Annual EPSRC Centre Open Day 2013

"Welcome to the second annual Open Day of the EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation. The Centre was established in 2011 thanks to significant support from EPSRC, a large number of companies including major multinational end-users as well as SME technology providers and from collaborating universities. Our shared vision is to accelerate the adoption of continuous manufacturing processes, systems and plants for the production of high-value chemical products including pharmaceuticals, dyes and pigments, energetic materials and others. Clearly, addressing the significant engineering and physical science challenges across the national Centre's scope requires a collaborative, interdisciplinary effort and our second Open Day is aimed at advancing national and international activities in this area as well as highlighting opportunities to engage further with the exciting programme moving forward."

Professor Alastair Florence

Centre Director

Annual EPSRC Centre Open Day 2013

Programme

Thursday 12th September, Glasgow Science Centre

09:30 – 10:00 Glasgow Science Centre Entrance and Atrium

Attendee registration and tea/coffee

10:00 – 10:10 IMAX Cinema

Welcome

Professor Sir Jim McDonald, Principal

10:10 – 10:30 IMAX Cinema

Centre Overview

Professor Alastair Florence, Session Chair

10:30 – 11:05 IMAX Cinema

Keynote: 'Converting Batch to Continuous for Profit as well as Fun'

Professor Paul Sharratt, ICES

11:05 – 11:20 IMAX Cinema

'Towards Multi-Component Crystallisation of Urea and Barbituric Acid within the Continuous Flow Environment'

Kate Wittering, EPSRC Centre, University of Bath

11.20 – 11:40 IMAX Cinema

'Control of Nucleation and Growth in a Continuous Oscillatory Baffled Crystalliser (COBC)'

Naomi Briggs, EPSRC Centre, University of Strathclyde

11:40 – 12:05 Atrium

Tea / coffee and poster session

12:05 – 12:25 IMAX Cinema

'Integrated platforms for chemical synthesis and crystallisation'

Dr Victor Sans Sangorrin, EPSRC Centre, University of Glasgow

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Programme

Thursday 12th September, Glasgow Science Centre

12:25 – 12:40 IMAX Cinema
'Non-Photochemical Laser-Induced Nucleation in Continuous Crystallisation'
Alasdair Mackenzie, EPSRC Centre, The University of Edinburgh

12:40 – 14:20 Atrium
Lunch and poster session

14:20 – 14:30 IMAX Cinema
Session Introduction
Mr Craig Johnston, Session Chair

14:30 – 14:50 IMAX Cinema
'On the investigation of the nucleation mechanism in an oscillatory baffled crystalliser'
Craig Callahan, EPSRC Centre, Heriot-Watt University

14:50 – 15:25 IMAX Cinema
Keynote: 'From Pharmaceutical Substance to Product – An Industrial Perspective on Continuous Crystallisation'
Dr Amy Robertson, AstraZeneca

15:25 – 15:45 IMAX Cinema
'Reconfiguring the Pharma End to End Supply Chain through Continuous Manufacturing'
Dr Tomás Harrington, EPSRC Centre, University of Cambridge

15:45 – 16:05 IMAX Cinema
'Monitoring and Control of Polymorphism in Cocrystallisation'
Dr Ali Saleemi, EPSRC Centre, Loughborough University

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Programme

Thursday 12th September, Glasgow Science Centre

16:05 – 16:30 Atrium
Tea / coffee and poster session

16:30 – 17:05 IMAX Cinema
Keynote: 'Application of Discrete Element Modelling for the Development of Particulate Processes'
Dr Ali Hassanpour, University of Leeds

17:05 – 17:25 IMAX Cinema
'Modular test bench for continuous crystallisation'
Dr Anna Jawor-Baczynska, EPSRC Centre, University of Strathclyde

17:25 – 17:50 IMAX Cinema
Session close and round-up
Remarks from Professor Alastair Florence with poster prize presentation

