Imperial College London

Centre for Process Systems Engineering

2019 Seminar Series

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Digitalization in the process industries: substance beyond the hype?

Prof. Costas Pantelides
Process Systems Enterprise
and Imperial College London

1 May 2019, 10am, Seminar Room RODH C617

Abstract: The process industries are in the grip of digitalization fever. New digitalization initiatives are announced continually, often led by new digitalization groups and supported by substantial resources and budgets. As with many such major industry trends, this one too is surrounded by somewhat exaggerated claims and inflated expectations. As a result, it is not always easy to discern the real advances and opportunities, or to predict the probability of successful outcome for individual initiatives. This talk focuses on three areas of information technology, namely data, computation and algorithms, which provide the technological foundation for digitalization in the process industries. Following continual advances over the past couple of decades, technologies in these areas have now reached the point where they can have a significant impact across the process life cycle. The talk argues that successful digitalization applications are likely to involve sophisticated combinations of these IT developments with fundamental engineering knowledge and understanding. Recent industrial case studies are used to illustrate this point.

Bio: Costas Pantelides is a founder and currently the Managing Director of Process Systems Enterprise, a position he has held for the past 14 years. He is also a part-time professor of Chemical Engineering at Imperial College London where he enjoys teaching an advanced process modelling course and working on his research on *ab initio* crystal structure prediction.
He holds BSc and PhD degrees from Imperial, and an MS degree from the Massachusetts Institute of Technology. He has been working in the area of process modelling technology for more than 3 decades, and has played a leading role in the development of the gPROMS and SPEEDUP software.
He is the recipient of several awards including the 2007 Royal Academy of Engineering MacRobert Award, the UK's most prestigious prize for engineering innovation, and the 2016 Sargent Medal of the Institution of Chemical Engineers. At Imperial, he has also received the 2015 President's Medal for Excellence in Innovation and Entrepreneurship. He is a Fellow of the Institution of Chemical Engineers and a Fellow of the Royal Academy of Engineering.

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2018 Seminar Series: 30 Years of CPSE

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Prof. Rafiqul Gani (Technical University of Denmark)
Synthesis, design and analysis of energy efficient sustainable process alternatives
13 February 2019, 11am, RODH C617

Prof. Michail Georgiadis (Aristotle University of Thessaloniki)
Recent Developments in the Optimisation of Energy and Production Systems
13 March 2019, 3pm, RODH C617

Prof. Iqbal Mujtaba (University of Bradford)
Water - The Global Challenge and Everybody's Business: Social & Technological Perspective
20 March 2019, 3pm, LT3 RODH C617

Prof. Marianthi Ierapetritou (Rutgers University)
Surrogate-Based Modeling and Optimization for Advanced Decision Making
27 March 2019, 11am, RODH C617

Prof. Daniel Kuhn (École polytechnique fédérale de Lausanne)
Data-Driven Distributionally Robust Optimization
10 April 2019, 11am, RODH C617

Prof. Costas Pantelides (Imperial College London)
Digitalization in the process industries: substance beyond the hype?
1 May 2019, 10am, RODH C617

Prof. Ana Barbosa-Povoa (University of Lisbon)
How to Design and Planning Supply Chain Towards Sustainability Goals?
22 May 2019, 3pm, RODH C617

The seminars will take place at Imperial College London, Chemical Engineering Department

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