

Advances in Process Automation and Control 2019

18–20 November 2019,
Manchester, UK

Conference programme



Conference sponsors

ABB



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Introduction



On behalf of the technical committee, I would like to welcome you to *Advances in Process Automation and Control 2019*.

Our emphasis for this year's conference is new technologies, new solutions to old problems, and the new challenges faced by the process industries. Presenters and attendees will gain a clearer insight into best practices and emerging technologies in process automation, particularly emerging areas of IoT, machine learning, security, big data analytics and smart manufacturing.

The last 40 years have seen continual growth in the use of automation and control technologies in process manufacturing. These changes have enabled higher process performance, reduced operating risk, and improved staff productivity but the pace of change continues to accelerate and is increasingly daunting. We hope that this conference will help you to explore these changes and their implications and to get the inside track on the explosion of data, technology and innovation that's coming our way.

Attendees at this conference will have a unique chance to share and develop their knowledge of process automation and control methods, make new contacts, meet like-minded professionals and foster new collaborations. I encourage you to make the most of your time here and I look forward to speaking to you.

A handwritten signature in black ink that reads "C. Hamlin". The signature is written in a cursive style with a long, sweeping underline.

Chris Hamlin
Chair of technical committee

Technical committee members

Chris Hamlin, Chair (Founder and Lead Advisor, HancockHamlin)
Russell Baker (EPC Account Manager, Honeywell Control Systems)
Chris Catterall (Senior Advanced Process Control Consultant, Phillips 66)
Nirav Chokshi (Control Systems Engineer, Fluor)
Nicholas Harbud (Facilities Planning Specialist, Saudi Aramco)
Peter Karran (Director of Operation, Practical Service Improvement)
Barry Lennox (Professor, School of Electrical Engineering, Manchester University)
Doug Nicholson (Consultant, Spiro Control)
Andrew Ogden-Swift (Director of Technology Strategy, Honeywell Control Systems)
Zaid Rawi (Engineering Director, BP International)
Maurice Wilkins (Executive Advisor, Yokogawa)

Plenary speakers



In recent years, there has been much discussion of machine learning and AI as new technologies improve process manufacturing performance.

Brian Parsonnet, CTO and Founder, Seeq, will address the challenges and some approaches for overcoming them with the aim of helping attendees understand critical success factors.



Whilst there is much guidance available on cyber security, there is no established relevant good practice in the UK. The Health and Safety Executive has recently released updated guidance that seeks to provide a basis for regulation of cyber security in the process industries. **Nic Butcher, HM Specialist Inspector (Electrical, Control & Cyber Security), HSE**, will discuss the basis for this guidance, and how it will be used for regulation of cyber security risk management.



A founder member of IChemE's Process Management and Control SIG, **Professor Jonathan Love** thinks of himself as an industrialist in academic's clothing. He has committed the last 25 years of his career to delivering an MSc in Process Automation and is the author of the *Process Automation Handbook*. Here he will share some of the lessons he has learned and talk about practising what he preaches.

Monday 18 November 2019

09:00 –10:00	Registration
10:00 –11:25	Workshop: A hands-on demonstration of process optimisation using machine learning techniques - Matthew McEwan, Perceptive Engineering
11:25 –11:45	Break
11:45 –13:15	Workshop: A lecture and exercises on control schemes and strategies – the process of determination - Professor Jonathan Love, Imperial College London
13:15 –14:00	Lunch, exhibition and poster presentations
14:00 –14:15	Opening address <i>Chris Hamlin, Chair of Organising Committee</i>
14:15 –15:00	Plenary speaker <i>Practising What I Preach</i> Professor Jonathan Love, Imperial College London
15:00 –16:10	United Kingdom Automatic Control Council (UKACC) presentations
16:25 –17:30	Poster viewing and drinks reception, sponsored by BP

