

Seminar Announcement:**Energy Systems Engineering -
Making it Happen****October 18, 2007 (Thursday)
10:30 a.m.****Burton D. Morgan Center for Entrepreneurship
(MRGN) Room 121**

Sandro Macchietto, Professor
Process Systems Engineering
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**Abstract:**

Providing plentiful and secure future energy supplies for both developed and developing countries, while addressing the environmental impact of energy production and use, is one of the key challenges facing our generation. Many of the solutions lie at the intersection of diverse technologies to meet multiple needs. The interplay between energy resources, supply and demand, transformation technologies, economics and policy are extremely complex and require a multidisciplinary, whole systems approach.

With reference to practical examples, the presentation will consider how the methods and approach of Process Systems Engineering can help in addressing energy problems at various levels: from the improvement of energy efficiency in traditional processes, such as distillation, to the development of novel energy production devices and processes such as biofuels, fuel cells and carbon capture processes, to the analysis of whole energy distribution networks and supply chains.

The talk will also discuss how a large, research-oriented university can help tackle such a daunting challenge, and present some of the recent developments

Continued on next page.

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Continued from previous page.

at Imperial College in this direction, in particular the Energy Futures Lab, a college-wide research initiative involving the faculties of Engineering, Natural Sciences and the Business School, and a new Masters course in Sustainable Energy Systems.

Brief Biography:

Dr. Macchietto is a Professor of Process Systems Engineering in the Department of Chemical Engineering at Imperial College London and a Director of its cross-faculty Energy Futures Lab. His research interests include the application of mathematical methods to process design, control and operation, and the development of model-based experiment design techniques for rapid model development and validation. More recently, he has become interested in the use of systems methods for the analysis, development and optimisation of sustainable energy systems, with particular applications in the biofuels area.

Interested in exploring the relation between people and research environment to generate sparks, he has promoted the creation of innovative mechanisms for fast track research, such as a successful Process Concept Studio, and interfaces between academia and industry. He co-founded and was a director of the interdisciplinary Centre for Process Systems Engineering, of Process Systems Enterprise Ltd, one of the first Imperial College spinouts and has been a driving force behind the formation of the Energy Futures Lab.

Dr. Macchietto is a Member of the Court of Imperial College (Engineering), a member of the Advisory Board of ENSIACET (Institut National Polytechnique) in Toulouse, France, a Director of the Asia Pacific Technology Network, and a frequently invited speaker on technology and R&D policy. He was made a Cavaliere of the Order of Merit of the Italian Republic by its President in 2004 and is a winner of the 2007 MacRoberts Award, the top award for Innovation of the Royal Academy of Engineering.

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