

CAPE tools for a sustainable world



ESCAPE 22

The 22nd European Symposium on Computer Aided Process Engineering

2nd Announcement

17–20 June 2012, University College London



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The 22nd European Symposium on Computer Aided Process Engineering

17–20 June 2012

University College London, UK



CAPE tools for a sustainable world

ICHEME and the European Working Party on Computer Aided Process Engineering are pleased to invite you to London to participate in the 22nd European Symposium on Computer Aided Process Engineering (ESCAPE 22). London offers many attractions for visitors and delegates and will host the 2012 Olympics starting in late July. ESCAPE 22 will be held at University College London, in London's academic quarter, Bloomsbury, which is right in the heart of London just a few minutes' walk from major attractions including Oxford Street and the British Museum.

The conference follows in the well established series of ESCAPE conferences sponsored by the EFCE Working Party on Computer Aided Process Engineering. Recent conferences have been hosted in Krakow, Poland (2009), Ischia, Italy (2010), and Porto Carras, Greece (2011).

ESCAPE 22 will focus strongly on the important role of CAPE in design and operation in the process industries from the molecular scale through to managing complex manufacturing sites. In addition, the programme will address the implications of strategic planning, corporate finance, supply chain issues and the increasingly important area of sustainability audits. The close proximity of the conference venue to the City of London provides an opportunity for perspectives from the financial world. The conference will highlight the need for CAPE practitioners to embrace the three components of sustainable development: environmental, social and economic progress and will emphasise the role of systematic and sophisticated CAPE tools in delivering these goals. This will bring CAPE to the attention of new audiences.

The conference will take place in London, the UK's capital city. London is served by five international airports and the Eurostar service in addition to major road and rail networks. A range of accommodation options to suit all budgets will be available close to the conference venue in the heart of London.

A handwritten signature in black ink that reads "David Bogle". The signature is written in a cursive, flowing style.

Professor David Bogle, Chairman
Organising committee ESCAPE 22

Plenary and keynote speakers

(Confirmed to date)



Plenary Speaker:

Joan F. Brennecke, University of Notre Dame, USA

Joan F. Brennecke is the Keating-Crawford Professor of Chemical Engineering at the University of Notre Dame and Director of the Centre for Sustainable Energy. She joined Notre Dame after completing her PhD (1989) and Masters (1987) degrees at the University of Illinois at Urbana-Champaign and her Bachelor degree (1984) at the University of Texas at Austin.

Her research interests are primarily in the development of less environmentally harmful solvents. These include supercritical fluids and ionic liquids. In developing these solvents, Dr. Brennecke's primary interests are in the measurement and modelling of thermodynamics, thermophysical properties, phase behaviour and separations. Major awards include 2001 Ipatieff Prize from the American Chemical Society, the 2006 Professional Progress Award from the American Institute of Chemical Engineers, the J. M. Prausnitz Award at the Eleventh International Conference on Properties and Phase Equilibria in Greece in May, 2007, the 2008 Stieglitz Award from the American Chemical Society, and the 2009 E. O. Lawrence Award from the U.S. Department of Energy.



Theme: Tools for sustainable development

Keynote: Malcolm Preston, Pricewaterhouse Coopers, UK

Malcolm Preston is Global Head of Sustainability Services at PricewaterhouseCoopers where he leads a global team of some 700 sustainability and climate change experts.

Malcolm's role is to drive the understanding of sustainability and climate change throughout the firm to ensure the risks and opportunities associated with these issues are considered in the advice PwC gives to its clients, including reporting and assurance; complying with related regulation and taxes; mitigation of and adapting to climate change; international development; investment decisions; supply chain integrity and security; and educating boards and engaging employees on sustainability issues.

Plenary and keynote speakers (continued)



Theme: Product and process design

Keynote: Prof Xavier Joulia, ENSIACET, France

Xavier Joulia is professor of Chemical Engineering at ENSIACET (Ecole Nationale Supérieure des Ingénieurs en Arts Chimiques Et Technologiques), in Toulouse, France. He completed his PhD (1981) and obtained a DSc (1987) in Chemical Engineering from the Institut National Polytechnique de Toulouse (INPT). Xavier currently heads the Computer and Chemical Engineering educational department of ENSIACET and leads the computer aided process analysis research team of the Laboratoire de Génie Chimique.

