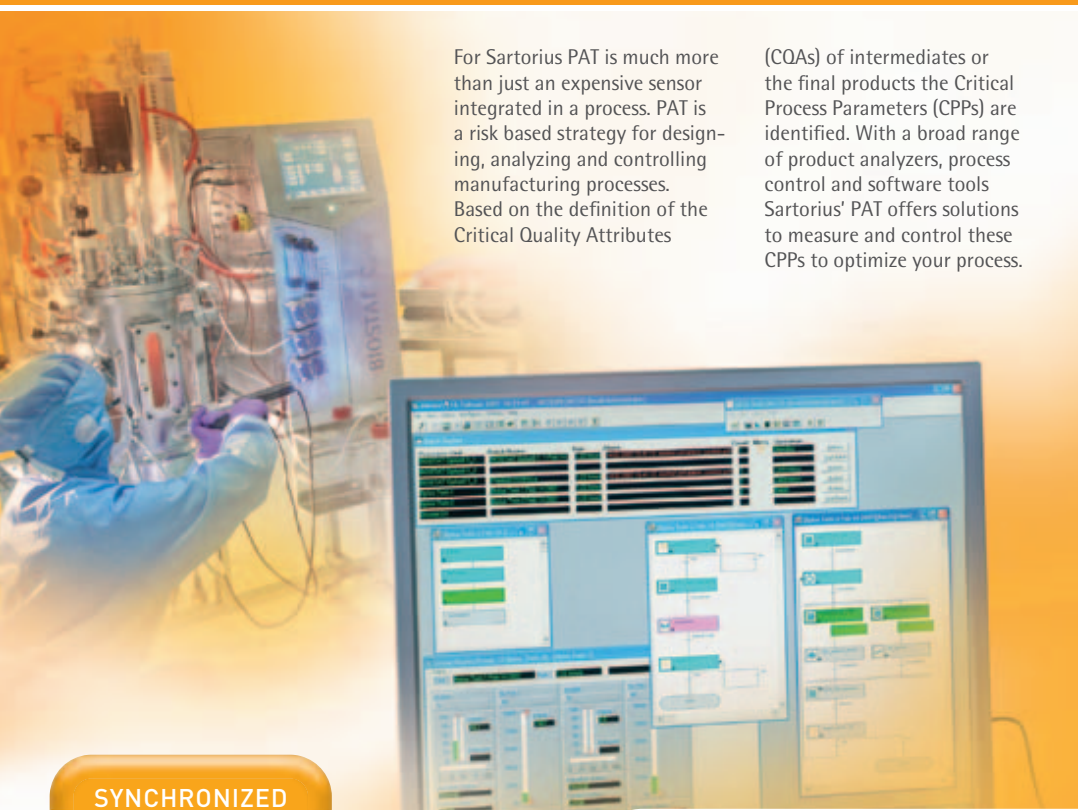


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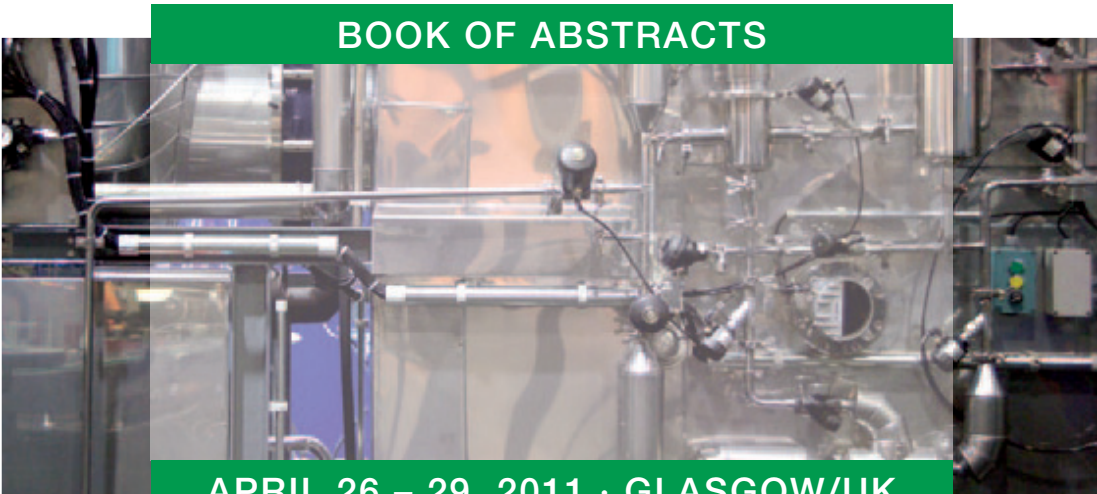
(COAs) of intermediates or the final products the Critical Process Parameters (CPPs) are identified. With a broad range of product analyzers, process control and software tools Sartorius' PAT offers solutions to measure and control these CPPs to optimize your process.



