

CERE – SEMINAR

Thursday 15 April 2021

09:00 to 10:00 a.m.

Online from link in calendar invitation

“Modeling, simulation, control and optimization for reactive systems”

By

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Abstract:

In this presentation we provide a systematic approach to modeling of reactive systems that are operated in stationary as well non-stationary modes. These models are used for simulation, filtering and prediction, control, and optimization. We garnish the presentation with a number of novel and partly surprising results. The approach is illustrated through a number case studies including an exothermic reaction in an adiabatic laboratory reactor, fermentations operated in fedbatch and continuous mode, drug deliver devices such as the artificial pancreas, cement manufacturing, integrated power and power-2-X systems, and mitigation of the COVID-19 pandemic. The range and broadness of these systems demonstrates the power of a uniform system approach based on merging high-performance scientific computing, systems and control, and chemical engineering science.