The author, or co-author, of more than 120 papers in the CAPE field, Xavier chaired the organising committee for ESCAPE 2 at Toulouse, in 1992. He is the French representative on the CAPE Working Party of the European Federation of Chemical Engineering.

Xavier was involved in the spin out of the chemical engineering software company, ProSim S.A., in 1989 through technology transfer activities. He remains actively involved in ProSim through the provision of scientific support.



Theme: Systems biology and healthcare
engineering

Prof Andreas Linninger, University of Illinois, USA

Andreas Linninger is Professor of Chemical Engineering and Bioengineering and Director of the Laboratory for Product and Process Design at the University of Illinois in Chicago, USA. He received his Diploma and PhD degrees in Chemical Engineering from the Vienna University of Technology, before postgraduate training at the Rijksuniversiteit Gent, the University of California at Berkeley and the Massachusetts Institute of Technology. His research interests include computer-aided process synthesis, mathematical modelling of complex systems and design under uncertainty. He has published more than 100 papers on parameter estimation in distributed systems, synthesis of distillative separation networks, integrated design and control, process design for the environment and computational fluid mechanics methods in biological systems.



Theme: Multi-scale modelling and simulation

Prof Hans Kuipers, University of Eindhoven, The Netherlands

Hans Kuipers graduated from the department of Chemical Engineering at the Technical University of Twente in 1985. His PhD (1990) focussed on detailed micro balance modelling of gas-fluidized beds. In the same year he was appointed as assistant professor in the reaction engineering group headed by Prof. W.P.M. van Swaaij. In 1994 he was appointed as associate professor in the same group. In August 1999 he became fulltime professor in fundamentals of chemical reaction engineering at the chemical engineering department at the University of Twente, where he currently teaches introductory and advanced courses on transport phenomena and applied process technology. His research interests are in the area of multiphase reactors.



Theme: Operations and control

Prof Nina Thornhill, Imperial College, UK

Nina Thornhill holds the ABB/RAEng Research Chair in Process Automation in the Department of Chemical Engineering at Imperial College London. She studied physics at Oxford and joined UCL in the Department of Electronic and Electrical Engineering after six years with ICI. She moved to Imperial College in 2007 having been involved with the Imperial/UCL Centre for Process Systems Engineering for many years. Her research addresses industrial data analysis using time series analysis and signal processing for applications in oil and gas, chemicals and electricity supply, and has included secondments with BP and ABB.



Theme: CAPE in education

Prof Sir William Wakeham, UK

Professor Wakeham retired as Vice-Chancellor of the University of Southampton, UK in September 2009 after eight years in the post. He began his career in physics at Exeter University, UK at both undergraduate and doctoral level. In 1971, after a postdoctoral period in USA at Brown University, he took up a lectureship in the chemical engineering department at Imperial College London, where he became a professor in 1983 and head of department in 1988. His academic publications include six books and about 400 peer-reviewed papers.

From 1996 to 2001 he was Pro-Rector (Research), Deputy Rector and Pro-Rector (Resources) at Imperial College. Among other activities he oversaw the College's merger with a series of medical schools and stimulated its entrepreneurial activities.

He is a fellow of the UK's Royal Academy of Engineering a Vice-President and its International Secretary. Sir William is also an IChemE fellow and its President during 2011-2012. He is a fellow of the Institution of Engineering and Technology and the Institute of Physics.

He is a Council Member of the UK's Engineering and Physical Sciences Research Council and Chair of its Audit Committee. He was made a Knight Bachelor in 2009 for services to chemical engineering and higher education.



