SCHOOL OF CHEMICAL, BIOLOGICAL & MATERIALS ENGINEERING

And

UNIVERSITY OF OKLAHOMA BIOENGINEERING CENTER

100 E. Boyd, Sarkeys Energy Center, T-335
405-325-5811
The University of Oklahoma
Norman, Oklahoma

2009 – 2010 Seminar Series

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DR. SELEN CREMASCHI

ASSISTANT PROFESSOR
DEPARTMENT OF CHEMICAL ENGINEERING
UNIVERSITY OF TULSA
TULSA, OKLAHOMA

Will present a seminar on

"PROCESS SYNTHESIS AND DESIGN OPTIMIZATION UNDER UNCERTAINTY"

The design of processes and development of new products are challenging tasks given uncertainties in raw material availabilities, product demand profiles, design and operating conditions, energy availability, environmental sustainability, and safety. At the early stages of the design, the systems are also subject to a myriad of uncertainties, such as estimates of the process parameters (recovery rates, process efficiencies, or process reliabilities), because most of the technologies involved are still under development. This presentation will give an overview of our research activities on 1) Uncertainty propagation via Monte Carlo simulation, and 2) A novel approach, SIMulation-based OPTimization (SIMOPT), which has been developed to provide input into decision making on process synthesis and design under uncertainty. Monte Carlo simulation is a non-intrusive, iterative method that can be used to estimate the impact of input uncertainties on the predictions of deterministic models. SIMOPT framework combines a stochastic simulation with a deterministic mathematical programming approach to generate multiple, unique realizations of the controlled evolution of the system under study. The information gathered from the realizations is then used to perform risk analysis or to update the parameters of deterministic optimization modules. The application of both methods will be illustrated in different areas.

THURSDAY, MARCH 11, 2010
COOKIES AND COFFEE -- 2:45 P.M.
SEMINAR -- 3:00 P.M.
SARKEYS ENERGY CENTER, ROOM M-204

THIS IS A REQUIRED SEMINAR FOR CHE 5971