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BOOK OF ABSTRACTS

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ORGANISING GROUPS

CPACT Centre for Process Analytics and Control Technology

ARBEITSKREIS PROZESSANALYTIK Working Group Process Analytics

DECHEMA Society for Chemical Engineering and Biotechnology e.V.

GDCh German Chemical Society e.V.

KNCV Koninklijke Nederlandse Chemische Vereniging

APACT Advances in Process Analytics and Control Technology

NAMUR User Association for Automation in Process Industries

EUFEPS European Federation for Pharmaceutical Sciences

ISPE International Society for Pharmaceutical Engineering

EuPAT Conference Series

SCIENTIFIC COMMITTEE

Dr. Pieter K. de Bokx	Philips Research MiPlaza, Eindhoven/NL
Dr. Staffan Folestad	AstraZeneca, Mölndal/S
Dr. Wolf-Dieter Hergeth	Wacker Chemie AG, Burghausen/D
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Prof. Dr. Rudolf W. Kessler	Reutlingen University/D
Hans H. Lindén	EUFEPS European Federation for Pharmaceutical Sciences, Stockholm/S
Prof. Dr. David Littlejohn	University of Strathclyde, Glasgow/UK
Dr. Leo Nick	DECHEMA e.V., Frankfurt am Main/D
Dr. Dirk Steinmüller	Knick Elektronische Messgeräte GmbH & Co. KG, Berlin/D
Prof. Dr. Romà Tauler	Spanish National Research Council (CSIC), Barcelona/E

Note: The abstracts have been supplied by the authors and are produced without corrections (as of March 10, 2011).

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PROGRAMME AT A GLANCE

Tuesday, April 26

09:00	Registration for Course Participants Rooms will be announced onsite.
09:30-13:00	PRE-CONFERENCE COURSE 1
09:30-13:00	PRE-CONFERENCE COURSE 2
09:30-13:00	PRE-CONFERENCE COURSE 3
13:00-14:00	Lunch for Course Participants
14:00-17:30	PRE-CONFERENCE COURSE 4
14:00-17:30	PRE-CONFERENCE COURSE 5
14:00-17:30	PRE-CONFERENCE COURSE 6
14:00-17:30	PRE-CONFERENCE COURSE 7
17:30	Registration Cambridge Suite
Room	Cambridge Suite
Chair	<i>D. Littlejohn, University of Strathclyde, Glasgow/UK</i>
19:30-21:00	Welcome Reception at Thistle Hotel (with refreshments) & Evening Lecture
20:00	EVENING LECTURE J. Brückner, Max Planck Institute for Chemistry, Mainz/D Two robotic rovers on the red planet: application of in-situ analytical methods for the exploration of the martian surface
18:00-20:00	Set-up exhibition/posters