Evening

18:00 – 19:00 Floor 1
Wine reception and explore interactive exhibits

19:00 Whispering Dishes
Dinner is served

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Speaker's biographies

Professor Sir Jim McDonald, Principal, University of Strathclyde

Professor Sir Jim McDonald is responsible for the day-to-day management of the University and is also responsible to the University Court for the finances of the University. He was appointed Principal in November 2008 and took up his post in March 2009. Professor McDonald leads specifically on Strategy and Planning; Research and Knowledge Exchange and External Affairs and Development. He started his Strathclyde career as an undergraduate, before studying for an MSc and PhD in Power Engineering and Power System Economics. Sir Jim returned to the University in 1984 after eight years in industry and held several academic positions in the department of Electronic and Electrical Engineering including Head of Department, ultimately taking up the post of Rolls Royce Professor of Electrical Power Systems in 1994. He was promoted to Deputy Principal in August 2006 with focus on research enhancement and business development. In October 2006 he was appointed Director of the Glasgow Research Partnership and he was awarded a knighthood in The Queen's Diamond Jubilee Birthday Honours for his services to education, engineering and the economy.

Professor Alastair Florence, EPSRC Centre Director

Alastair Florence is the Director of the EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation and a Professor of Pharmaceutical Sciences at the Strathclyde Institute for Pharmacy and Biomedical Sciences at the University of Strathclyde. As a pharmaceutical scientist, he has expertise in crystallisation and crystallisation screening of pharmaceuticals and other molecular solids and in approaches to the discovery, characterisation and control of physical forms including polymorphs, solvates, salts, co-crystals and amorphous solids. A key focus is on the physical analysis of crystalline and polycrystalline solids to study the influence of crystallisation conditions, processing, temperature and other factors on their structure and properties in pure and formulated states.

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Speaker's biographies

Professor Paul Sharratt, Division Head Process Science and Modelling, ICES in Singapore

After graduating from Cambridge, Paul gained a PhD in reaction engineering (1987) from UMIST. He worked at ICI before returning to UMIST in 1991. He was promoted to a full Chair in 2001 and awarded a Royal Academy of Engineering / EPSRC Chair in Innovative Manufacturing for 2001-6. Until 2008 he was Professor of Sustainable Processing in the School of Chemical Engineering and Analytical Science. He is an honorary chair in the Universidad Major de San Marcos, Lima, a fellow of IChemE and a director of BRITEST Limited. He has been Division Head Process Science and Modelling at ICES in Singapore since 2008. He manages 50 researchers working in innovative processing, analytics, chemometrics, reaction engineering, process systems, design and directs the kilo laboratory and a range of other pilot scale facilities. He has authored over 60 journal papers and book chapters and 140 conference publications.

Kate Wittering, EPSRC Centre PhD Researcher, University of Bath

Kate Wittering is a PhD student within the EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation working within the Wilson Structural Chemistry Research Group at the University of Bath. Her current research is focused on modification of physicochemical properties of active pharmaceutical ingredients (and their precursors) through multi-component crystallisation. The overarching aim of her research is to successfully transfer and optimise the crystallisation of these modified multi-component systems within the continuous flow environment. Kate is also the Industrial Group representative on the committee of the Young Crystallographers Group, a sub-group of the British Crystallographic Association.

Naomi Briggs, EPSRC Centre PhD Researcher, University of Strathclyde

Naomi Briggs is a final year PhD student within the EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation based at Strathclyde Institute of Pharmacy and Biomedical Sciences. Her research is focused understanding and development of continuous crystallisation processes using oscillatory baffled technology. The target goal for her research is polymorph control during continuous crystallisation.

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Speaker's biographies

Dr Victor Sans Sangorrin, EPSRC Centre Research Associate, University of Glasgow

After finishing his PhD in 2007, Victor moved to the UK to do a post-doc in Bath and Warwick with Prof. Alexei Lapkin. During that time he did research work on the development of sustainable flow processes employing microreactor technology to produce added value chemicals, such as antimalarial drugs. In 2011 Victor joined the Cronin group. His research interests lie in the interface between chemistry and chemical engineering; especially in how engineering can revolutionise basic chemical research. The integration of advanced chemical engineering (continuous-flow systems), analytics, robotics, etc. applied to complex chemical systems can lead to very interesting synergies.

