CURRICULUM VITAE
MARIANTHI G. IERAPETRITOU

Department of Chemical & Biochemical Engineering, RUTGERS UNIVERSITY
98 Brett Road, Piscataway, N.J. 08854-8058 USA
Tel: 732 445-2971; Fax: 732 445-2421; E-mail: mailto:marianth@soemail.rutgers.edu
URL: http://sol.rutgers.edu/staff/marianth

EDUCATION

1991-1995 Ph. D., Chemical Engineering Department, *Imperial College, London, UK.*
Faculty Advisor: Prof. Efstratios Pistikopoulos
Thesis Topic: "Optimization Approaches for Process Engineering Problems under Uncertainty"

1986-1991 Diploma (Summa cum Laude), Chemical Engineering Department, *NTUA, Greece*
Faculty Advisor: Prof. Z. Maroulis
Thesis Topic: "Synthesis of Heat Exchanger Network"

PROFESIONAL EXPERIENCE

2005-2006 Visiting Associate Professor
Department of Chemical Engineering, MIT
Cambridge, MA

2004-present Associate Professor
Department of Chemical & Biochemical Engineering Rutgers University, Piscataway, NJ

1998-2004 Assistant Professor
Department of Chemical & Biochemical Engineering Rutgers University, Piscataway, NJ

1996-1998 Post Doctoral Research Associate
Department of Chemical Engineering, Princeton University, Princeton, NJ.

1995-1996 Post Doctoral Research Associate
Center for Process Systems Engineering, Imperial College, London, UK

RESEARCH INTERESTS

Computer-Aided Process and Product Design, Process Planning, Scheduling and Supply Chain Management, Reactive Scheduling under Uncertainty, Uncertainty Considerations in Process Design and Operations, Decomposition based Techniques for Multi-scale Systems, Reaction Model Reduction, Optimization of Complex Systems, Modeling and Optimization of Metabolic Networks, Improved Hepatocyte Functionality for Bioartificial Liver applications.

ACCOMPLISHEMTS

HONORS –AWARDS

2004 Board of Trustees Research Award for Scholarly Excellence, Rutgers University
2001-2002 Teaching Excellence Award from Chemical Engineering Department, Rutgers University
2000-2004 NSF CAREER Award, CTS 99-83406
1992-1994 Postgraduate Grant, Commission of European Community (ERB CHBI CT 93 0484)
1991-1992 Research/Teaching Fellowship, Imperial College
1986-1991 Undergraduate Fellowship, National Scholarship Foundation of Greece Award
1990-1991 Tiftixis Foundation Award, Athens Greece
1991 Economou Award for Academic Excellence, Athens, Greece