Theme: Computational and numerical solution strategies

Professor Stephen Emmott, Microsoft Research, Cambridge, UK

Stephen Emmott is responsible for all of Microsoft's external research programmes, strategy and policy across Europe the Middle East and Africa. Stephen has a PhD in computational neuroscience and has worked in pioneering research fields at the intersection of computing and science for almost two decades. He has held appointments at BT Laboratories, AT&T Labs and most recently at NCR, as chief scientist and managing director of its acclaimed advanced 'Knowledge Lab', which he founded and led.

Stephen is a visiting professor at University College London, where he is also a member of the Board of Advisors. He sits on the UK Chancellor of the Exchequer's Science and Innovation Framework committee, is an advisor to the UK's Engineering & Physical Sciences Research Council, an advisor to the Swiss National Science Foundation, and has been an advisor to the World Trade Organization.

Who should attend?

Practitioners from academia and industry, including early career researchers, who are active in computer aided process engineering, in the following services and industries:

- Oil, chemical, power/energy and nuclear industry
- Pharmaceutical and consumer products companies interested in supply chains, systems biology and manufacture
- Management consultancy involved in sustainability auditing
- Finance houses/banks
- UK government departments
- Non governmental bodies

Provisional programme

ESCAPE 22 will be chaired by Professor David Bogle and co-chaired by Professor Mike Fairweather – University of Leeds and Dr Robert Low – Mexichem Fluor Ltd.,

In addition to the thought provoking line up of invited keynote speakers, ESCAPE22 will feature over 120 peer reviewed technical papers submitted by organisations from across Europe and further afield. Contributions were invited under the following topics:

Topic 1: Tools for sustainable development

Topic 2: Tools for energy management

Topic 3: Tools for financial business and management decision making

Topic 4: product and process design

Topic 5: Operations, control and process safety

Topic 6: Multi-scale modelling and simulation

Topic 7: Computational and numerical solution strategies

Topic 8: Systems biology and healthcare engineering

Topic 9: CAPE in education

The call for papers has attracted a healthy response across all categories and the scientific committee are currently reviewing the papers ahead of the publication of the conference programme in February.

The programme, which runs across three full days from Monday 18 June to Wednesday 20 June, 2012 will also feature a welcome reception and registration on Sunday 17th June and a conference banquet on Tuesday 19 June, 2012, as well as regular refreshment breaks in the exhibition area providing ample opportunities for networking and identifying new business opportunities.

Sunday 17 June 2012

17:30 Registration and welcome reception – Cloisters, UCL, London

Monday 18 June 2012

08:00 Registration
09:30 Opening ceremony
09:50 EFCE PhD award in CAPE
10:15 – 11:00 Plenary 1
11:00 – 11:25 Refreshment break and exhibition/poster viewing
11:25 – 11:30 Delegates move to parallel sessions
11:30 - 12:00 Keynote speakers
12:00 – 13:00 Parallel sessions
13:00 – 14:25 Lunch break and exhibition/power viewing
14:25 – 15:30 Parallel sessions
15:30 – 15:55 Refreshment break and exhibition/poster viewing
16:00 – 17:40 Parallel sessions

Tuesday 19 June 2012

08:00 Reception opens for assistance and queries
08:45 Welcome and introduction
08:50 Plenary 2
09:35 Delegates move to parallel session
09:40 – 10:00 Keynote speakers
10:00 – 10:40 Refreshment break and exhibition/poster viewing
10:45 – 12:25 Parallel sessions
12:25 – 13:55 Lunch break and exhibition/poster viewing
13:55 – 15:00 Parallel sessions
15:00 – 15:25 Refreshment break and exhibition/poster viewing
15:25 – 17:30 Parallel sessions
19:00 Conference banquet

Wednesday 20 June 2012

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| 08:00 | Reception opens for assistance and queries |
| 09:00 – 10:50 | Keynote speakers in parallel sessions |
| 10:50 – 11:15 | Refreshment break and exhibition/poster viewing |
| 11:15 – 12:40 | Parallel sessions |
| 12:40 – 13:35 | Lunch break and exhibition/poster viewing |
| 13:35 – 15:40 | Parallel sessions |
| 15:45 | Presentations of awards, closing ceremony |