Tuesday 19 November 2019

08:30 –09:00	Registration
09:00 –09:45	Plenary speaker <i>Automation: extinction event or evolutionary force for plant operators?</i> - Maurice Wilkins, Executive Advisor, Yokogawa
Operator 4.0 - emerging technologies	
09:50 –10:15	<i>Connected, integrated, digital field operator - making a step change in reducing human error</i> - Karl Watson, Global Process Safety Product Manager, ABB Energy Industries
10:15 –10:40	<i>Closed-loop integration of planning, scheduling, and explicit control for continuous manufacturing</i> - Vasileios Charitopoulos, Research Associate, Energy Policy Research Group, University of Cambridge
10:40 –11:05	Refreshments, exhibiton and poster presentations
11:05 –11:35	<i>Advanced process control of an ethylamine process</i> - Patrick Thorpe, Managing Director, Spiro Control Ltd
11:35 –12:00	<i>Use of modern analytics tools to evaluate variation reduction</i> - Andrew Ogden-Swift, Director, Ogden-Swift Consulting Ltd
12:00 –12:25	<i>Digital transformation - an end-user perspective</i> - Maurice Wilkins, Executive Advisor, Yokogawa
12:25 –12:50	<i>Lessons learnt in the connected plant and digital twins arena - the architecture</i> - Martin Bragg, Chief Technology Officer, Honeywell Ltd
12:50 –13:50	Lunch, exhibition and poster presentations
13:50 –14:40	Plenary: Cyber security - the regulator's perspective - Nic Butcher, HM Specialist Inspector (Electrical, Control & Cyber Security), Health & Safety Executive
Cyber security and new architectures	
14:40 –15:05	<i>Industrial cyber security enhancements</i> - Cevn Vibert, Global Director ICS Industrial Cyber Physical Security, Vibert Solutions
15:05 –15:30	<i>Resilient industrial networks – preparing for tomorrow's connectivity</i> - Dr Naz Khaleque, Industrial Cybersecurity, Honeywell Industrial Cyber Security

15:30–15:55	Refreshments, exhibition and poster presentations
16:00 –16:25	<i>Intelligent device integration technology including cyber security for the new industrial world</i> - Nick Garrett, Project Manager, FieldComm Group
16:25 –16:50	<i>The ICS security journey</i> - Nicky Jones, Security Lead and Director, NSRJ Consulting Ltd
16:50 –17:15	<i>OT cyber security: the importance of a scaled approach</i> - Thomas Olsen, Founder and Managing Director, Lagoni
From 19:00	Conference dinner served at 19:30, Blackhouse Grill on New York Street, New York Street Manchester M14 BD (ticket only)

Wednesday 20 November 2019

08:30 –09:00	Registration
09:00 –09:50	Plenary speaker <i>Addressing practical challenges of process analytics</i> - Brian Parsonnet, CTO and Founder, Seeq
Sustainability	
09:50 –10:15	<i>Resource efficient decision-making tools for industry</i> - Jonathan Cullen, Lecturer, University of Cambridge
10:15 –10:40	<i>Economic model predictive control applied to a micro-grid</i> - Patrick Thorpe & Andrew McGuire, Spiro Control Ltd
10:40 –11:05	<i>Improving resource efficiency of industrial processes using digital twin</i> - Vicente Rios, Senior Consultant and Group Leader, Process Simulation Europe, Emerson Automation Solutions
11:10 –11:35	Refreshments, exhibiton and poster presentations
Business integration and the complete digital twin	
11:35 –12:00	<i>The whole plant digital twin: what can semantic technologies contribute?</i> - David Cameron, Centre Coordinator, SIRIUS Centre for Scalable Data Access, University of Oslo
12:00 –12:25	<i>Closing the gap between planning and control: a multi-scale MPC cascade approach</i> - Andrew Trenchard, Engineering Fellow, Honeywell Controls Ltd
12:25 –12:50	<i>A block-chain modelling approach for the digital food value chain</i> - Dr Evgenia Mechleri, University of Surrey
12:50 –13:50	Lunch, exhibition and poster presentations (includes Process Management & Control SIG AGM at 13:15)
13:50 –14:20	Honeywell presentation
14:20 –14:45	<i>A practical application of a digital twin - integrating simulation into daily operations to minimize lost profit</i> - Andrew McIntee, Marketing Manager, KBC (A Yokogawa Company)
14:45 –15:10	<i>Advanced process control of a pharmaceutical granulation process - a digital design approach</i> - Mihai Rascu, Senior Engineer, Perceptive Engineering Ltd
15:10 –15:35	<i>Intelligent digital operations - incorporating deep process knowledge within plant automation systems</i> - Chris Leingang, Business Development Manager, Siemens Plc
15:35 –16:00	<i>Advanced process control in society</i> - Howard Boder, Consultant Process Control, Newland Control and Brian Neve, Director, Spiro Control Limited
16:00–16:30	Closing session