PROGRAMME AT A GLANCE

Wednesday, April 27

08:00	Registration	08:00	
08:45	Opening	08:45	
Room	Cambridge Suite	Room	
Chair	<i>S. Folestad, AstraZeneca R&D, Mölndal/S</i>	Chair	
09:00	PLENARY LECTURE W. Oostra, A. Gerich, MSD, Oss/NL PAT, from feasibility to real control, a bumpy road	09:00	
09:45	PLENARY LECTURE R. Bro, University of Copenhagen, Frederiksberg/DK Chemometrics – enabling technology and a driver for process analysis	09:45	
10:30	Coffee Break	10:30	
Room	Cambridge Suite Robert Burns Suite	Room	
	Process Chemometrics	PAT in Pharmaceutical Industries	
Chairs	<i>R. Tauler, CSIC, Barcelona/ES</i>	<i>S. Folestad, AstraZeneca R&D, Mölndal/S</i>	Chairs
11:00	A. Mason	J.C. Menezes	11:00
11:30	P. Van den Kerkhof	P. Hamilton	11:30
12:00	A. McIntyre	S. Pieters	12:00
12:30	O. Preisner	I. Clegg	12:30
13:00	Lunch	13:00	
14:00	POSTER SESSION 1 (including tea/coffee)	14:00	
Room:	Cambridge Suite	Room:	
Chair	<i>S. Folestad, AstraZeneca R&D, Mölndal/S</i>	Chair	
15:15	PLENARY LECTURE M. Warman, Vertex Pharmaceuticals Inc., Cambridge, MA/USA Advances in monitoring and control of continuous tablet manufacturing systems	15:15	
Room	Cambridge Suite Robert Burns Suite	Room	
	Advances in Control of Continuous Manufacturing	Innovations in Process Analysers and Sensor Technology	
Chairs	<i>S. Folestad, AstraZeneca R&D, Mölndal/S</i>	<i>D. Steinmüller, Knick Elektronische Meßgeräte GmbH & Co.KG, Berlin/D</i>	Chairs
16:00	J. Paaso	J. Davies	16:00
16:30	G. Oppong	V. Artyushenko	16:30
17:00	G. Yi	J. Herbst	17:00
19:00-21:00	Civic Reception in Glasgow City Chambers (including food)	19:00-21:00	

PROGRAMME AT A GLANCE

Thursday, April 28			
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Chair	W.-D. Hergeth, Wacker Chemie AG, Burghausen/D		Chair
08:30	PLENARY LECTURE R. Luttmann, Hamburg University of Applied Sciences/D Novel process design in production of cell recombinant proteins		08:30
09:15	PLENARY LECTURE M. Graeber, M. Heine, M. Agarwal, B. Conde-Petit, Bühler AG, Uzwil/CH Challenges in process analytics and control in food and feed processing		09:15
10:00	Coffee Break		10:00
Room	Cambridge Suite	Robert Burns Suite	Room
	Novel Applications of Process Analytics in Chemical Industry	PAT in Pharmaceutical Industries	
Chairs	W.-D. Hergeth, Wacker Chemie AG, Burghausen/D	P. Dallin, Claires Scientific Ltd., Northampton/UK	Chairs
10:30	S. Hardy	D.M. Koller	10:30
11:00	S. Langridge	V Rimpilainen	11:00
11:30	C.B. Minnich	J. Sefcik	11:30
12:00	R. Hass	S. Folestad	12:00
12:30	D. Wilsdon	S. Bragg	12:30
13:00	Lunch		13:00
13:30	Robert Burns Suite: Presentation of Waters (www.waters.com)		
14:00	POSTER SESSION 2 (including tea & coffee)		14:00
Room	Cambridge Suite		Room
Chair	D. Littlejohn, University of Strathclyde, Glasgow/UK		Chair
15:15	PLENARY LECTURE P. Berghäuser, Siemens AG, Karlsruhe/D Combining process analyzers with smart NeSSI-based sampling systems: new opportunities to improve the intelligence of the complete solution		15:15
Room	Cambridge Suite	Robert Burns Suite	Room
	Novel Applications of Process Analytics in Biotechnology Industry	Innovations in Process Analysers and Sensor Technology	
Chairs	D. Littlejohn, University of Strathclyde, Glasgow/UK	D. Steinmüller, Knick Elektronische Meßgeräte GmbH & Co.KG, Berlin/D	Chairs
16:00	B. Joksch	R. Lehnig	16:00
16:30	S. Birle	R.W. Kessler	16:30
17:00	J.J. Müller	S. Hoche	17:00
17:30	G. Striedner	A. Nordon	17:30
19:30	Dinner at Barony Hall		19:30