Timetable

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| Acceptance notification of final manuscript | 15 January 2012 |
| Resubmission of final manuscript (if required) | 28 February 2012 |
| Registration deadline for all authors to have their paper/poster accepted in the proceedings and programme | 10 March 2012 |

Organising and scientific committees

Organising committee:

Professor Claire Adjiman – Imperial College London, UK

Dr R J Best – Southbank University, UK

Professor David Bogle – University College London, UK

Mr Roy Calder – IPS Invensys, UK

Dr Nirav Chokshi – British Energy, UK

Professor Mike Fairweather – University of Leeds, UK

Dr Robert Low – Mexichem Fluor Ltd, UK

Professor I M Mujtaba – University of Bradford, UK

Dr Lazaros Papageorgiou – University College London, UK

Dr Panos Tsiakis – Wipro Technologies, UK

Scientific committee:

Professor Claire Adjiman – Imperial College London, UK
Professor Ioannis Androulakis – Rutgers University, USA
Professor Serban Agachi – Babes-Bolyar University, Romania
Dr Andre Bardow – RWTH Aachen, Germany
Professor Ana Barbosa-Povoa – Institute Superior Technico, Portugal
Dr Rene Banares-Alcantara – University of Oxford, UK
Professor Evaristo Biscaia – UFRJ, Brazil
Dr David Bluck – Invensys, UK
Dr Leslie Bolton – BP, UK
Professor Guido Buzzi-Ferraris – Politecnico di Milano, Italy
Mr Roy Calder – IPS Invensys, UK
Professor Ian Cameron – University of Queensland, Australia
Dr Benoit Chachuat – Imperial College London, UK
Dr Nirav Chokshi – EDF Energy, UK
Dr Vivek Dua – University College London, UK
Professor Sebastian Engell - University Dortmund, Germany
Professor Antonio Espuna – Universitat Politecnica de Catalunya, Spain
Dr Suzanne Farid – University College London, UK
Professor Mike Fairweather – University of Leeds, UK
Professor Floudas – Princeton University, USA
Professor Eric Fraga – University College London, UK
Professor Ferene Friedler – University of Pannonia, Hungary
Professor Rafique Gani – Technical University of Denmark, Denmark
Professor Michael Georgiadis – University of Western Macedonia, Greece
Professor Ignacio Grossmann – Carnegie Mellon University, USA
Professor Georges Heyen – University of Liege, Belgium
Professor Jiri Klemes – University of Pannonia, Hungary
Professor Marianthi Ierapetritou – Rutgers University, USA
Professor Xavier Joulia – ENSIACET, France
Professor Antonis Kokossis – National Technical University of Athens, Greece
Professor Zdravko Kravanja – University of Maribor, Slovenia
Professor Andrzej Kraslawski – Lappeenranta University of Technology, Finland
Dr J Krishnan – Imperial College London, UK
Dr Daniel Kuhn – Imperial College London, UK
Dr Juergen Kussi – Bayer Technology Services GmbH Germany
Professor Daniel Lewin – Technion, Israel Institute of Technology
Dr Patrick Linke – Texas A&M University at Qatar

