

Modular Process Intensification Roadmap Workshop

NATIONAL SCIENCE FOUNDATION AND U.S. DEPARTMENT OF ENERGY
January 17-18, 2017

Agenda

Tuesday, January 17, 2017

7:00 am	Registration
8:00 am	Opening Session <ul style="list-style-type: none">• Welcome and Workshop Objectives – Lakis Mountziaris, NSF• Energy and Modular PI – Angelos Kokkinos, DOE
8:20 am	TOPICAL PLENARY: Separations/Systems for PI and Modularization <ul style="list-style-type: none">• Robert Giraud, The Chemours Company – Sustainable Separations for Modular Chemical Manufacturing• Georges Belfort, Rensselaer Polytechnic Institute – Challenges and Research Needs for Modular Design of Synthetic Membrane Separations with Liquids• Michael Tsapatsis, University of Minnesota – Porous Materials for Adsorption and Membrane-based Separations and for Reaction-Separation Processes• William Koros, Georgia Institute of Technology – Gas Separation Systems: Modular Tools for Process Intensification• Ignacio Grossmann, Carnegie Mellon University – Centralized versus Distributed Manufacturing: A Continuous Location-Allocation Problem• Erik Ydstie, Carnegie Mellon University – Vistas for Process Operation and Control: Integrating Physics, Computation and Communication Networks
10:00 am	Break
10:15 am	BREAKOUT SESSION: Separations/Systems for PI and Modularization <ul style="list-style-type: none">• Future Applications, Technologies, Performance, and Goals• Challenges and Barriers / Priorities
11:50 am	Lunch: Dane Boysen, Cyclotron Road, Lawrence Berkeley National Laboratory – Democratizing Energy Technology
1:10 pm	TOPICAL PLENARY: Catalysis and Reactors <ul style="list-style-type: none">• Cathy Tway, Dow Chemical Company – Catalysis and Reaction Engineering as Critical Components to Modularity and Process Intensification• Mike Reynolds, Shell Oil Company – Upstream Opportunities in Modular Molecular Manufacturing• Martin van Sint Annaland, Technische Universiteit Eindhoven – Challenges in Designing Fluidized Bed Membrane Modules• Liang-Shih Fan, Ohio State University – Chemical Looping Gasification and Reforming: Modularization Strategy for Syngas Generation with CO₂ as Feedstock• Georgios Stefanidis, University of Leuven – Electrification of Chemical Reactors for Process Intensification: Power-to-Chemicals using Plasma and Microwaves• Nicholas Bridge, UOP LLC – Honeywell – Modular Fuels Processing: Serving the Demands of the Future
2:30 pm	Break

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2:45 pm	BREAKOUT SESSION: Catalysis and Reactors <ul style="list-style-type: none">• <i>Future Applications, Technologies, Performance, and Goals</i>• <i>Challenges and Barriers / Priorities</i>
4:20 pm	Report Outs
5:00 pm	Adjourn Day 1

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7:00 am	Arrive and Network
8:00 am	Welcome <ul style="list-style-type: none">• Opening Remarks from Organizing Committee
8:15 am	Keynote <ul style="list-style-type: none">• Smart Manufacturing and Modular Systems – Jim Davis, UCLA – Vice Provost, Information Technology and Chief Academic Technology Officer – <i>Smart Manufacturing and Modularization</i>
8:45 am	BREAKOUT SESSION: R&D Roadmap <ul style="list-style-type: none">• Separations/Systems for PI and Modularization and Catalysis/Reactions – Participants break into interactive groups within breakouts to develop R&D roadmap and pathways
10:15 am	Break
10:30 am	PANEL SESSION: Cross-Cutting (Modeling, Education, and Economics) <ul style="list-style-type: none">• Anna Lee Tonkovich, Tonkomo LLC – Accelerating Development of Modular Process Intensification Technology• Susannah L. Scott, University of California, Santa Barbara – Designing Resilient Catalysts• Levi Thompson, University of Michigan – Using Cascade Concepts to Design More Energy and Atom Efficient Heterogeneous Catalysts• Phillip Westmoreland, North Carolina State University – Developing an Intellectual and Educational Framework for Modular Process Intensification• Michael Baldea, University of Texas, Austin – Modular Chemical Production Systems: Economics, Design and Operations
12:00 pm	Lunch: Raghbir Gupta, RTI International – A Case Study in Technological and Business Challenges of a Modular Process Technology
1:20 pm	BREAKOUT SESSION: Cross-Cutting Topics <ul style="list-style-type: none">• Desired Future Applications, Technologies, Performance, and Goals• Challenges and Barriers / Priorities
2:45 pm	Open Forum and Wrap-Up
3:15 pm	Adjourn