Alasdair Mackenzie, EPSRC Centre PhD Researcher, The University of Edinburgh

Alasdair Mackenzie recieved his MChem from The University of Edinburgh in 2011. As part of this he spent a year at the STFC Rutherford Appleton Laboratory in Oxfordshire operating a two-photon femtosecond laser FRET/FLIM microscope and developing a laser TIRF/tweezers microscope as well as synthesising and characterising a fluorescent molecule for photovoltaic applications for his master's year. He is currently in his first year of his PhD at The University of Edinburgh developing non-photochemical laser-induced nucleation for applications in continuous manufacturing as part of CMAC.

Craig Johnston, EPSRC Centre Industrial Director

Craig Johnston is the Operations Director of CMAC and the Industrial Director of the EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation and is a fellow of the Institute of Chemical Engineers. His industrial career spans 22 years, working for ICI, Zeneca, Avecia and Fujifilm. Roles included technical, production, start-up management and technology leadership. Responsibilities included new product introduction, process improvement, project definition, capital expenditure and novel process technology evaluation. He was a board director with BRITEST Ltd (2006-2011) an industry / academic consortium focussed on adding value through process understanding and design. He is currently chair of the Chemical Science Scotland Innovation Group.

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Speaker's biographies

Craig Callahan, EPSRC Centre PhD Researcher, Heriot-Watt University

Craig Callahan is currently a PhD student for the EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation, within the Institute of Mechanical, Process and Energy Engineering at Heriot-Watt University. His PhD research is focused on the investigation of the nucleation mechanism in an oscillatory baffled crystalliser, and why this is different to the conventional stirred tank crystalliser. Craig received a BSc in Chemistry with Forensic Science from the University of Strathclyde and worked as an application chemist with NiTech Solutions Ltd. prior to undertaking his PhD research.

Dr Amy Robertson, Associate Principal Scientist, AstraZeneca

Amy Robertson obtained a BSc in Chemistry from the University of Glasgow and a PhD in Structural Chemistry from the University of Bristol (Prof. A.G. Orpen). She then spent 3 years as a Post-Doctoral Research Associate at UMIST (Prof. R.J. Davey) investigating the crystallisation of pharmaceutical hydrates. She worked in the Materials Science group at Pfizer, Sandwich for 2 years both in solid form selection and as a small molecule crystallographer. For the past seven years she has been a crystallisation scientist at AstraZeneca, with the last four years as an Associate Principal Scientist. Her current role is focussed on the development of robust crystallisation processes and linking the material and solid state properties of crystals to their impact on the formulated product.

Dr Tomás Seosamh Harrington, EPSRC Centre Research Associate, University of Cambridge

Tomás Seosamh Harrington is a Senior Research Associate at the Institute for Manufacturing, University of Cambridge. He joined the Institute in 2009, having previously worked in industry in a series of senior design and engineering roles with Intel and Littelfuse (formerly Harris Semiconductor and a business unit of GE). His current research interests include the design of nascent networks for emerging technologies and the synthesis of approaches for mapping and analysing value creation and capture in complex industrial systems and sub-systems. He holds Bachelors and PhD degrees in Chemistry from UCC and the University of Southampton respectively and an MBA (with distinction) for which he received a Chartered Management Institute award for a dissertation focusing on 'service innovation'.

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Speaker's biographies

Dr Ali Saleemi, EPSRC Centre Research Associate, Loughborough University

Dr. Ali Saleemi did his PhD at Loughborough University's department of chemical engineering. His main areas of interests are polymorphism, multi-component crystallisation and process analytical technologies.

Dr Ali Hassanpour, Lecturer , University of Leeds

Ali Hassanpour is a lecturer in at the Institute of Particle Science and Engineering of the University of Leeds. He is also an active committee member of Particle Technology Subject Group of IChemE and Process Engineering Formulation Design and Manufacturing (PEFDM) focus group of Academy of Pharmaceutical Sciences in UK. Ali's research has mainly focused on modelling and experimental work in various areas of particle science and engineering. This includes (i) modelling bulk behaviour of particulate solids using DEM and particle-fluid interactions using combined continuum (CFD) and DEM techniques; (ii) tribo-electrification and electrostatic effects on particles; (iii) deformation, break-up and coalescence behaviour of drops in liquid phase under electric field; (iv) Characterisation of mechanical properties of particles and their correlation with bulk behaviour. His research has resulted in over 80 archival journal and reviewed conference publications as well as 12 invited lectures and seminars in the area of modelling of particulate processes.