Programme is subject to change.

Poster Presentations

Digital design and operation of continuous crystallization processes via mechanistic modelling

Mihai Rascu, Senior Engineer, Perceptive Engineering Ltd, UK

Optimisation of the gas distribution of a wastewater treatment plant: a mixed integer linear programming approach

Harry Laing, PhD Researcher, Newcastle University, UK

Detecting valve stiction using machine learning algorithms trained on features extracted from time series

Harrison O'Neill, PhD Student, University of Chester, UK

The state of industrial cyber security

Ben Dickinson, Global Program Manager for Cyber Security, Energy Industries, ABB, UK

How the digital transformation can support the chemicals industry

Will Leonard, UK Digital Lead, Energy Industries, ABB, UK

LNG monetizing improvement based on real timed process efficiency and automations

Nazatul Sheema Che Din, Petronas, Malaysia

Resourceful investment decisions: providing a richer understanding of operational resource efficiency in process industries

Ana Gonzalez Hernandez, Resource Efficiency Consultant, Emerson Process Management, UK

Application of an automated process model for online equipment performance monitoring in LNG complex

Timothy Nex Ak Betin, Petronas, Malaysia

Multi-objective design of distributed energy systems under uncertainty

Ishanki De Mel, University of Surrey, UK

Poster programme subject to change



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Founded in 1945, the International Society of Automation is a leading, global, non-profit organization that is setting the standard for automation by helping over 30,000 worldwide members and other professionals solve difficult technical problems, while enhancing their leadership and personal career capabilities.

The Institute of Measurement and Control



Founded in 1944 and incorporated by Royal Charter in 1975, The Institute of Measurement and Control is committed to promoting the professional excellence and standing of engineers and technologists at all levels in the automation, instrumentation, control and related industries. Our aims are to serve the public benefit by advancing the science and practice of measurement and control technologies and their various applications, to foster the exchange of views and the communication of knowledge and ideas in these activities, and to promote the professional development and qualification our members. The Institute is therefore both a learned society and a professional qualifying body occupying a niche in the automation-focussed industries.

Institution of Engineering and Technology Control & Automation Technical Network



The Institution of Engineering and Technology aims to inspire, inform and influence the global engineering community to engineer a better world. The Control & Automation Network strives to be a central repository for all control and automation needs throughout the UK and the rest of the world. It was established to represent all those with an active interest in automation and control and will be relevant to those involved with the design, implementation, construction, development, analysis and understanding of control systems.

Process and Control



Process & Control is the leading information source for engineers who have a direct influence on the specification and procurement of process and control products, equipment, systems and services. The editorial content includes a mix of technology features, case studies, new product information and general industry news, and reports on developments in process equipment and control and instrumentation technologies.



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Bilfinger UK is a market leader in automation consultancy, design, development, installation and commissioning. With extensive experience in highly regulated environments combined with a strong focus on compliance and safety, we develop solutions that add value for our customers.

Our highly skilled engineers can develop and integrate solutions tailored to meet specific project needs and our independent status means that we can recommend the best technology to deliver customers’ unique requirements, delivering optimum performance of assets.

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We are a market leader in automation consultancy, design, development, installation and commissioning. With extensive experience in highly regulated environments combined with a strong focus on compliance and safety, we develop solutions that add value for our customers.

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With a strong pedigree in automation and a comprehensive knowledge of industry processes, regulations and standards, we offer solutions that improve operational environments and delivery efficiency improvements

Exhibitors



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Exhibitors



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