Professor Andreas Linninger – University of Illinois at Chicago, USA
Dr Robert Low – Mexichem Fluor Ltd, UK
Professor Christos Maravelias – University of Wisconsin, USA
Dr Francois Marechal – EPFL, Switzerland
Professor Natalia Menshutina – University of Chemical Technology of Russia, Russia
Professor Iqbal Mujtaba – University of Bradford, UK
Professor Hirokazu Nishitani – Nara Institute of Science Technology and Technology, Japan
Professor Rafaella Ocone – Heriot-Watt University, UK
Professor Darcy Odloak – Universidade de Sao Paulo, Brazil
Professor Constantinos Pantelides – Imperial College London, UK
Dr Lazaros Papageorgiou – University College London, UK
Professor Sauro Pierucci – Politecnico di Milano, Italy
Professor Stratos Pistikopoulos – Imperial College, London, UK
Professor Heinz Preisig – Norwegian University of Science & Technology, Norway
Professor Yu Qian – South China University of Technology, China
Professor Berc Rustem – Imperial College London, UK
Dr Haralambos Sarimveis – National Technical University of Athens, Greece
Professor Nilay Shah – Imperial College London, UK
Professor Sigurd Skogestad – Norwegian University of Science & Technology, Norway
Professor Robin Smith – Manchester University, UK
Dr Eva Sorensen – University College London, UK
Professor Mark Stadtherr – Notre Dame University, USA
Professor Raj Srinivasan – National University of Singapore, Singapore
Dr Myrian Schenk – Foster Wheeler, UK
Dr Panos Tsiakis – Wipro Technologies, UK
Professor Tapio Westerlund – Abo Akademi, Finland
Professor Alastair S Wood – University of Bradford, UK
Dr Stephen Wilkinson – Sheffield University, UK
Dr Meihong Wang – Cranfield University, UK
Professor Xue Wang – University of Leeds, UK
Dr Aidong Yang – University of Surrey, UK
Dr Jie Zhang – Newcastle University, UK

General information

Travelling to London

London is one of the world's best-connected cities. With five international airports serving 273 destinations, high-speed rail links to continental Europe and an extensive public transport network.



London's international air links

London's five international airports serve 180 overseas destinations and most of the world's major airlines – including nearly every major intercontinental and European scheduled carrier. In recent years, London has become a major hub for low cost airlines, reducing the cost of hundreds of short haul routes to continental Europe.

The average flight times to London from Europe is one to three hours.

Improvements to airport connections have brought Heathrow to within 15 minutes of central London, and no other London airport is more than 45 minutes away from the centre by public transport.

Heathrow: London Heathrow Airport (LHR) is one of the world's busiest airports, handling more international passengers than any other. The airport is located 32 km (20 miles) west of London and has excellent public transport connections. Express trains connect passengers to central London in 15 minutes.

Gatwick: London Gatwick (LGW) is the second largest airport in the UK after Heathrow. Gatwick is located 45km (28 miles) south of London. Rail connections into central London take around 30 minutes.

London City: London City Airport (LCY) is situated approximately 9.5km (6 miles) east of Central London and just 4.8km (3 miles) from the business district of Canary Wharf. London City handles short-haul flights with a strong emphasis on business travel. It has excellent, quick connections into the city.

Stansted: London Stansted Airport (STN) is London's third international gateway. It is home to many of the UK's low-cost airlines, serving mostly European and Mediterranean destinations. The airport is located 64km (40 miles) north-east of London. Express rail services into central London take 45mins.

London Luton: London Luton Airport (LTN) is a hub for many low-cost airlines, mostly operating short-haul flights to and from Europe. Luton Airport is 51km (32 miles) north-west of London. Rail connections into central London take around 30 minutes.



London's International rail and road links

Frequent high speed Eurostar services connect London to Paris and Brussels, with up to 30 trains a day offering onward connections to over 100 European destinations.

Eurostar operates frequent daily high-speed services connecting Paris and Brussels to London. Journey times range from 2 hours 15 minutes from Paris or 1 hour and 51 minutes from Brussels. Trains arrive at St Pancras International station in central London.

Getting to London by train

London is the largest hub of the UK's rail network. There are regular services to all regions of the UK from the city's nine centrally located railway stations. All railway stations are well served by the underground train network, buses and taxis.

Getting to London by coach

Coaches generally offer a cost effective mode of transport to London. There are services throughout the UK and connections to mainland Europe.



Destination

London is roughly bounded by the M25 motorway and split north to south by the river Thames. The city can be broadly divided into five areas: North, South, East, West and Central.

The City of London is an extraordinary place. Established soon after the Romans invaded Britain in AD43, the City is where London began – the "original" London – the place from which today's thriving metropolis grew.