Dr Anna Jawor-Baczynska, EPSRC Centre Research Associate, University of Strathclyde

Dr Anna Jawor-Baczynska is a post-doctoral research associate for the EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation, within the Department of Chemical and Process Engineering at the University of Strathclyde. Her research is focused on development of flexible modular test bench including mixing, nucleation and growth units which enable better control over key product particle attributes (form, size, yield, purity etc.) through continuous crystallisation. Anna is also interested in developing a fundamental understanding of crystal nucleation mechanism of pharmaceutical compounds.

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Poster Presentations

1. 'Hot-Melt Extrusion for Bioavailability Enhancement of Poorly Soluble Drugs'
   Laura Martinez-Marcos, Dimitrios A Lamprou, Gavin W Halbert; EPSRC Centre, University of Strathclyde
2. 'Multi-component Crystallisation in a Continuous Flow Environment'
   Kate Wittering, Ali Saleemi, Chick C Wilson; EPSRC Centre, University of Bath
3. 'In-situ Monitoring of the Batch Crystallisation of D-mannitol Using Non-invasive Raman and Acoustic Emission Spectrometries'
   Laura Palmer, David Littlejohn, Alison Nordon; EPSRC Centre, University of Strathclyde
4. 'Design Approach for Moving from Batch to Continuous: Oscillatory Baffled Crystalliser (OBC) Technology'
   Thomas McGlone, Naomi Briggs, Vishal Raval, Craig Johnston, Alastair Florence; EPSRC Centre, University of Strathclyde
5. 'Beyond the Molecule – a Route to Innovation'
   Jenny Woods, Paul Raithby, Harris Makatsoris; the EPSRC Directed Assembly Grand Challenge Network, University of Bath
6. 'On the Effect of Apparatus Configurations on the Nucleation Mechanism of Sodium Chlorate'
   Craig Callahan, Xiong-Wei Ni; EPSRC Centre, Heriot-Watt University
7. 'Lab Scale Continuous Crystallisers for Control of Pharmaceutical Polymorphs and Critical Particle Attributes'
   Rebecca Halliwell, Alastair Florence; EPSRC Centre, University of Strathclyde
8. 'Studying Encrustation in the Moving Fluid Oscillatory Baffled Crystalliser'
   Rachel Sheridan, Jan Sefcik; EPSRC Centre, University of Strathclyde
9. 'Multi-Component Crystallisation for Continuous Manufacturing: Flow System and Agrichemical Targets'
   Karen Robertson, Chick Wilson; EPSRC Centre, University of Bath
10. 'Precise temperature control and use of enthalpy measurements during crystallisation of L-glutamic acid in a batch CoFlux reactor'
    Natalia Dąbrowska, David Littlejohn, Alison Nordon; EPSRC Centre, University of Strathclyde
11. 'Seed Generation Using Antisolvent Crystallisation in a COBC'
    Juliet Adelakun, Cameron Brown, Xiong-Wei Ni; EPSRC Centre, Heriot-Watt University
12. 'Inducing layered solid forms and controlling crystalline defects in multi-component continuous crystallisation'
    Anneke Klapwijk, Lynne H Thomas, Chick C Wilson; EPSRC Centre, University of Bath
13. 'Understanding Fouling Mechanisms in Continuous Crystallisation Processes'
    Fraser Mabbott, Dimitrios A Lamprou, Alastair Florence; EPSRC Centre, University of Strathclyde

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Poster Presentations

14. 'Effect of oscillatory and bulk flow components on residence time distribution in Rattlesnake'
Humera Siddique, Ian Houson, Alastair Florence; EPSRC Centre, University of Strathclyde

15. 'Heat Transfer in a Continuous Oscillatory Baffled Crystalliser'
John McGinty, Jan Sefcik; EPSRC Centre, University of Strathclyde

16. 'Process Analysis for Monitoring of Powder Drying'
Denise Logue, Jaclyn Dunn, David Littlejohn, Alison Nordon; EPSRC Centre, University of Strathclyde

