HPLC 2013

by Trevor Hopkins, Editor Chromatography Today

Roundup and New Product Review

Amsterdam, The Netherlands

HPLC 2013 took place in Amsterdam, 16th-20th June 2013, with the promise of 'a generous amount of separation science with three hours of lectures on a typical morning or afternoon, plus posters, technical seminars and tutorials' was very capably co-chaired by Peter Schoenmakers and Wim Kok.

Approximately 50 exhibitors plus media partners exhibited their wares for 1441 attendees – a record since the HPLC 1986 San Francisco meeting - continuing the steady upward attendance trend for the European meetings and much higher than recent meetings in the USA. Attendees visited in large numbers from The Netherlands, Germany, United Kingdom and USA and 59 other countries.

The HPLC 2013 program was built around three main themes:

HYPERformance LC - This part of the program includes 26 keynotes and 24 submitted oral presentations on developments in LC theory, technology and methodology in the HYPERformance LC session.

High-impact LC - Seven three-hour structured lecture and discussion sessions dedicated to high-impact applications of HPLC, including environmental, food, forensics, metabolomics, pharmaceutical, polymers, and proteomics.

HPLC-MS - HPLC2013 Amsterdam features a full program (16 keynotes and 39 submitted oral presentations) devoted to the principles and applications of LC-MS

As part of HPLC 2013 awards were presented honouring the upcoming stars of chromatography as well as seasoned veterans recognised for their longstanding services to chromatography

The HPLC 2013 meeting attendees saw the presentation of the following awards:

The Csaba Horváth Young Scientist award

The Award honouring the memory of Csaba Horváth and recognising his contributions to HPLC, including his interest in fostering the careers of young people in separations science and engineering was presented to:

Dr James Grinias (University of North Carolina, USA) for his work on Characterizing Extra-Column Effects in Ultra-High Pressure Liquid Chromatography

The Chromatographic Society Awards

The Jubilee Medal:

The Chromatographic Society celebrated its Silver Jubilee in 1982 and

Picture 1. HPLC 2013 – The Rai Congress Centre, Amsterdam

Picture 2. Dr Fabrice Gritti and Paul Ferguson

to commemorate the event the 'Jubilee Medal' is awarded annually in recognition of the contributions of younger scientists. For his important contribution to the development of chromatographic science Dr Fabrice Gritti (University of Tennessee, USA) was awarded the Jubilee Medal for 2013.

The Martin Medals:

The Martin medal is named after Professor A.J.P. Martin and is the highest honour the Society confers and is awarded to scientists who have made outstanding contributions to the advancement of separation science. Breaking with tradition two medals were awarded in 2013 to:

Professor Günther K. Bonn (University of Innsbruck and Austrian Drug Screening Institute) and

Professor Frantisek Svec (University of California at Berkeley and Organic and Macromolecular Synthesis Facility, Lawrence Berkeley National Laboratory)

The Uwe Neue Award

Two-and-a-half years after he passed away the first award that carries his name was presented to an industrial scientist who – like Uwe – made significant contributions to the field of separation science and strived to see these implemented in commercial products. The award was presented on Tuesday, 18th June to Dr J.J. Kirkland, Vice President of R&D Technologies, Advanced Materials Technology, for his advancements in chromatography and dedication to separation science.

The Poster Awards HPLC 2013

The long-standing HPLC meeting poster awards, sponsored by Agilent, were evaluated by a jury consisting of a large number of recognised international experts on liquid phase separations. After their review the jury publicly nominated close to 30 posters on Wednesday evening.

The posters are reviewed based on excellence in terms of three criteria:

- Inspiration -creativity, novelty, uniqueness, originality.
- Transpiration - experimental execution, completeness of the work.
- Presentation - overall readability of the poster, visual impression, objectives and conclusions, author's explanations.

On Thursday, the final day of the conference, seven of the nominated posters were selected to receive best-poster awards.

The Winners of the HPLC 2013 Poster Awards were:

Quantitative Proteomic Profiling with HPLC-MS/MS: Comparison of various labelling strategies using iTRAQ and TMT.

Theresa Kristl of University of Salzburg, Austria

Development of an immunoaffinity sorbent with Fab' antibody fragments for the analysis of neuropeptides by IA-SPE-CE-MS

Fernando Benavente of Department of Analytical Chemistry, University of Barcelona, Spain

LC-MS and LC-MS/MS for Determination of Water-Soluble Vitamins in Foods

Melissa Phillips of NIST, Gaithersburg, USA

Search for markers of bladder cancer with a metabolomic approach

Antonia García-Fernández of CEMBIO, Universidad CEU San Pablo in Boadilla del Monte, Spain

Design of cyclic olefin copolymer-based microfluidic devices designed for spatial two- and three-dimensional chromatography