Such history and its position as a world leader in international finance and business, has imbued the City of London with a unique character and a distinct identity. Pass between the dragons that mark its entrances and exits and you'll recognise a difference. This is where ancient and modern sit side by side; where medieval alleyways open out onto major streets; where historic churches snuggle up to soaring glass neighbours; where the past embraces the future.

Over 2,000 years of history are told through its buildings – from the remains of its Roman walls to modern icons such as the Lloyd's Building. Old or new, there is much to marvel at – the mighty dome of St Paul's Cathedral, Tower Bridge and 30 St Mary Axe (the Gherkin) are just some of the landmarks that punctuate the City skyline.

The venue for ESCAPE 22 is the University College of London in the Bloomsbury area of London. Bloomsbury is known as the home of British Museum, the British Library and the University College of London. Historically, Britain's writers and intellectuals have favoured this area.



Conference venue

UCL is located at the very centre of London and is well served by transport links from all over the UK and abroad. UCL was established in 1826 but is a modern, outward-looking institution, committed to engaging with the major issues of our times. One of the world's leading multidisciplinary universities, UCL today is a true academic powerhouse.

UCL is among the world's top universities, as reflected in performance in a range of rankings and tables. 21 Nobel prizewinners have come from the UCL community.

ESCAPE 22 will be hosted at UCL central London, visit our web-site to download location map and directions.

Sponsorship and exhibition

A number of prestigious companies have already taken up sponsorship opportunities for the event there are a limited number of opportunities available. Alternatively, exhibition space is available to promote products and services to key contacts in the process control field.

If you would like further information, sponsorship opportunities or exhibition space, contact Rosemary Cragg: rcragg@icheme.org

Social programme

Welcome reception: A welcome reception will take place in the Cloisters at UCL on the evening of Sunday 17 June. This will provide delegates with the opportunity to register for the conference and collect their conference material prior to the main conference commencing on Monday 18 June. This reception will be free of charge to attend.

Conference dinner: A conference dinner will be held at the Hotel Russell, Russell Square, London on Tuesday 19 June, 2012. This is included in the registration cost. (Please note: The student registration does not include the conference dinner, tickets can be purchased separately, price to be advised.)

Accommodation

There is a wide variety of accommodation available around the area of the University; an accommodation list is available at: www.icheme.org/escape22

Documentation

All delegates who are fully registered to attend the conference will be issued with a CD-ROM containing copies of the full manuscripts and posters. All presentations given at the conference will be available (subject to the author's permission) on the conference web site after the conference.

Official language

The conference language is English

Insurance

Delegates are advised to arrange adequate insurance as the conference organisers cannot cover persons against cancellation of the booking, or theft of possessions.

Recommended places to visit during your trip to London



Buckingham Palace

For those with an interest in the history of British monarchy and its parliament. Westminster is the place to be. Buckingham Palace, St. James's Palace, the Cabinet War Rooms, The Houses of Parliament, Big Ben and Westminster Abbey are all located within walking distance from one another.



British Museum

The Bloomsbury area of London is the home to two incredible treasures: the British Museum and the British Library. The British Museum is one of the world's great museums and a trip to the British Library is a treat for anyone interested in the printed word.



London Eye

There are a number of interesting attractions located on the South Bank of the Thames River: the London Eye (an enormous Ferris Wheel that is London's most popular new destination), the Tate Modern Art Museum, the Imperial War Museum and Shakespeare's Globe Theatre.



Tower of London

The Tower of London, a historic fortress and once a prison, is one of London's most spectacular and popular attraction.



St Pauls Cathedral

Along the north bank of the Thames, you will find the Strand and the City of London, which include the ancient heart of the city and its financial and legal centres. St Paul's Cathedral is one of London's must-see attractions, as is the Temple Church - a central plot-location in Dan Brown's DaVinci Code. Covent Garden, another of the area's highlights, is known for its tourist shopping in a frenetic, but fun outdoor market.

Contact us:

Keep up to date with developments on the conference planning, by visiting www.icheme.org/escape22 or e-mail: Escape22@icheme.org

IChemE is a registered charity in England and Wales, and a charity registered in Scotland (SC 039661)