PROGRAMME AT A GLANCE

Friday, April 29			
Room	Cambridge Suite		Room
Chair	R.W. Kessler, Reutlingen University/D		Chair
08:45	PLENARY LECTURE J.A. Fernández Pierna, Centre Wallon de Recherches Agronomiques, Gembloux/B Integration of chemometric processing tools for the study of hyperspectral imaging data		08:45
Room	Cambridge Suite	Robert Burns Suite	Room
	Chemical Imaging and Process Tomography	Novel Process Design and Control Strategies	
Chairs	R.W. Kessler, Reutlingen University/D	P.K. de Bokx, Philips Research MiPlaza, Eindhoven, NL	Chairs
09:30	S. Wöckel	G. Gins	09:30
10:00	M. Toiviainen	S. Mühlbeyer	10:00
10:30	Coffee Break		10:30
Room	Cambridge Suite	Robert Burns Suite	Room
	Chemical Imaging and Process Tomography	Novel Process Design and Control Strategies	
11:00	E. Ostertag	D. Suzzi	11:00
11:30	L. Gradinarsky	N.A.F. Abdul Samad	11:30
12:00	F. Aïouache	C. McCready	12:00
Room	Cambridge Suite		Room
Chair	W.-D. Hergeth, Wacker Chemie AG, Burghausen/D		Chair
12:30	PLENARY LECTURE I.A. Mariz, J.C. de la Cal, J.R. Leiza, The University of the Basque Country, Donostia-San Sebastian/E Process monitoring and control of emulsion polymerization reactors: a knowledge based strategy to the synthesis of high solids content latexes		12:30
13:15	Poster Prize, Siemens Prize, Closing		13:15
13:30	Lunch		13:30

INVITED SPEAKERS

INVITED SPEAKERS

Peter Berghäuser, Siemens AG, Karlsruhe/D

Combining process analyzers with smart NeSSI-based sampling systems: new opportunities to improve the intelligence of the complete solution

Rasmus Bro, University of Copenhagen, Frederiksberg/DK

Chemometrics – enabling technology and a driver for process analysis

Johannes Brückner, Max Planck Institute for Chemistry, Mainz/D

Two robotic rovers on the red planet: application of in-situ analytical methods for the exploration of the martian surface

Matthias Graeber, M. Heine, M. Agarwal, B. Conde-Petit, Bühler AG, Uzwil/CH

Challenges in process analytics and control in food and feed processing

Juan Antonio Fernandez Pierna, Walloon Agricultural Research Centre (CRA-W), Gembloux/B

Integration of chemometric processing tools for the study of hyperspectral imaging data

I.A. Mariz, J.C. de la Cal, Jose Ramon Leiza, The University of the Basque Country, Donostia-San Sebastian/E

Process monitoring and control of emulsion polymerization reactors: a knowledge based strategy to the synthesis of high solids content latexes

Reiner Luttmann, Hamburg University of Applied Sciences HAW/D

Novel process design in production of recombinant proteins

Wim Oostra, A. Gerich, MSD, Oss/NL

PAT, from feasibility to real control, a bumpy road

Martin Warman, Vertex Pharmaceuticals Inc., Cambridge, MA/USA

Advances in monitoring and control of continuous tablet manufacturing systems

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09:30-13:00	PRE-CONFERENCE COURSE 2: J. von Frese, Data Analysis Solutions DA-SOL GmbH, Greifenberg/D Support Vector Machines: Non-linear Modelling Made Easy	
09:30-13:00	PRE-CONFERENCE COURSE 3: EUFEPS organised course Control based Quality by Design (QbD)	
13:00-14:00	Lunch for Course Participants	
14:00-17:30	PRE-CONFERENCE COURSE 4: R. Bro, University of Copenhagen, Frederiksberg/DK Introduction to PCA and PLS	
14:00-17:30	PRE-CONFERENCE COURSE 5: M. Stintz, TU Dresden/D; B. Looser, Malvern Instruments Ltd./UK; I. Haley, Mettler-Toledo Ltd./UK Particle Measuring Techniques for Reaction Monitoring	
14:00-17:30	PRE-CONFERENCE COURSE 6: W. Kessler, Steinbeis Transferzentrum, Reutlingen/D Design of Experiments (DoE) for Product and Process Optimization	
14:00-17:30	PRE-CONFERENCE COURSE 7: R.W. Kessler, Reutlingen University/D Hyperspectral Chemical Imaging for Process Analytics	
17:30	Registration	
Room		Cambridge Suite
Chair	<i>D. Littlejohn, University of Strathclyde, Glasgow/UK</i>	
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18:00-20:00	Set-up exhibition/posters	

