



# Chromatography Focus

## EXTRACTS FROM HYPHENATED CHROMATOGRAPHY DISCUSSION IN YORK

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*As a local organiser and member of the RSC Chromatography and Electrophoresis Group Committee responsible for some logistical matters, I must declare an interest. This being said, I was (in general) impressed by these meetings and found it relatively easy to pick relevant and interesting talks/posters to attend/read.*

*A large number of commercial and other organisations kindly supported the meeting by taking exhibition space, sponsoring prizes, etc. A minor moan is that the parallel sessions (Wednesday-Friday) were difficult to cope with as one was frequently on the move from one side of the hotel to the other. But all in all, I was glad that I had visited York before as the meeting was too engrossing to think too much about the beautiful surroundings!*

**READING HIS (JIM JORGENSEN) PUBLISHED WORK IS GREAT, BUT HEARING HIM SPEAK ABOUT IT ALL WAS DEFINITELY AN ADDED BONUS.**

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### EMERGING TRENDS

The content of Extech and HTC was diverse and as far as Extech goes a popular presentation was that by Knut Rasmussen (Oslo) on liquid phase microextraction (LPME) – using inexpensive material (polypropylene tubing). A second communication from the same group (Stig Pedersen-Bjergaard) detailed a novel strategy coined ‘electro membrane isolation’ for fast isolation of drugs from biomatrices (essentially electrically driven LPME). Also during Extech, Marie-Claire Hennion (Paris) reported on miniaturised total analysis systems (I-TAS) using in-situ synthesised monolithic CEC phases. An integral pre-separation step allowed for rapid and highly efficient (N up to 300,000) separations.

Finally, Fabio Augusto (São Paulo) discussed GC sampling for volatiles using ‘D(ynamic) HS-SPME’ in which a stripping gas was passed through the sample and volatilized analytes absorbed on a SPME fibre. This methodology seemed facile in terms of instrumentation and operation, and was reported to give faster and more sensitive sampling from complex matrices than conventional HS.

As for HTC, a well attended session was that sponsored by Sionex. A product seminar was followed by talks on applications of differential mobility spectrometry. Hernan Cortes (Michigan) spoke on a miniaturised low thermal mass GC employing microfabricated differential mobility detection (DMD) to give enhanced resolution.

Tom Lynch (Reading) explained how DMD could be employed as a sensitive detector for GC and HS-GC in the petrochemical industries, and discussed the possibility of coupling DMD with the SLS GC (essentially miniaturised GC technology) on a chip. Finally, Paul Thomas (Manchester) discussed hyphenated thermal desorption GC-DMD for analysis of organics in exhaled air from patients with coronary obstructive pulmonary disease.

DMD was not however, the only emerging detection technology highlighted. Ian Mutton (Stevenage) spoke on single calibrant quantification with HPLC and compared the relatively new evaporative light scattering and chemiluminescent nitrogen detectors (ELSD and CLND respectively) with more traditional NMR methods.

Some thorough comparisons were presented, and ELSD was found to give inconsistent results compared to CLND.

On Thursday morning, I chaired a session focusing on ‘OMICS’ technologies. Phillip Marriott (Melbourne) discussed opportunities for comprehensive 2D-GC in chemical ‘OMICS’ analysis. Elsa Lundanes (Oslo) reviewed comprehensive 2D-LC of peptides and proteins. Presentations on comprehensive metabolome analyses (Thomas Hankemeier, Leiden) and multi-dimensional separations in the clinical chemistry laboratory setting (David Perrett, London) followed.

The theme of metabolomics/metabonomics was definitely a hot topic, but certainly not exclusive to HTC so I hesitate to label it as ‘emerging’. What was good to see, however, was firstly the focus on the important contribution and development of chemometrics and secondly, a reassuring emphasis on the importance of sampling in these as in other investigations.

One other particularly interesting topic and most definitely an emerging trend was the attention paid to high pressure and temperature LC. Ian Wilson (Cheshire), recipient of the RSC SAC medal at the conference dinner, gave an interesting talk in this vein as did Harold Pasch (Darmstadt). Gert Desmet (Brussels) addressed the dilemma of how to make valid comparisons between HPLC systems to deduce whether pores or pressure (monoliths versus the UHPLC approach) will form the future for HPLC. The strategy included both comparisons between theoretical and experimental results, with the kinetic performance limits of the two approaches being discussed.

### INSPIRATIONAL PRESENTATIONS

In the final session Jim Jorgensen (North Carolina) was presented with a lifetime achievement award and then went on to present on his work in the area of hyphenated LC-LC and LC-CE. Reading his published work is great, but hearing him speak about it all was definitely an added bonus.