1991 Best Student of Chemical Engineering Department Award, National Technical University of Athens

RESEARCH GRANTS

1. NSF Award 2007-1010 ($316,317) “Reactive Flow Simulation Using An Adaptive Chemistry Framework” (co-PI with Ioannis Androulakis (PI).
2. NSF Award 2006-2009 ($399,572) “Systematic Mathematical Strategies for Stochastic Modeling and Uncertainty in Production Planning and Scheduling” (single PI).
3. Office of Naval Research 2006-2009 ($270,782) “Efficient Characterization of Combustion Fuels” (PI, co-PI Ioannis Androulakis)
4. National Center of Excellence for Environmental Bioinformatics and Computational Toxicology – EPA 2005-2010 ($4,500,000) (co-PI with William Welsh (PI), Panos Georgopoulos, from Robert Wood Johnson Medical School, Ioannis Androulakis from Rutgers University and Herschel Rabitz and Chris Floudas from Princeton University)
5. Metabolic Engineering – National Science Foundation 2005-2008 ($998,659) “Molecular Network Controls of Hepatocyte Metabolism” (co-PI with Charles Roth (PI), Martin Yarmush and Ioannis Androulakis from Rutgers University)
6. Quantitative Systems Biology – National Science Foundation 2004-2007 ($500,000) “Experimental and Computational Studies to Optimize Hepatocyte Function” (PI with Charles Roth and Martin Yarmush from Rutgers University).
7. NSERC Strategic Grant 2004-2007 ($300,000) “Innovative Approach to the Optimization of Integrated Newsprint Mill Dynamic Operations” (Co-PI with Professor Paul Stuart from Ecole Polytechnique in Montreal).
8. Office of Naval Research 2003-2006 ($213,000) “Development of an Adaptive Chemistry Model for Combustion Systems Considering Micromixing Effects” (single PI)
9. NSF Award 2002-2005 ($200,000) “Design of Flexible Reaction Models” (single PI)
10. CAREER NSF Award 2000-2004 ($308,803) “Process Operations: Decision-Making under Uncertainty” (single PI).
11. Strategic Resource and Opportunity Analysis (SROA) ($80,000), Rutgers University “The Laboratory for Multiphase Reactive Flow (LMRF): Integrating Information Technology and Experiments for Maintaining Technological Superiority in Homeland Security, Energy Generation, and the Environment” (Co-PI)
12. ACS-PRF Type G "Starter" Grant ($25,000) “Incorporation of Uncertainty into Complex Kinetic Mechanisms” (single PI).
13. New Jersey Space Consortium Grant (NASA) ($25,000) “Order Reduction of Complex Kinetic Mechanisms Considering Micro-mixing Effects” (single PI).
14. NSF International Division Grant, 0071505 ($13,800) “Multiple Inputs - Multiple Outputs (MIMO) Control Design” (single PI).
15. Grant from BOC Gases ($43,000) to perform research on novel optimization approaches for design under uncertainty.
16. Grant from Honeywell Hi-Spec Solutions ($25,000) to investigate the application of continuous time formulation for refinery scheduling.
17. Grant for Union Carbide ($5,000) to study the optimization of Amerchol Plant operations.
18. Grant from Rutgers University (co-PI along with Professors Narashiman, Khinast, Glasser, and Moghe) to modernize the graduate curricula in Chemical Engineering ($48,000).
19. Grant form Rutgers University (co-PI along with Professors Lehman, Norris, Denda, and Buttner) to advance instructional technology for engineering education by introducing new computer-based learning resources ($112,000).

20. Together with Professor Manish Parashar from Electrical Engineering Department lead the Unisys initiative to establish one of the three Nationwide Excellence Centers equipped with initial computing network ($278,000).
21. Grant from Rutgers University to initialize the research effort towards the application of optimization methods in environmental treatment systems ($1,500).
22. Grant from Rutgers University to initialize the research effort towards the consideration of uncertainty into complex kinetic models ($1,500).
23. Undergraduate Research Fellowship to support a student to do research in the area of scheduling of batch processes ($1,500).
24. Undergraduate Research Fellowship to support a student to do research in the area of refinery scheduling ($1,500).

TEACHING ACTIVITIES

2004-present	Undergraduate Executive Officer
2004 fall	Freshmen Orientation Lectures
2004 spring	Senior Control Course
2004	Spring Graduate level Course: Modeling and Optimization of Process Design and Operations
1998-present	Directed Research: 7 undergraduates and 9 graduate students
2000-2002	Fall Senior Level Undergraduate Course: Design of Separation Processes
2001-2002	Fall Graduate level Course: Analytical Methods in Chemical and Biochemical Engineering
1999-2000	Spring Graduate level Course: Advanced Transport Phenomena
1999	Fall Graduate level Course: Process Systems Engineering
1996-1998	3 Undergraduate Theses Supervisor, Princeton University

MENTORING GRADUATE & UNDERGRADUATE STUDENTS AND POSTDOCTORAL SCHOLARS

Postdoctoral Scholars Supervised

George Saharidis (03/2007- present)
Research Area: Decomposition Based Optimization of Complex Systems
Zhenya Jia (01/2007 – present)
Research Area: Modeling, Optimization and Control of Pharmaceutical Systems
Vidya Iyer (06/2007 – present)
Research Area: Metabolic Engineering of Liver Cell Cultures
Antoine Berton (03/2005 – 03/2006)
Research Area: Optimization and Control of Pulp and Paper Processes
École Polytechnique. Montréal
Avinash Sirdeshpande (9/1999-3/2001)
Research Area: Reduction of Complex Kinetic Models
Current Affiliation: BOC Gases