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08:00 **Registration**

Room Cambridge Suite

08:45 **Opening**

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09:00 **PLENARY LECTURE** "PAT in Pharmaceutical Industries"
PAT, from feasibility to real control, a bumpy road
W. Oostru, A. Gerich, MSD, Oss/NL 3209:45 **PLENARY LECTURE** "Process Chemometrics"
Chemometrics – enabling technology and a driver for process analysis
R. Bro, University of Copenhagen, Frederiksberg/DK 33

10:30 Coffee Break

Room Cambridge Suite

Process Chemometrics

Chair R. Tauler, Spanish National Research Council (CSIC), Barcelona/ES

11:00 **Practical developments in process data mining**
A. Mason, AJM Consulting Services Ltd., Grimsby/UK 3411:30 **Fault detection and diagnosis performance assessment for (bio)chemical batch processes**
P. Van den Kerkhof, G. Gins, J. Vanlaer, J.F.M. Van Impe, Katholieke Universiteit Leuven, Heverlee/B 3512:00 **A comparison of calibration transfer algorithms for mid-infrared analysis using *in situ* ATR immersion probes**
A. McIntyre, A. Nordon, D. Littlejohn, University of Strathclyde, Glasgow/UK; G. Colquhoun, V. Artyushenko, Fibre Photonics Ltd., Livingston/UK 3612:30 **Prototype methodologies for model-based scale-up**
O. Preisner, J. Morris, Newcastle University, Newcastle upon Tyne/UK; J. Cooper, R. Verlinden, Centre for Process Innovation, Wilton/UK 37

13:00 Lunch

14:00 **POSTER SESSION 1** (including tea/coffee)

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R. Bro, University of Copenhagen, Frederiksberg/DK 33

10:30 Coffee Break

Room Robert Burns Suite

PAT in Pharmaceutical Industries

Chair S. Folestad, AstraZeneca R&D, Mölndal/S

11:00 **From process-centered to product-centered QbD: a rationale for design and implementations of QbD and PAT in manufacturing**
J.C. Menezes, Lisbon University/P 3811:30 **Studies in powder drying using *in situ* Raman spectrometry and off-line particle size analysis**
P. Hamilton, A. Nordon, D. Littlejohn, J. Sefcik, University of Strathclyde, Glasgow/UK; P. Slavin, GlaxoSmithKline, Irvine/UK; P. Dallin, J. Andrews, Clairet Scientific, Northampton/UK 3912:00 **Near infrared and Raman spectroscopy as PAT tools to in-line and real-time monitor the conformational state of therapeutic proteins during freeze-drying**
S. Pieters, Free University of Brussels (VUB)/B; T.R.M. De Beer, Ghent University/B; J. Kasper, W. Friess, University of Munich/D; Y. Vander Heyden, Free University of Brussels (VUB)/B 4012:30 **Practical aspects of operating PAT systems in a pilot development facility including a worked example of API process development and scale up**
M.L. Yeow, I. Clegg, Pfizer Global Research and Development, Sandwich/UK 41