Bert Wouters of Vrije Universiteit Brussel, Belgium

Quantitative, antibody-free LC-MS/MS analysis of recombinant tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) in serum

Daniel Wilffert of University of Groningen, Netherlands

Dress-up chiral columns for the enantioseparation of amino acids based on fluorous separation

Kenichiro Todoroki of University of Shizuoka in Shizuoka, Japan

Nanoscale Characterization of Polymer Monoliths using Atomic Force Microscopy and Confocal Raman Imaging

Martin Laher of Institute of Polymer Science/JKU Linz, Austria

HILIC-Phase Selectivity Chart for characterization of HILIC stationary phases

Mohammed Ibrahim of University of Alberta in Edmonton, Alberta, Canada

Computational Flow Study of the Optimal Design and Operating Conditions of the Flow Split Ring Used in Parallel Segmented Flow Columns

Wim Smits of Vrije Universiteit Brussel in Kalmthout, Belgium

New Products at HPLC 2013

As with all conferences and exhibitions there is a plethora of new product introductions and HPLC 2013 was no exception. The following is an abbreviated roundup of the new products and accessories introduced. New products are listed, for impartiality reasons, in alphabetical order by company.

Advanced Chromatography Technologies Ltd (Booth E15) new additions included the ACE® C18-Amide columns for enhanced selectivity and the ACE® SuperC18™ extended pH range phase.

Advion (Booth U16) the expression CMS is a high performance mass spec half the size of a conventional single quadrupole system. Its compact size allows it to be placed in a fume hood or on the bench for direct access and immediate results. It is also versatile permitting mass confirmation for Flash Chromatography fractions via a TLC plate attachment and use as a HPLC, UHPLC and SFC mass detector.

Akzo Nobel PPC (Booth U7) utilising the 25 years' experience in silica manufacturing Kromasil announced 1.8 and 2.5µm UHPLC columns with complete scalability promised from UHPLC to HPLC and Prep HPLC.

Picture 3. In the exhibition area at HPLC 2013

Analytical Sales and Services (Booth E2) announced a range of Adhesive Sealing Films for 96 well collection plates offering superior chemical resistance, tackiness and solvent compatibility. A new range of Protein Crash Plates and Parallel Synthesis/Optimisation Plates for Screening Chemistry were also exhibited.

Antec BV (Booth E25) introduced the SynthesisCellTM a rapid electrosynthesis cell designed for mg quantities of compounds that are difficult to synthesise by other methods. Also released were the SunCellTM and ChipcellTM accessories for the Antec ECD detectors.

Biosolve (Booth D3) announced a new facility which opened officially on 17th July 2013 and a new website with full ecommerce capabilities in the autumn of 2013.

Bonna-Agela Technologies Inc (Booth E5) launched 2.7µm BonshellTM columns based on core-shell technology with a solid core and 0.5µm porous layer.

Cecil Instruments Ltd (Booth E7) launched a newly developed low cost easy to use HPLC range. The new Merit systems expand Cecil's proven comprehensive Adept HPLC range and are designed to provide a completely new level of ease of use, dramatically reducing the time for software familiarisation.

The remarkably low cost systems are designed to be the easiest of HPLC systems to operate, at the same time offering performance of the highest specification.

Chiral Technologies (Booth A7) exhibited the range of Immobilised Chiralpak® 3µm columns and were discussing a new range of chiral columns based on 1.7µm packing materials. A range of Immobilised Zwitterionic Phases – Chiralpak ZWIXTM (+) and ZWIX(-) were also exhibited for the Separation of Free Amino Acids with no need for derivatisation.

ChromSword (Booth A2) presented its newest approach for automation in HPLC method development and showed the development direction for their newest software versions.

Hamilton Bonaduz AG (Booth E6) the new polystyrene based Hamilton® PRP-C18 HPLC column is designed to provide high-efficiency, reversed-phase separations over an extended column life in nearly any mobile phase or pH.

Macherey-Nagel (Booth U19) launched the new Nucleoshell® 2.7µm column range based on core-shell technology in RP18, Phenyl-Hexyl, PFP and HILIC phases. The porous shell is 0.5µm thick with a pore size of 150A and a specific surface area of 130m2/g. A handy application booklet accompanied the product launch.

Merck Millipore (Booth A12) exhibited the following new products:

SeQuant® ZIC®-cHILIC for the complementary selectivity of polar hydrophilic compounds for HPLC and LC-MS employing a new zwitterionic stationary phase with phosphorylcholine functional groups.

Chromolith® HR (High Resolution) monolithic silica columns for HPLC promising performance similar to 3µm particle packed columns with a 30% longer lifetime and the Samplicity® system which meets the challenge of hard to filter samples.

Molnár-Institute for applied chromatography (Booth E18) exhibited the new DryLab® 4 for UHPLC method development with 3D resolution maps.

Nacalai Tesque (Booth A20) announced Cosmosil® HILIC 2.5µm columns for UHPLC HILIC analysis.

