2007

gPROMS annual meeting

PSE TENTH ANNIVERSARY YEAR

London, 17–19 April 2007

Provisional agenda

Monday, 16 April 2007 – Welcome drinks

19:00 – 20:30 Informal evening drinks reception for early arrivals at The Cumberland, Marble Arch

Tuesday, 17 April 2007 – Day 1

08:30 – 09:00 Registration

09:00 – 17:10 PSE and User presentations

18:00 – 22:30 PSE 10th Anniversary Dinner, The Roof Gardens

Wednesday, 18 April 2007 – Day 2

09:00 – 16:15 PSE and customer presentations

19:00 – 22:30 PSE gPROMS Advisory Council dinner

Thursday, 19 April 2007 – Optional events

09:00 – 16:00 Advanced Model Validation training course

09:00 – 12:00 Specialist Seminar 1

13:00 – 16:00 Specialist Seminar 2

09:00 – 17:00 Individual meetings

Location: The Cumberland

http://www.guoman.com

The Cumberland Hotel
Great Cumberland Place
Marble Arch, London W1A 4RF

t: +44 (0) 870 333 9280
f: +44 (0) 870 333 9281
e: enquiries@thecumberland.co.uk

Click here for full details from ViaMichelin

PSE

Day 1 – Tuesday 17 April

08:30 – 9:00 Registration

Introduction and Welcome	Mark Matzopoulos Marketing Director

SESSION 1: PSE developments and directions

PSE update: new technologies, new customers, new operations *As more and more companies in different process sectors adopt Advanced Process Modelling, PSE is expanding its operations around the world to meet their requirements. PSE MD Costas Pantelides provides an update.*	Costas Pantelides Managing Director

SESSION 2: Advanced Process Modelling across the lifecycle

Advanced Process Modelling in pulp & paper *Pulp & paper production is a complex process requiring complex and expensive plant and machinery. Hermann-Josef Post describes how Voith Paper is applying APM throughout to enhance Voith's designs and operation, and thus its service to customers.*	Hermann-Josef Post, Voith Paper

10:30 – 11:00 Refreshments

From laboratory to commercial plant: simultaneous optimisation of reactor operations and catalyst design. *Model-Based Innovation techniques enable Süd-Chemie to incorporate laboratory, pilot plant and operational data into a unified set of models that are then used to optimise customers' reactor operation as well as enhance Süd-Chemie's catalyst design.*	Christoph Baeumler Süd-Chemie

SESSION 3: Model-Based Innovation applications

MBI techniques are helping to integrate experimental and modelling effort in diverse application areas.

Improving crystal size distribution and purity in lactose crystallisation *The use of first-principles modelling with rigorous validation procedures creates high-accuracy predictive models of crystallisation processes. Dr Westhoff describes how such models are used to optimise production of high-grade lactose for pharmaceuticals use.*	Gerrit Westhoff, Friesland Foods

12:30 – 14:00 Lunch

Model-Based Innovation in fuel cell design *To be confirmed*	To be confirmed

SESSION 4: gPROMS for reaction

gPROMS continues to be the leading environment for high-accuracy predictive modelling of reaction systems.

APM in detailed design of Fluidised Bed Reactors *Many of the techniques used for high-accuracy modelling of Fixed-Bed Reactors can be applied to their Fluidised-Bed cousins. However the need to use multi-dimensional population balances to account for different particle residence times is a key difference. Zbigniew Urban illustrates this using the example of a pyrolysis gasification process.*	Zbigniew Urban, PSE

15:30 – 16:00 Refreshments

Refinery conversion operations – the next generation of models *BP is working with PSE to implement a set of refinery reactor models that will represent the state-of-the-art in optimisation of design and operation of refinery conversion processes. The systematic approach to conversion of legacy code to first-principles validated models of units such as hydrotreaters is described.*	Scott Watson, BP Simon Pressinger, BP
High-fidelity modelling of polymerisation reactors *PSE has been developing a new generation of polymerisation process models which represent a step increase in the description of product quality, especially when co-polymerisation of several co-monomers is involved.*	Zbigniew Urban, PSE

17:10 Finish

18:00 Coach to The Roof Gardens – PSE 10th Anniversary dinner (finish 22:30 – 23:00)

Day 2 – Wednesday 18 April

09:00 Start

SESSION 5: gPROMS technology – gPROMS v3.1 preview and developments

Following the major release of gPROMS version 3.0 last year, version 3.1 builds on the graphical user interface, and adds key new solution capabilities as well as other significant 'under the bonnet' advances.

gPROMS v3.1 ModelBuilder. *v3.1 philosophy and key features, with demonstration of new graphical display capabilities, new pre-configured result presentation in reports, enumerated domains, other usability-enhancing kernel developments.*	Christian Schulz, gPROMS Product Manager Costas Pantelides
gPROMS v3.1 modelling and solution capabilities. *Significant new developments such as gSTART initialisation capability, non-uniform grids and automatic solution of high-index DAEs.*	

10:30 – 11:00 Refreshments

gPROMS v3.1+: Advanced techniques for model validation. *PSE is investing considerable R&D effort into advanced techniques for model validation, as well as other related areas of research. Claire Adjiman, currently spending a year at PSE on secondment from Imperial College London, describes some of the on-going work and the technologies on the horizon.*	Claire Adjiman, PSE/ Imperial College London
General Q & A	
New dynamic optimisation algorithms in gPROMS *The DyOS development at RWT Aachen is breeding a new generation of dynamic optimiser, with development talking place using gPROMS as the modelling and solution engine. What are the implications for modellers of the future?*	Prof. Wolfgang Marquardt, RWTH Aachen

12:30 – 14:00 Lunch

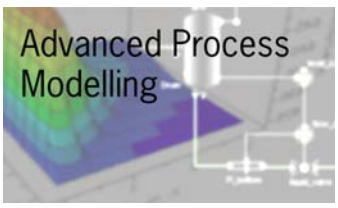
SESSION 6: New developments in Advanced Process Modelling

APM is continually being applied to new application areas, new sectors and different areas of the process lifecycle.