13:00 Lunch

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16:00	An ultra-compact Fourier-Transform Spectrometer based on a novel static optical configuration J. Davies, H. Mortimer, STFC Rutherford Appleton Laboratory, Didcot/UK	46
16:30	Fibre probes with CIP-interfaces for process-spectroscopy in spectral range from 180nm to 18µm V. Artyushenko, J. Bollmann, Fibre Photonics Ltd., Berlin/D; G. Colquhoun, Fibre Photonics Ltd., Livingston/UK; G. Danielyan, A.R.T. Photonics GmbH, Berlin/D; J. Mannhardt, Fibre Photonics Ltd., Berlin/D; T. Sakharova, A.R.T. Photonics GmbH, Berlin/D	47
17:00	Process gas laser spectrometer using quantum cascade laser at 14µm J. Herbst, B. Scherer, F. Singer, A. Lambrecht, FhI for Physical Measurement Techniques, Freiburg/D; C. Rathke, S. Filip, J. Kappler, ABB Automation GmbH, Frankfurt am Main/D; P. Fuchs, J. Koeth, Nanoplus GmbH, Gerbrunn/D; J. Friedl, T. Schlereth, J. Semmel, S. Höfling, L. Worschech, A. Forchel, Universität Würzburg/D	48
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12:00	Process monitoring of polymerization reactions by photon density wave spectroscopy R. Hass, O. Reich, Potsdam University/D	55
12:30	In-situ measurement of pigment dispersions using optical spectroscopy D. Wilson, A. Nordon, D. Littlejohn, S. Thennadil, University of Strathclyde, Glasgow/UK; J. Johnson, R. McIntyre, E. Polwart, Fujifilm Imaging Colorants, Grangemouth/UK	56
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11:00	Monitoring of high-shear mixing and granulation with electrical capacitance tomography V. Rimpiläinen, L.M. Heikkinen, T. Savolainen, M. Vauhkonen, S. Poutiainen, J. Ketolainen, University of Eastern Finland, Kuopio/FIN	58
11:30	Monitoring of polymorphic outcome in cooling and antisolvent crystallisation under various flow conditions K.J. Sypek, U. Schacht, J. Sefcik, A.J. Florence, A. Nordon, D. Littlejohn, University of Strathclyde, Glasgow/UK	59
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Chair	<i>D. Littlejohn, University of Strathclyde, Glasgow/UK</i>	
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SIEMENS AWARD

SIEMENS PROCESS ANALYTICS PRIZE FOR YOUNG SCIENTISTS

The German Working Group „Prozessanalytik“ in cooperation with Siemens will award the Siemens Process Analytics Prize to a young scientist for an outstanding publication in the field of Process Analytics.

The prize is endowed with EUR 1.500. A EuroPACT 2011 prize committee will select the winner. The award will be presented during the closing session.



prozessanalytik

SIEMENS

GENERAL INFORMATION**REGISTRATION, WELCOME RECEPTION AND EVENING LECTURE**

The conference starts with an evening lecture on Tuesday, April 26 at 20:00 h. You have the opportunity to register from 17:30 h on and pick up your conference documents and to join colleagues during the welcome reception from 19:30 – 21:00 h.

CIVIC RECEPTION

The civic reception will take place at Glasgow City Chambers on Wednesday, April 27 from 19:00 – 21:00 h. Drinks and buffet will be served by invitation of the organisers. Transportation to Glasgow City Chambers is available.

CONFERENCE DINNER

The conference dinner will take place on Thursday, April 28 at 19:30 at Barony Hall. The ticket is included in the registration fee; however registration is necessary as places are limited. Dinner, wine, transportation and entertainment are included.

CONFERENCE OFFICE

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CONFERENCE VENUE

EuroPact 2011 will take place at the Thistle Hotel Glasgow. The Hotel is located on Cambridge Street in Glasgow, near both Glasgow Central Train Station and Glasgow Queen Street Train Station, and near the Glasgow Airport as well.

Thistle Hotel Glasgow
Cambridge Street
Glasgow, G2 3HN
www.thistle.com/glasgow

Please find a detailed description of how to get to the conference venue at www.euro-pact.org.

GENERAL INFORMATION**REGISTRATION FEE**

Early registration till February 28, 2011	395 GBP
Regular registration	450 GBP
Students with student identity card	120 GBP
Extra Fee for Pre-Conference Courses	
Regular participation	100 GBP
Students with student identity card	50 GBP

Included in the registration fee is the Welcome Reception on Tuesday, the Civic Reception on Wednesday in Glasgow City Chambers, the Conference Dinner on Thursday at Barony Hall, lunches, coffee/tea and soft drinks during the breaks. Registration is possible, subject to capacity, up to the beginning of the event. The deadline for inclusion in the list of participants is 3 weeks before the event begins.

CANCELLATION AND REFUNDS

Registrations cancelled no later than 3 weeks before the conference begins will be entitled to a refund minus an administration charge of 30 GBP. Thereafter 80% of the conference fee will be charged. Only written cancellations (fax, post or e-mail) will be accepted. The effective date is the date of receipt.

In case of non-attendance or drop-outs, the full conference fee is payable.

Substitute participant: We will be pleased to accept a substitute nominated by you. The nomination of a substitute must be made in writing and is free of charge. Any difference in the fees will be invoiced or credited respectively.