

**Tuesday, October 7, 2008**

**08:30 – 09:30**

**Registration and Coffee**

**09:30**

**Welcome, Introduction and  
Opening Remarks**

*Prof. Staffan Folestad, AstraZeneca, Mölndal SE  
& Chalmers Technical University, Göteborg SE*

**09:45 – 12:30**

**Session: Multivariate Process Analytics 1**  
*Advances in Technology, Methodology, and  
Novel Applications*

Chair:

*Jarkko Ketolainen, University of Kuopio, Kuopio,  
Finland*

- Chemometrics: Implications for robust process monitoring and closed loop process control  
*Prof. Julian Morris, Newcastle University, Newcastle, United Kingdom*
- PAT beyond analyzers: The role of Multivariate Analysis in QbD  
*Dr Theodora Kourti, GlaxoSmithKline, Global*
- Improved performance and robustness in multivariate process monitoring by Orthogonal Partial Least Squares (OPLS)  
*Dr Erik Johansson, Umetrics, Umeå, Sweden*
- Multivariate modelling/monitoring of crystallisation process  
*Dr Morten Allesø, University of Copenhagen, Copenhagen, Denmark*
- Investigating the formation kinetics and stability of carbamazepine-nicotinamide co-crystals prepared by mechanical activation  
*Dr Jaakko Aaltonen<sup>1,2</sup>, Norman Chieng<sup>1</sup>, Madlen Hubert<sup>1</sup>, Dorothy Saville<sup>1</sup>, Thomas Rades<sup>1</sup>* <sup>1</sup>School of Pharmacy, University of Otago, Dunedin, New Zealand, <sup>2</sup>Department of Pharmaceutics, University of Kuopio, Finland

**12:30 – 13:30**

**Lunch**

**13:30 – 18:00**

**Session: PAT Sensors 1**

*Advances in Technology, Methodology, and  
Novel Applications*

Chairs:

*Prof. Staffan Folestad, AstraZeneca, Mölndal SE  
& Chalmers Technical University, Göteborg SE  
Rudolf Kessler, Reutlingen University, Germany*

- Advances in sensor technology for PAT: Impedance and Terahertz based methods in focus  
*Prof. Elmar Wagner, Fraunhofer Institute for Physical Measurement Techniques IPM, Freiburg, Germany*
- Diodlaser based process sensors  
*Prof. Stefan Andersson-Engels, Lund University, Lund, Sweden*
- Process Analytical Spectroscopy in Opaque Systems  
*Prof. Rudolf Kessler, Reutlingen University, Germany*

**15:15 – 15:45**

**Coffee**

- Novel multispectral 2D measuring system  
*Dr Ervin Nippolainen, Department of Physics, University of Kuopio, Finland*
- Development of ultra-sound based in-line measurements of rheological properties of process streams  
*Dr Johan Viklund, Swedish Institute of Food and Biotechnology, Göteborg, Sweden*
- Direct acoustic chemometrics for emulsion properties in steel rolling oil emulsion  
*Dr Anders Björk<sup>1</sup> and Anders Janols<sup>2</sup>,*  
<sup>1</sup>IVL Swedish Environmental Research Institute Ltd, Stockholm, <sup>2</sup>SSAB Tunnpå AB, Borlänge, Sweden

*Third pan-European PAT Conference*

**EuPAT3**

Scientific Progress Underpinning Innovative Manufacturing Control and Quality by Design  
Göteborg, Sweden, October 7-8, 2008

*Final Programme – September 30, 2008*

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- Utilizing UPLC for the on-line analysis of in-process samples  
*Tanya Jenkins*, Waters Corporation, Milford, MA, USA
- Practical aspects with applying near-infrared spectroscopy for monitoring of filamentous microorganism fermentations  
*Anna Eliasson Lantz<sup>1</sup>, Peter Ödman<sup>1</sup>, Nanna Petersen<sup>2</sup>, Lisbeth Olsson<sup>1</sup> and Krist V Gernaey<sup>2</sup>*, <sup>1</sup>Department of Systems Biology, <sup>2</sup>Department of Chemical and Biochemical Engineering, Technical University of Denmark, Lyngby, Denmark
- A comparison between electrical impedance tomography monitoring and UV/VIS spectrophotometric analysis in tablet dissolution testing  
*Rimpiläinen Ville<sup>1</sup>, Heikkinen Lasse<sup>1</sup>, Kuosmanen Marko<sup>2</sup>, Järvinen Kristiina<sup>2</sup>, Ketolainen Jarkko<sup>2</sup>* <sup>1</sup>Dept of Physics, <sup>2</sup>Dept of Pharmaceutics, University of Kuopio, Finland