17. 'Development of Continuous Nucleation Processes for Better Control Over Particulate Product Attributes'
Anna Jawor-Baczynska, Rachael Ferguson, Suzanne Russell, Grant Hoggitt, Alastair Florence, Jan Sefcik; EPSRC Centre, University of Strathclyde

18. 'Populations and Size Distributions of Solute-Rich Mesoscale Structures in Aqueous Amino Acid Solutions and their Role in Crystal Nucleation'
Anna Jawor-Baczynska, Barry D. Moore, Jan Sefcik; EPSRC Centre, University of Strathclyde

19. 'Residence Time Distribution in a DN15 Continuous Oscillatory Baffled Crystalliser'
Naomi Briggs, Vishal Raval, Jan Sefcik, Alastair Florence; EPSRC Centre, University of Strathclyde

20. 'Towards Crystallisation Control in a Continuous Oscillatory Baffled Crystalliser'
Naomi Briggs, Ulrich Schacht, Vishal Raval, Jan Sefcik, Alastair Florence; EPSRC Centre, University of Strathclyde

21. 'Continuous Nucleation of Seeding Suspensions of L-Glutamic Acid'
Ulrich Schacht , Alastair Florence, Jan Sefcik; EPSRC Centre, University of Strathclyde

22. 'Rapid Continuous Crystallisation of Amino Acid Co-crystals'
Syed Atif Raza, Ulrich Schacht, Jan Sefcik, Alastair Florence, Iain Oswald; EPSRC Centre, University of Strathclyde

23. 'A Continuous Crystallisation Study to Enable PDF Analysis of Nucleation from Solution'
Francesca Perciballi, Anna Jawor-Baczynska, Jan Sefcik, Alex Mullen, Simon Billinge, Alastair Florence; EPSRC Centre, University of Strathclyde

24. 'Amorphous Drug Nanoplex for Saturation Solubility Enhancement'
Wean Sin Cheow, **Kunn Hadinoto**; Nanyang Technological University

25. 'TBC' ; Nanyang Technological University

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Poster Presentations

26. 'Sustainable Pharma and Continuous Manufacturing Equal Better Supply Chain'
Georgi Aleksiev, Umit Bititci**;** EPSRC Centre, University of Strathclyde

27. 'Effective Integration of Theme 1 and Theme 2'
Rajan Talati, Colin Andrews, Umit Bititci; EPSRC Centre, University of Strathclyde

28. 'The Monitoring of Particulate Processes Using Process Analytical Technologies'
Joanna Lothian, Alison Nordon; EPSRC Centre, University of Strathclyde

29. 'High Throughput Crystallisation and Analysis of Pharmaceutical Solid Forms using Raman Spectroscopy'
Rajni Miglani , Louise S Price, Sarah Price, Susan-Reutzel Edens, Gary Miller, Iain Oswald, Alastair J Florence; CPOSS, University of Strathclyde

30. 'An Investigation into Parameters Affecting Purity of Crystals in OBC and STC'
Hannah McLachlan, Xiong-Wei Ni; EPSRC Centre, Heriot-Watt University

31. 'Selective Crystallisation of Carbamazepine Polymorphs on Functionalised Template Surfaces'
Jose V Parambil, Sendhil K Poornachary, Pui Shan Chow, Reginald B H Tan, Jerry Y Y Heng; Imperial College London

32. 'Antisolvent Crystallisation in a COBC'
Cameron Brown, Xiong-Wei Ni; EPSRC Centre, Heriot-Watt University

33. 'Prediction of Polymorphic Transformation of Paracetamol in Continuous Manufacturing Process'
M Maniruzzaman, M T Islam, H Moradiya, S Halsey, I J Slipper, B Z Chowdhry, D Douroumis; University of Greenwich

34. 'Predictions of the Intermolecular Interactions in Solid Dispersions'
M Maniruzzaman, D J Morgan, J Pang, A P Mendham, D Douroumis; University of Greenwich

35. 'Non-Photochemical Laser-Induced Nucleation in Continuous Crystallisation'
Alasdair M Mackenzie, Andrew J Alexander, Colin R Pulham; EPSRC Centre, University of Edinburgh

