

Professor Christodoulos A. Floudas
Princeton University

Discovery through Systems Engineering Thinking

In the Chair: Professor Stratos Pistikopoulos, Director, Centre for Process Systems Engineering, Imperial College London

Vote of Thanks: Professor Costas Pantelides, Centre for Process Systems Engineering, Imperial College London

Abstract: Mathematical modeling, optimization theory and algorithms represent fundamental components of novel computational approaches for the discovery of new molecules, de novo design of therapeutic peptides and proteins, rational selection of zeolites for separation and catalysis, and design, operation and synthesis of process systems. The 15th Professor Roger W.H. Sargent lecture will focus on discovery advances that emanate from system engineering thinking and span multiple scales driven from biology, chemistry and physics insights at the microscopic/mesoscopic level to process operations decision making at the macroscopic level. The first part will present advances and opportunities in de novo protein design with rigid and flexible backbone structures. The second part will introduce a predictive approach for the selection of zeolite portals for shape selective separation of molecular compounds and discuss challenges and opportunities. The third part will discuss advances in short and medium-term scheduling and highlight their potential in the chemical industry. The lecture will conclude with personal views on systems engineering emerging as a cornerstone interdisciplinary area of chemical engineering, computer science, materials and life sciences.

Biography: Christodoulos Floudas is the Stephen C. Macaleer '63 Professor in Engineering and Applied Science and a Professor of Chemical Engineering at Princeton University. His research interests lie at the interface of chemical engineering, applied mathematics, and operations research, as well as computational chemistry and molecular biology. He received his B.S.E. at Aristotle University of Thessaloniki in 1982 and his PhD in 1985 at Carnegie Mellon University. He is recipient of the 2001 AIChE Professional Progress Award for Outstanding Progress in Chemical Engineering and the 2006 AIChE Computing in Chemical Engineering Award.

Lecture Theatre 1 (Room 250), Department of Chemical Engineering, ACE Extension Building, South Kensington Campus, Imperial College London SW7 2AZ

Tea and coffee will be served before the lecture from 16.45 in the Common Room (Room 228), Department of Chemical Engineering, Level 2, ACE Extension Building

RSVP: Attendance is free, but with registration in advance
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Thursday 4 December 2008 • 17.30

The Fifteenth Professor Roger W.H. Sargent Lecture

The Professor Roger Sargent Lecture is an annual event the Centre for Process Systems Engineering inaugurated as a tribute to Professor Sargent's vision, leadership, significant technical contributions and to his legacy in the field of Process Systems Engineering.