**19:00**

**Conference Dinner**

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**Wednesday, October 8, 2008**

**08:30 – 11:20**

**Session: Multivariate Process Analytics 2**

*Advances in Technology, Methodology, and Novel Applications*

Chair:

*Julian Morris*, Newcastle University, Newcastle, United Kingdom

- Inverse problems and processing  
*Dr. Marko Vauhkonen*, University of Kuopio, Kuopio, Finland
- Science based multivariate process sensor calibration  
*Dr Ralf Maarbach*, VTT Electronics, Oulu, Finland
- Online operator decision support and optimization for sack paper production by PAT based process automation  
*Dr Håkan Fridén*, Mid Sweden University, Sundsvall, Sweden

**10:10 – 10:40**

**Coffee**

- Common problems when using multivariate models  
*Prof. Rasmus Bro*, University of Copenhagen, Copenhagen, Denmark

**11:20 – 15:30**

**Session: PAT Sensors 2**

*Advances in Technology, Methodology, and Novel Applications*

Chairs:

*Jukka Rantanen*, University of Copenhagen, Copenhagen, Denmark

*Peter York*, University of Bradford, Bradford, United Kingdom

- Recent advances in acoustic sensors for fluid-bed granulation  
*Prof. Jarkko Ketolainen*, University of Kuopio, Kuopio, Finland

- *In-situ* measurement in extreme environments: From Fat PAT to Mars Exploration  
*Dr Ian Scowen*, IPI Analytical Centre, Bradford, United Kingdom

**12:30 – 13:30**

**Lunch**

**13:30 – 15:30**

**Session: PAT Sensors 2 – Cont.**

*Advances in Technology, Methodology, and Novel Applications*

- Implementation of in-situ Raman monitoring in freeze-drying processing  
*Dr Thomas De Beer*, Ghent University, Ghent BE
- Estimation of granule size distribution for fluidized bed granulation  
*Sanni Matero<sup>1</sup>*, *Sami Poutiainen<sup>2</sup>*, *Tatu Hämäläinen<sup>2</sup>*, *Satu-Pia Reinikainen<sup>3</sup>*, *Kristiina Järvinen<sup>2</sup>*, *Jarkko Ketolainen<sup>2</sup>*, *Antti Poso<sup>1</sup>*,  
<sup>1</sup>Department of Pharmaceutical Chemistry,  
<sup>2</sup>Department of Pharmaceutics, University of Kuopio, <sup>3</sup>Department of Chemical Technology, Lappeenranta University of Technology, Finland
- Measurement of ultrasound velocity and attenuation on tablets with different porosities  
*Dr Simo-Pekka Simonaho<sup>1,2</sup>*, *Tiina Ranta-Aho<sup>1</sup>*, *Jari Leskinen<sup>1</sup>*, *Marko Kuosmanen<sup>2</sup>*, *Reijo Lappalainen<sup>1</sup>*, *Jarkko Ketolainen<sup>2</sup>*, <sup>1</sup>Dept of Physics, <sup>2</sup> Dept of Pharmaceutics, University of Kuopio, Finland
- Raman and NIR spectroscopy as particle sizing PAT-Tools  
*P. Vercruyssen<sup>1</sup>*, *A. Burggraeve<sup>1</sup>*, *T. De Beer<sup>1</sup>*, *J-P. Remon<sup>2</sup>*, *C. Vervae<sup>1</sup>*, *W. R.G. Baeyens<sup>1</sup>*,  
<sup>1</sup>Laboratory of Drug Quality Control, <sup>2</sup>Laboratory of Pharmaceutical Technology, Ghent University, Belgium

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- NIR and Raman spectroscopy as PAT tools to quantify the particle size of spray dried mannitol,  
*A. Burggraefe<sup>1</sup>, T. De Beer<sup>1</sup>, P. Vercruysse<sup>1</sup>, J-P. Remon<sup>2</sup>, C. Vervae<sup>2</sup>, W.R.G. Baeyens<sup>1</sup>*  
1Laboratory of Drug Quality Control, Ghent University, Belgium, 2Laboratory of Pharmaceutical Technology, Ghent University, Belgium

**15:30**

**Closing Remarks**

*Peter York*, University of Bradford, Bradford, United Kingdom