36. 'Polymorphism and Scale-up in Barbituric Acid-Urea Cocrystallisation'
A N Saleemi , Kate Wittering, Chick Wilson, Z K Nagy, C D Rielly; EPSRC Centre, Loughborough University

37. 'Periodic Steady-State Flow Crystallisation of Paracetamol Using MSMPR: A novel approach to achieve desired crystal properties'
Keddon A Powell, Ali Saleemi, Iyke Onyemelukwe, Zoltan K Nagy, Chris D Rielly; EPSRC Centre, Loughborough University

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Poster Presentations

38. Ulab: Equipment sharing and lab management on the internet
Blair Johnston, Tim Plumridge, Ian Thompson, University of Strathclyde

39. 'Modelling and Prediction of Heat Transfer Profiles in Continuous Oscillatory Baffled Crystalliser'
Iyke Onyemelukwe, Z K Nagy, C D Rielly; EPSRC Centre, Loughborough University

40. 'Centre Progress 2013'
Andrea Johnston, Alastair Florence, Craig Johnston, Catriona Clark; EPSRC Centre

41. 'The application of Atomic Force Microscopy (AFM) to the study of crystals'
Dimitrios A Lamprou, University of Strathclyde

Exhibitors

Alconbury Weston Limited (AWL)

Cambridge Reactor Design

The Centre for Process Innovation (CPI)
Ehrfeld Mikrotechik BTS

EPSRC Centre for Innovative Manufacturing in Continues Manufacturing and Crystallisation / Continuous Manufacturing and Crystallisation (CMAC)

Fiona McGurk, CMAC Artist in Residence

Fraunhofer UK

iFormulate Limited

Industrial Tomography Systems Plc

Infinity-Automation / Booth Welsh Automation Limited

Micromeritics

Mettler-Toledo Limited

Perceptive Engineering Limited

Technology and Innovation Centre (TIC)

ThermoFisher Scientific

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Delegate List

Miss	Juliet	Adelakun	EPSRC Centre, Heriot-Watt University
Dr	Ruksanna	Ahmad	Centre for Process Innovation
Mr	Georgi	Aleksiev	EPSRC Centre, University of Strathclyde
Dr	Andrew	Alexander	The University of Edinburgh
Ms	Leila	Alinaghian	EPSRC Centre, University of Cambridge
Mr	Ian	Allan	Infinity-Automation
Dr	Rob	Alves	AstraZeneca
Mr	Colin	Andrews	EPSRC Centre, University of Strathclyde
Dr	John	Andrews	Clairet Scientific Limited
Dr	Robert	Atkinson	University of Strathclyde
Dr	Robin	Attrill	GSK
Dr	Clive	Badman	GSK
Dr	Richard	Bailey	EPSRC
Mr	Ian	Barylski	GSK
Dr	Sean	Bermingham	Process Systems Enterprise Limited
Mrs	Carol	Boyer-Spooner	Chemistry Innovation CIKTN
Miss	Elanor	Brammer	EPSRC Centre, University of Strathclyde
Miss	Naomi	Briggs	EPSRC Centre, University of Strathclyde
Dr	Ian	Brotherston	Heriot-Watt University
Dr	Cameron	Brown	EPSRC Centre, Heriot-Watt University
Miss	Jacqueline	Brown	EPSRC Centre, University of Strathclyde
Dr	Jim	Bullock	iFormulate Limited
Mr	Craig	Callahan	EPSRC Centre, Heriot-Watt University
Miss	Laura	Campbell	Infinity-Automation
Prof	John	Chapman	University of Glasgow
Dr	Catriona	Clark	EPSRC Centre, University of Strathclyde
Dr	Alison	Cleary	University of Strathclyde
Dr	Susanne	Coles	University of Southampton
Mr	Thomas	Collins	University of Strathclyde
Mr	Paul	Coster	EPSRC Centre, The University of Edinburgh
Prof	Lee	Cronin	EPSRC Centre, University of Glasgow
Dr	Dyanne	Cruickshank	University of Bath
Miss	Natalia	Dabrowska	EPSRC Centre, University of Strathclyde
Dr	Ron	Dalton	IChemE
Mr	Julian	Darke	Mettler-Toledo Ltd
Dr	Sandy	Dobbie	Chemical Sciences Scotland
Mr	Stuart	Docherty	Creatifik
Ms	Aimee	Doole	Booth Welsh Automation Ltd
Dr	Dennis	Douroumis	University of Greenwich