Advances in membrane process modelling *Membrane process modelling is not well catered for in standard flowsheeting tools, and companies have traditionally resorted to FORTRAN modelling to fill the gap. APM techniques now make it easy to create, validate and deploy such models.*	James Marriott PSE
A non-linear MPC strategy for conversion targeting in an FCC pilot plant *gPROMS is used to provide dynamic simulation, optimisation and generation of linearised state-space models for a non-linear Model-Based Predictive Control system used for the benchmarking of catalysts for a Fluid Catalytic Cracking (FCC) unit.*	Spyros Voutetakis, CPERI Panos Seferlis, Aristotle University of Thessaloniki & CPERI
gPROMS and CAPE-OPEN – integration of legacy models made simple *A new gPROMS' CAPE-OPEN socket has made it possible to integrate models from a variety of sources into gPROMS. The developments are illustrated with proprietary legacy FORTRAN models of power generation components – taken from the Virtual Plant Demonstration Model (VPDM) project – into a gPROMS "whole plant model".*	Tom Williams, PSE

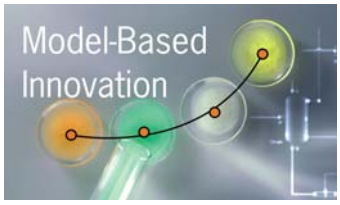
16:00 Concluding remarks

16:15 Finish



gPROMS

ModelCare



Day 3 – Thursday 19 April

Optional seminars and workshops

We have the following programme of seminars and workshops on Thursday 19:

Track 1 morning	Specialist seminar 1 (see options below)
Track 1 afternoon	Specialist seminar 2 (see options below)
Track 2 (all day)	Advanced Model Validation: hands-on course and workshop
Track 3 (all day)	One-to-one meetings (by arrangement)

Specialist seminars

Are you interested in finding out more about how to apply Advanced Process Modelling and Model-Based Innovation techniques in specialist application areas? We will be holding in-depth seminars on two of the following four topics:

■	Reaction	■	Polymerisation
■	Crystallisation	■	Fuel cell components and systems

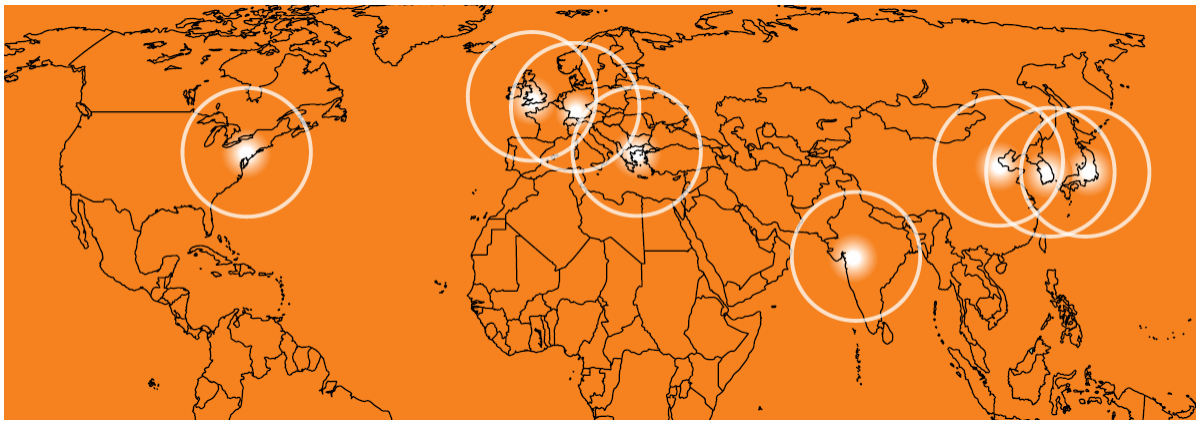
Seminars will comprise a technical presentation of the state-of-the-art in modelling for the application area, followed by an in-depth round-table technical discussion facilitated by a PSE Technology Leader. The seminars will be limited to 8 participants, to enable a level of detail and discussion not possible in the more general Annual Meeting forum.

The final topics will be determined by the level of interest in each topic, and will be decided by Thursday 22 March. Please vote for your preferred topics using the registration form to indicate which you would like to attend.

Advanced Model Validation hands-on course and workshop

Model validation – the fitting of model parameters to observed (laboratory, pilot plant or operating) data – is a key step in building Advanced Process Models. The more accurate your kinetic parameters are, for example, the lower your reactor design margin and the better the controllability of the reactor.

This one-day hands-on course provides detailed instruction on how to get the most out of gPROMS' leading parameter estimation and model-based experiment design capabilities.



PSE Head office
+44 (0)20 8563 0888
PSE Americas
+1 973 290 9559

PSE Japan
+81 (0)45 348 6330
PSE Central Europe
+49 221 167989-11

PSE Academic
+30 (0)2310 489 108
PSE_Academic@psenterprise.com