity; miniaturization and innovations in the instrumentation, including 3D printing and microchips; omics sessions, leading with proteomics, lipidomics and glycomics; advances in hyphenations, multidimensional chromatography, supercritical fluid chromatography, capillary electrophoresis, thin-layer chromatography, hydrophilic interaction chromatography, chiral separations, and ion-exchange chromatography; and applications, ranging from sample preparation and quality control to food, environmental, forensic, pharmaceutical and

biomedical analysis. Vendor seminars took place during lunch times, while the exhibition and poster sessions were held during the coffee breaks and lunches.

On Monday, sessions took place from 10:15 to 18:30, with two coffee breaks. They were focused on proteomics, miniaturization and electrodriven technologies, fundamentals (column efficiency and stationary phases), food analysis, sample preparation, miniaturization and microfluidics, ion exchange and chromatography.

The schedule was similar on Tuesday. That day, there were three poster sessions and the main themes were multidimensional chromatography, environmental analysis, chiral separations, LC-MS bioactive molecules, pharmaceuticals and biopharmaceuticals, biosample preparation, capillary electrophoresis and data analysis, among others. That evening after the sessions, the participants of the Separation Science SLAM presented their short communications. On Wednesday, the main themes of the sessions were forensic, doping and toxicology, instrumentations and quantitation, quality control or lipidomics, among others. Two poster sessions and the HPLC Tube event took also place that day.

The Gala dinner was celebrated on Wednesday night at the central courtyard of The University of Milan, which is located in the Renaissance Palace of Ca' Granda. The attendees could enjoy a typical Italian dinner while feeling the spirit of old Milan in this extraordinary place.

On Thursday, the last sessions were focused on capillary electrophoresis, thin-layer chromatography, preparative chromatography, supercritical fluid chromatography, quality control, data analysis and innovative applications. During the coffee break, the final session of the Best Poster Award took place at the hall of the faculty. In this second round, the posters selected as finalists by the Scientific Committee were exposed to the public and evaluated again.

The closing ceremony included the plenary lectures given by the chairs of the next editions of the HPLC Symposium. First, Prof. Koji Otsuka, who will host the Asian meeting of HPLC2019 in Kyoto (Japan), gave a talk on the functionalization of spongy-like porous monoliths and silica monoliths using proteins and fullerenes to prepare LC columns able to specifically interact with the target compounds, leading to efficient separations. Prof. Mary J. Wirth will be the chair of HPLC2020, which will be held in San Diego (USA). She gave an interesting lecture about the use of polymer brush bonded phases, prepared by surface-initiated polymerization on silica particles, in LC-MS applications for the separation of proteins with enhanced resolution and sensitivity. The last plenary lecture was given by Prof. M. Lämmerhofer, the chair of HPLC2021 Symposium, which will be held in Düsseldorf (Germany). His talk was focused on the evaluation of the different workflows employed in lipidomics and their applications in clinical analysis for being an adequate tool to generate useful information for diagnostic and prognostic process.

Finally, Dr. Gerard Rozing, the chairman of the Best Poster Award Review Board, explained the review system followed by the Scientific Committee and announced the 12 Poster Awards, which were sponsored by Agilent Technologies. Furthermore, Prof. Attila Felinger presented the 10 finalists for the Csaba Horváth Young Scientist Award (over 60 applications) and delivered the award to Sebastian Piendl, from Leipzig University. Once the closing ceremony

finished, the chairs invited the attendees to join a farewell drink outside the University of Milano-Bicocca building to keep networking and celebrate the success of this conference.

As a conclusion, the 48<sup>th</sup> International Symposium on High Performance Liquid Phase Separations and Related Techniques has been an interesting conference where the main advances on separation techniques have been presented. The diverse sessions and the social events were an excellent opportunity to know about different international research groups and create new collaborations for future projects, not only with other universities but also with other enterprises.

**Idaira Pacheco Fernández**

*Departamento de Química, UD de Química Analítica  
Universidad de La Laguna*

**Adal Mena García**

*Department of Instrumental Analysis and Environmental Chemistry (AIQA)  
CSIC Institute of General Organic Chemistry (IQOG)*

**Enric Pellicer Castell**

*Department of Analytical Chemistry  
University of Valencia*

**Carolina Belenguer Sapiña**

*Department of Analytical Chemistry  
University of Valencia*

**Jose Antonio Navarro Huerta**

*Department of Analytical Chemistry  
University of Valencia*