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Delegate List

Dr	Chris	Dowle	Centre for Process Innovation
Miss	Jaclyn	Dunn	EPSRC Centre, University of Strathclyde
Mrs	Caroline	Edwards	Mettler-Toledo Ltd
Prof	Alastair	Florence	EPSRC Centre, University of Strathclyde
Mr	Kenny	Gilmour	Victrex plc
Mrs	Joanna	Gourlay	Scottish Development International
Miss	Lorna	Gray	EPSRC Centre, University of Strathclyde
Dr	Colin	Groom	Cambridge Crystallographic Data Centre
Mr	Rajesh	Gurung	EPSRC Centre, University of Strathclyde
Dr	Kunn	Hadinoto Ong	Nanyang Technological University
Prof	Gavin	Halbert	EPSRC Centre, University of Strathclyde
Mr	Ian	Haley	Mettler-Toledo Ltd
Miss	Rebecca	Halliwell	EPSRC Centre, University of Strathclyde
Dr	John	Hand	Scottish Enterprise
Mr	Scott	Hanley	Technology and Innovation Centre
Dr	Bashir	Harji	Cambridge Reactor Design
Dr	Tomás	Harrington	EPSRC Centre, University of Cambridge
Dr	Glynn	Harrington	Victrex plc
Dr	Mark	Hartshorne	Fujifilm Imaging Colorants
Dr	Ali	Hassanpour	University of Leeds
Dr	Mark	Haw	University of Strathclyde
Mr	Craig	Henderson	EPSRC Centre, The University of Edinburgh
Mr	David	Hendry	Fluorocarbon Company Limited
Dr	Jerry	Heng	Imperial College London
Mr	Peter	Hewitson	Brunel University
Dr	Chrismono	Himawan	GSK
Mr	Paul	Hodges	NiTech Solutions Ltd
Dr	Ian	Houson	CMAC, EPSRC Centre
Dr	Sophie	Janbon	AstraZeneca
Dr	Anna	Jawor-Baczynska	EPSRC Centre, University of Strathclyde
Mr	Craig	Johnston	CMAC, EPSRC Centre
Dr	Andrea	Johnston	EPSRC Centre, University of Strathclyde
Mr	Graham	Johnston	ThermoFisher Scientific
Dr	Blair	Johnston	University of Strathclyde
Prof	Bill	Jones	University of Cambridge
Prof	Zaher	Judeh	Nanyang Technological University
Mr	Fraser	Keir	The University of Edinburgh
Mr	Gerard	Kelly	University of Strathclyde

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Delegate List

Miss	Zoe	Kemp	Scottish Development International
Miss	Anneke	Klapwijk	EPSRC Centre, University of Bath
Dr	Ian	Laird	Begg
Dr	Dimitrios	Lamprou	University of Strathclyde
Dr	Mei	Lee	GSK
Prof	David	Littlejohn	EPSRC Centre, University of Strathclyde
Miss	Denise	Logue	EPSRC Centre, University of Strathclyde
Miss	Jo	Lothian	EPSRC Centre, University of Strathclyde
Mr	Dave	Lovett	Perceptive Engineering Limited
Mr	Ivan	Lowdon	Centre for Process Innovation
Mr	Fraser	Mabbott	EPSRC Centre, University of Strathclyde
Mr	John	Mack	Perceptive Engineering Limited
Mr	Alasdair	Mackenzie	EPSRC Centre, The University of Edinburgh
Dr	Harris	Makatsoris	Brunel University
Dr	Mohammed	Maniruzzaman	University of Greenwich
Miss	Laura	Martinez-Marcos	EPSRC Centre, University of Strathclyde
Mr	Aditya	Matharu	GSK
Mr	John	McGinty	EPSRC Centre, University of Strathclyde
Dr	Thomas	McGlone	EPSRC Centre, University of Strathclyde
Mrs	Fiona	McGurk	Artist
Mr	Iain	McKee	University of Strathclyde
Miss	Hannah	McLachlan	EPSRC Centre, Heriot-Watt University
Mrs	Rajni	Miglani Bhardwaj	CPOSS, University of Strathclyde
Mr	Andy	Mitchell	Perceptive Engineering Limited
Prof	Frans	Muller	University of Leeds
Prof	Xiong-Wei	Ni	EPSRC Centre, Heriot-Watt University
Prof	Siu Choon	NG	Nanyang Technological University
Mr	Iyke	Onyemelukwe	EPSRC Centre, Loughborough University
Dr	Iain	Oswald	University of Strathclyde
Mr	Sudhir	Pagire	University of Bradford
Miss	Laura	Palmer	EPSRC Centre, University of Strathclyde
Prof	Anant	Paradkar	University of Bradford
Mr	Jose	Parambil	Imperial College London
Miss	Francesca	Perciballi	EPSRC Centre, University of Strathclyde
Dr	Ahn	Phan	Newcastle University
Mr	Chris	Pilkington	Micromeritics
Mr	Nigel	Plant	Victrex plc
Dr	Tim	Plumridge	University of Strathclyde
Mr	Keddon	Powell	EPSRC Centre, Loughborough University

