

Laboratory for Systems Optimization and Nonlinear Analysis

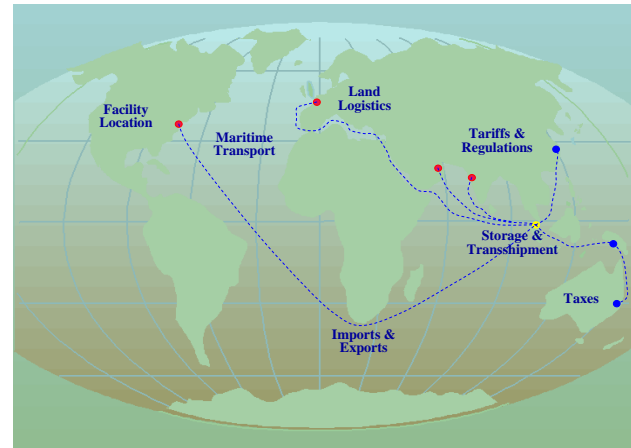
Decision Support via Mathematical Modeling, Analysis, & Optimization

Chemical Supply Chains & Logistics

With globally dispersed facilities, maritime transport and international regulatory factors play key roles in chemical supply chains. We are developing methodologies for the optimal design & operation of chemical supply chains with a global and integrated perspective.

Ongoing Projects

- Regulatory factors in supply chains
- Chemical shipping & transshipments
- Inventory placement & sizing



Planning & Scheduling

Many chemical manufacturing facilities share equipment and resources among multiple products and there exist innumerable ways of operating them. We focus on systematic approaches for identifying the best operating and allocation strategies.

Ongoing Projects

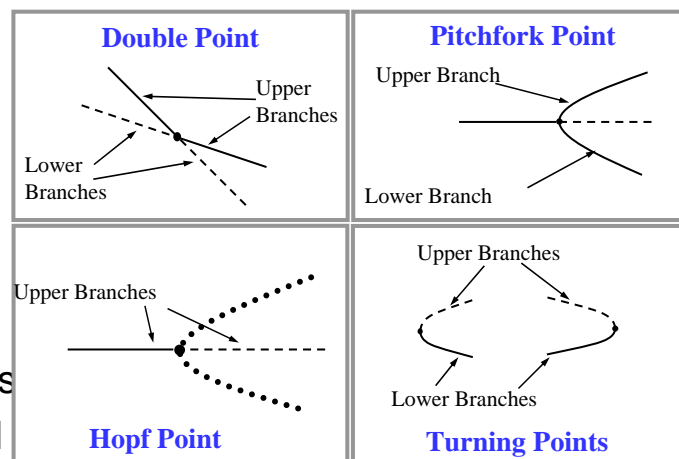
- Resource-constrained noncontinuous processes
- New product introductions in pharma/bio industry
- Refinery operations

Modeling & Nonlinear Analysis

Exotic nonlinear phenomena such as branching and oscillations occur commonly in chemical and biochemical systems. We model such systems and apply the reductive perturbation method to predict and analyze their behaviors with minimal computing.

Ongoing Projects

- Modeling & analysis of chemical & biosystems
- Applications of reductive perturbation method



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ChemBioSys @ NUS

Engineering Systems from Molecules to Multinationals