Peak Scientific Instruments Ltd (Booth U10) the new Peak Precision Series is a modular designed gas generator system that allows the user to separate and analyse multiple gas types and complex mixtures with the utmost accuracy in the most spatially economic labs.

Phenomenex (Booth U20) introduced the Kinetex® C8 5 µm core-shell HPLC column which is reported to be fully scalable to or from the 1.7- and 2.6µm particles, enabling easy method transfer. 5µm Kinetix range of C18, XB-C18 was shown for analytical and prep (22 and 30mm) chromatography. A new 1.3µm Kinetix was also announced available in C18 chemistry. The new PHREE SPE tubes for Phospholipid extraction were also released which are an extension to the PhreeTM Phospholipid Removal plate product range.

Restek (Booth E13) announced the new EXP® Fitting range of reusable easy to use connections for HPLC and UHPLC. Hand-tight (rated to 600+ Bar) and hex-head (rated to 1400+ Bar) are available. A range of USLCTM (Ultra Selective Liquid ChromatographyTM)Columns offering a broad range of selectivities for method development in HPLC and UHPLC. Certified Reference Materials for the detection and quantification of 204 pesticides by LC-MS/MS were also exhibited.

Shimadzu Europe GmbH (Booth A1) introduced the Nexera X2 system, a new UHPLC built on the Nexera UHPLC series platform, offering higher core performance and new features to improve analytical efficiency for a wider range of HPLC/UHPLC applications.

Sigma-Aldrich International Inc (Booth A10) introduced TitanTM C18 UHPLC columns based on 1.9µm monodispersed particles. The particles, claimed to be the narrowest particle size distribution of any sub-2µm totally porous particles, are the result of a patent pending EcoporousTM silica manufacturing process.

Thermo Fisher Scientific Inc (Booth E1) launched the MAbPac® Protein A column for fast monoclonal titer analysis based on a novel non-porous polymeric resin with a hydrophilic surface for low carry-over which has been functionalised with a recombinant Protein A ligand. Also launched were WCX and WAX additions to the SOLA™ Solid Phase Extraction (SPE). This fritless SPE product range claims to provide greater reproducibility with cleaner, more consistent extracts, whilst reducing the solvent required and increasing sensitivity.

Tosoh Bioscience (Booth U8) introduced a new series of dedicated silica based size exclusion chromatography (SEC) columns for monoclonal antibody (mAb) analysis including the new TSKgel® SuperSW mAb HTP, TSKgel® SuperSW mAb HR and TSKgel® UltraSW Aggregate.

VWR International GmbH (Booth A3) launched the new ChromasterUltraRS a new UHPLC system with improved performance for method development with a specific emphasis on related compounds and flexibility for method transfers. Accompanying the instrument launch were a new family of HR Columns 1.9µm, 250 x 3.0mm, pressure rating 1400 Bar, with a running pressure of 800-900 Bar at 1 ml/min, and a new high pressure fitting – hand-tight design rated to 1400 Bar.

Waters Corporation (Booth D4) introduced Coretecs™ Columns, a new family of 1.6µm solid-core UHPLC columns available in C18, C18+ (C18 with a positively charged surface) for basic compounds at low pH and HILIC chemistries

Wyatt Technology Europe GmbH (Booth E8) exhibited the new Optilab® UT-rEX™ (UHPLC refractometer with EXtended range) which is the first RI detector specifically designed for use with UHPLC systems using columns packed with small particles.

YMC-Europe (Booth D1) exhibited new chiral columns and bulk packing materials with polysaccharide chiral selectors. YMC Chiral Amylose-C and YMC Chiral Cellulose-C are available in 5µm packed columns and 10 and 20µm packed columns and bulk materials for scale-up.

HPLC 2013 Amsterdam was the third meeting in the HPLC series to be hosted by The Netherlands (1987 Amsterdam and 2001 Maastricht). Like many painters of the 17th century and celebrated chromatographers such as van Deemter, Hans Poppe and Roland Frei the attendees flocked to Amsterdam with great expectation. No one left disappointed.

Co-chair Peter Schoenmaker at the end of a busy four days was visibly relieved and proud of the accomplishments of the HPLC 2013 team. When asked what the goal for HPLC 2013 was in a difficult global economy he quickly replied, "The aim was to give participants a week to remember and increase the number of participants by reaching out to local groups of chromatographers that would not normally attend the HPLC meetings. The concept of the three themes for the programme and the inclusion of a large educational element really worked for this meeting".

When asked how he felt about HPLC 2013, he stated 'Mission Accomplished', congratulations to all involved.

See you all at HPLC 2014, New Orleans, Louisiana, USA and HPLC 2015, Geneva, Switzerland.

To get more information about any of these new product launches contact Marcus Pattison at marcus@intlabmate.com