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Delegate List

Dr	Chris	Price	GSK
Prof	Colin	Pulham	EPSRC Centre, The University of Edinburgh
Mr	Vishal	Raval	EPSRC Centre, University of Strathclyde
Mr	Syed Atif	Raza	University of Strathclyde
Prof	Chris	Rielly	EPSRC Centre, Loughborough University
Mr	David	Ritchie	Syngenta
Dr	Amy	Robertson	AstraZeneca
Dr	Karen	Robertson	EPSRC Centre, University of Bath
Dr	Murray	Robertson	University of Strathclyde
Dr	Ali	Saleemi	EPSRC Centre, Loughborough University
Dr	Victor	Sans Sangorrin	EPSRC Centre, University of Glasgow
Mr	Ulrich	Schacht	EPSRC Centre, University of Strathclyde
Mr	Bernd	Schmidt	GSK
Mr	Richard	Schubert-Rowles	Kruss Surface Science Centre
Dr	Jan	Sefcik	EPSRC Centre, University of Strathclyde
Miss	Nicola	Sewell	GSK
Prof	Paul	Sharratt	ICES
Miss	Rachel	Sheridan	EPSRC Centre, University of Strathclyde
Mr	Phil	Shering	AstraZeneca
Dr	Jon Paul	Sherlock	AstraZeneca
Dr	Humera	Siddique	EPSRC Centre, University of Strathclyde
Dr	Pauline	Sillers	Syngenta
Dr	Jag	Srai	EPSRC Centre, University of Cambridge
Mr	Danny	Stam	Avantium Pharmatech B.V.
Dr	Gerry	Steele	PharmaCryst Consulting Ltd
Dr	Paul	Stonestreet	F. Hoffman-La Roche
Mr	Qinglin	SU	Loughborough University
Dr	Christos	Tachtatzis	University of Strathclyde
Mr	Rajan	Talati	EPSRC Centre, University of Strathclyde
Dr	Mark	Talford	BRITEST Ltd
Mr	Duncan	Thompson	GSK
Mr	Ian	Thompson	University of Strathclyde
Dr	Peter	Tune	Centre for Process Innovation
Dr	Andrew	Urquhart	University of Strathclyde
Mr	Stephan	van Banning	Avantium Pharmatech B.V.
Dr	Vinod	Venkatpurwar	University of Strathclyde
Mrs	Linda	Wallace	University of Strathclyde
Mr	Daniel	Ward	The University of Edinburgh
Prof	Chick	Wilson	EPSRC Centre, University of Bath

Annual EPSRC Centre Open Day 2013

Delegate List

Miss	Kate	Wittering	EPSRC Centre, University of Bath
Dr	Jenny	Woods	Directed Assembly Network
Prof	Graham	Wren	GSE, University of Strathclyde
Dr	Huaiyu	Yang	EPSRC Centre, University of Strathclyde
Dr	Qiaolin	Yuan	Perceptive Engineering Limited