CENTRE FOR PROCESS ANALYTICS AND CONTROL TECHNOLOGIES

CPACT NEWSLETTER July 2011

2nd European Conference on Process Analytics and Control Technology

EuroPACT 2011 took place on 26-29 April 2011 at the Thistle Hotel in Glasgow, UK. A total of 220 delegates attended from Austria, Belgium, Croatia, Denmark, Finland, France, Germany, Hungary, Iran, Italy, Japan, Netherlands, Portugal, Saudia Arabia, South Africa, Spain, Sweden, Switzerland, Turkey, UK and the USA.

19 vendor companies exhibited and 70 posters were presented. The poster prize was sponsored by the CPACT member company Clairet Scientific and the prize was awarded to Silvia Mas from Barcelona University for her poster entitled ' Chromatographic and spectroscopic data fusion analysis for interpretation of ketoprofen photodegradation '. The Siemens Prize for an outstanding publication in the field of process analytics was awarded to Roland Hass from University of Potsdam for his publication entitled 'In-line particle size analysis for suspensions and emulsions '. Additional prizes were awarded by the Process Analytical Chemistry Working Group of GDCh.

The feedback on EuroPACT has been excellent. Delegates commented on the fantastic Social Programme offered at the conference and they particularly enjoyed the Civic Reception at Glasgow City Chambers and the whisky tasting and conference dinner at the Barony Hall.

Delegates also commented on the excellent welcome lecture entitled 'Two robotic rovers on the red planet: application of in-situ analytical methods for the exploration of the martian surface ' which was given by J Brücker from Max Planck Institute for Chemistry.

The next EuroPACT conference will take place in Barcelona in April 2014.

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International Prize for former CPACT student

Congratulations to former CPACT student Sergey Mozharov who was runner-up in the international Siemens prize competition awarded at the EuroPACT 2011 conference in Glasgow.

The Siemens prize and Prize of the Process Analytical Chemistry Working Group of GDCh are awarded every three years at EuroPACT for excellent publications in the field of process analytics. Sergey won for his published work: **'Non-invasive analysis in micro-reactors using Raman spectrometry with a specially designed probe'** (Sergey Mozharov, Alison Nordon, John M. Girkin and David Littlejohn, Lab-on-a-Chip, 2010, **10**, 2101-2107.)

Professor David Littlejohn said: "I am delighted for Sergey who produced really innovative work while at Strathclyde. The standard of the competition for the Siemens Prize is very high and coming close to winning is a great achievement. Sergey has just moved into a new flat in Seattle so I am sure the prize money will come in handy!".

Sergey is now working as a Research Associate in the Applied Physics Laboratory at the University of Washington in Seattle, USA. Sergey joined the University of Washington in January this year after working on his PhD with Professor Littlejohn.

The benefits of CPACT membership!

We are always looking for new opportunities to improve our analytical processes within Syngenta. Collaboration with CPACT has allowed us to screen some techniques using the facilities and expertise at Strathclyde University with the cost being covered by our CPACT membership fees. Membership also allows us to network with other companies, to share experiences and build on our knowledge of analytical process technology".

Alastair Stewart

syngenta

DATES FOR YOUR DIARIES

27th September 2011—CPACT Research Day, University of Strathclyde, Glasgow

28th September 2011—CPACT Steering Committee meeting, University of Strathclyde, Glasgow

25-27 October 2011—Process Spectroscopy Course, Clairet Scientific, Northampton

CPACT

New website!

The CPACT website has had a makeover.

Please visit www.cpact.com and let us know what you think!