Peter Schoenmakers’ (Amsterdam) contribution on the quest for peaks via comprehensive 2D chromatography in this same session was appropriately placed and similarly illuminating.



*Dr. Melissa Hanna-Brown has worked as a Lecturer in Separation Science at King's College London (Department of Pharmacy) since 2000. Her research activities have focused most recently on development of multi-column electrophoretic instrumentation and its hyphenation to MS for complex mixture analyses as well as integrated separation strategies for metabolomics*

#### TAKE AWAY MEMORIES

The quality of the Extech and HTC meetings (as well as the 1 day symposium on Endocrine Disrupting Chemicals and the various short courses) was generally high and there were some well organised social activities too.

David Perrett was responsible for these latter events which ranged from a trip to a local brewery incorporating a tour, local beer, (with good old-fashioned Yorkshire pie and peas), and a trip to the National Railway Museum.

Finally there was a fantastic banquet at the Merchant Adventurer's Hall – a beautiful setting with even more Yorkshire delicacies to savour.

A further highlight was the Thursday evening discussion session where Peter Myers in full Crown Court dress (complete with wig, red robe, and gavel) presided over the case for (argued by Phillip Marriott) and against (argued by Peter Schoenmakers) 2D chromatography.

This session was hilarious with delegates being called upon to stand in the witness box and be interrogated (without prior warning may I add...being one of the unlucky few)...! We really should have more sessions like this in symposia – it was a good way to force opinion from some leading scientists in the field and all done in with great good humour.

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### Separation Science / Spectroscopy Meetings Calendar 2006/07

Meeting	Venue	Dates	Contacts
<b>2006</b>			
Prep 2006	Baltimore,USA	14-17th May	<a href="http://www.prepsymposium.org">www.prepsymposium.org</a>
MipTech 2006- 9th International Conference on Drug Discovery	Basel, Switzerland	8-11th May	<a href="http://www.miptech.com">www.miptech.com</a>
SCI Pharm	Edinburgh, Scotland	14-17th May	<a href="http://www.scipharm.info">www.scipharm.info</a>
28th International Exhibition - Congress on Chemical Engineering, Chemical Protection and Biotechnology.(Achema)	Frankfurt,Germany	15 - 19 May 2006	<a href="http://www.achema.de">www.achema.de</a>
54th ASMS Conference on Mass Spectrometry	Seattle,USA	28th May - June 1st	<a href="http://www.asms.org">www.asms.org</a>
29th International Symposium on Capillary Chromatography	Riva del Garda,Italy	29 May- 2nd June	<a href="http://www.richrom.com">www.richrom.com</a>
HPLC 2006	San Francisco,USA	17-23rd June	<a href="http://www.hplc2006.org">www.hplc2006.org</a>
5th International Symposium on Chromatography of Natural Products	Lublin, Poland	19-23rd June	<a href="http://www.pharmacognosy.org">www.pharmacognosy.org</a>
26th International Symposium on Chromatography	Copenhagen,Denmark	21-25th August	<a href="http://www.isc06.dk">www.isc06.dk</a>
17th International Mass Spectrometry Conference	Prague, Czech Republic	27 August - 1st September	<a href="http://www.imsc2006.org">www.imsc2006.org</a>
Festival of Science	Norwich, UK	2-9th September	<a href="http://www.the-ba.net">www.the-ba.net</a>
50th Golden Triad Symposium -Chromatographic Society	Charnwood, UK	11th October	<a href="http://www.chromsoc.com">www.chromsoc.com</a>
50th Golden Triad Symposium -Chromatographic Society	Sandwich, UK	24-25th October	<a href="http://www.chromsoc.com">www.chromsoc.com</a>
23rd Montreux Symposium on LC-MS	Montreux, Switzerland	8-10th November	<a href="http://www.iaec.ch">www.iaec.ch</a>
50th Golden Triad Symposium -Chromatographic Society	Stevenage, UK	21-22nd November	<a href="http://www.chromsoc.com">www.chromsoc.com</a>
<b>2007</b>			
58th Pittsburgh Conference	Chicago,USA	25th Feb-1st March	<a href="http://www.pittcon.org">www.pittcon.org</a>
55th ASMS Conference	Indianapolis,USA	3-7th June	<a href="http://www.asms.org">www.asms.org</a>
HPLC 2007	Ghent, Belgium	17-21st June	<a href="http://www.hplc2007.org">www.hplc2007.org</a>
4th International Peptide Symposium "From Discovery to Therapeutics"	Cairns, Australia	21 - 26th October	<a href="http://www.peptideoz.org">www.peptideoz.org</a>