Please email your comments to natalie@cpact.com

How to tell real whisky from fake - faster

PhD student Allyson McIntyre (Strathclyde) has been working with CPACT member company Fibre Photonics on developments *in situ* MIR spectrometry for process analysis. Much of the work has involved use of attenuated total reflection (ATR) immersion probes based on the novel polycrystalline silver halide optical fibres manufactured by Fibre Photonics. One application of the ATR probe technology that has attracted attention outside the Chemicals industry is in the identification of counterfeit Scotch Whisky. Identification of authenticity was based on two measurements to quantify the alcohol concentration and obtain information about the main colorant used to give the whisky's appearance. Through a series of blind trials Allyson correctly identified authentic and counterfeit samples of a well known blended whisky. Based on the research, a further project will be started with Fibre Photonics and the Scotch Whisky Research Institute in October 2011.

The initial research has been published in Analytica Chimica Acta (http://www.sciencedirect.com/science/article/pii/S0003267011002248)

If you would like to receive a copy of the full paper, please email natalie@cpact.com

Financial support for Allyson's project was provided by the Scottish Funding Council (SFC), Fibre Photonics Ltd and WestCHEM, a joint research school formed by the Universities of Strathclyde and Glasgow. The SFC funding was for a studentship through its SPIRIT (Strategic Priority Investments in Research and Innovation Translation) programme.

Photographs courtesy of the University of Strathclyde

CLAIRET SCIENTIFIC LIMITED

Clairet Scientific are introducing a new low cost mid-infrared reaction monitoring system. The original concept initiated from work by Dr Alison Nordon of CPACT who experimented with mid-infrared fibres from Fibre Photonics on an ABB MB155 spectrometer. The new commercial system uses the ABB MB3000 spectrometer with the Horizon RX reaction monitoring software package for data acquisition and analysis. The new MB3000 is designed for high signal-to-noise performance and low cost of ownership. As well as mid-infrared, the system can also operate in the near-infrared (NIR) simply by changing the probe and detector. The combination of high throughput probes and a high signal-to-noise spectrometer means that the system can be operated without the need for liquid nitrogen cooled detectors reducing the cost and simplifying operation and maintenance.

Horizon MB-RX

The CPACT Steering Committee have two new members!

The CPACT Steering Committee are pleased to welcome Simon Crabtree from Johnson Matthey and Caroline Rodger from Astrazeneca. Both were voted on to the Steering Committee recently and will serve from 1 August 2011 to 31 July 2013. We asked them both to introduce themselves.

Simon Crabtree

I am the Manufacturing Science Research Manager at Johnson Matthey Catalysts' Billingham site in North East England. The manufacturing science group is concerned has three main roles: providing a facility to Johnson Matthey's Business Units for intermediate scale production (i.e. between Laboratory and plant scale), process scale up studies, and the identification and demonstration of new process technology.
I obtained my degree and PhD from the University of Durham, UK. During my PhD I worked on homogeneous rhodium catalysis. I graduated in 1996 and joined Davy Process Technology as part of their petrochemical process development group, working across their portfolio of products including syngas products (methanol), (de)hydrogenations and carbonylations. Davy Process Technology was acquired by Johnson Matthey in 2006.

Caroline Rodger

I am an Associate Principal Scientist in Vibrational Spectroscopy in Pharmaceutical Development at AstraZeneca in Macclesfield. However I'm currently on a secondment as a Team manager in Analytical Sciences.

My research interests focus mainly on transmission Raman. However our group's research includes vibrational spectroscopy 'toolbox', automated stability screening, and imaging technologies for raw materials, intermediates, packaging, drug substance and drug product etc. Areas of interest include solid state understanding, quantification methods, reaction monitoring, structural elucidation, counterfeit identification, physical stability, troubleshooting etc. We support a range of customers including operations, R&D, clinical trials etc.

I got a BSc hons in Forensic and Analytical Chemistry and my PhD in surface enhance Raman spectroscopy (SERRS) at Strathclyde University in Glasgow before completing a three year postdoctoral fellowship, also in SERRS, sponsored by Zeneca. I worked for Avecia as a Team manager of atomic spectroscopy and wet chemistry before joining AZ in 2003. I'm married, have two kids aged 2 and 3, and live in sunny Macclesfield. When (if) I get any free time I like to get outdoors and enjoy the Peak District.