Current Graduate Students Advised/Co-Advised

Kai He	Since November 2006 (co-advised by Prof. I.P. Androulakis)
	Ph.D. expected May 2011
Thesis Title	Efficient Integration of Detailed Chemistry in Complex Flow Calculations of Combustion Systems
Zukui Li	Since January 2006
	Ph.D. expected May 2010.
Thesis Title	Uncertainty in Process Operations
Tien Phong Huynh	Since January 2005 (co-advised by Prof. I.P. Androulakis)
	Masters expected August 2007

Thesis Title	Characterization of Complex Fuels for Combustion Applications
Hong Yang	Since January 2005 (co-advised by Prof. C.M.Roth) Ph.D. expected May 2009.
Thesis Title:	Metabolic Control Analysis of Hepatocytes
Steve Guzikowski	Since January 2005 (co-advised by Prof. C.M.Roth) Ph.D. expected May 2009.
Thesis Title:	Novel tools towards Improving Hepatocyte Function
Patricia Portillo,	Since January 2004 (co-advised by Prof. F. Muzzio) Ph.D. expected May 2008.
Thesis Title:	Modeling, Control and Optimization of Continuous Pharmaceutical Processes
Eddie Davis	Since January 2004 Ph.D. expected May 2008.
Thesis Title:	Optimization of Grey Box Models

Past Graduate Students Advised/Co-Advised

Nripen Sharma,	Ph.D. January 2007. (co-advised by Prof. M.L.Yarmush)
Thesis Title:	Metabolic Engineering of Stem Cell Differentiation
Zhenya Jia,	Ph.D. September 2005.
Thesis Title:	Uncertainty Analysis of Scheduling and Planning Problems.
Ipsita Banerjee,	Ph.D. May 2005.
Thesis Title:	Multiscale Framework for Coupling Micromixing Phenomena and Detailed Kinetic Networks for Combustion Systems in a Dynamic Environment.
Dan Wu,	Ph.D. May 2005.
Thesis Title:	Unified Frameworks for the Optimal Production Planning and Scheduling.
Vishal Goyal,	Ph.D. Jan 2005.
Thesis Title:	Design and Synthesis of Flexible Module-Based Systems.
Aditya Bindal,	Ph.D. October 2004 (co-advised by Prof. J. Khinast)
Thesis Title:	Optimization and Stability Analysis of Multidimensional Reacting Systems
Ian Glasgow,	Masters Dec 2005 (co-advised by Prof. P. Stuart Ecole Polytechnique de Montreal, Montreal, Canada)
Thesis Title:	Optimization Applications in Pulp Paper Process Industry
Suhrid Balakrishnan,	Masters September 2002 (Co-advised with Prof. P. Georgopoulos).
Thesis Title:	Uncertainty considerations in Atmospheric Systems
Current Affiliation:	Graduate Student Department of Computer Science, Rutgers University
Jeetmanyu Vin,	Masters July 2000
Thesis Title:	Short Term Scheduling of Batch Plants under Uncertainty.
Current Affiliation:	Vin Flavors, India

Member of PhD Committee

Marcos Llusa	Since 2000 (Primary Advisor: Prof. F. Muzzio)
Thesis Title:	Effect of shear mixing on the agglomeration of cohesive granular material and the lubrication of granular blends Ph.D. expected May 2008
Jeng-Shiou Chen	Since 2000 (Primary Advisor: Prof. H. Pedersen)
Thesis Title:	Transition Metal Catalysts for Suzuki Couplings and Chiral Hydrogenations: Kinetic Study, Computational Model and Synthesis Ph.D. expected May 2006

Paloma Pimenta	Since 2000 (Primary Advisor: Prof. H. Pedersen)
Thesis Title:	Surfactant Solutions and Nanoparticle Suspensions Ph.D. May 2005
Thomas W Cochran	Since 2002 (Primary Advisor: Prof. Y. Chiew)
Thesis Title:	Molecular Thermodynamic Modeling of Amorphous Solid Phase of Chain Molecules Ph.D. June 2005.
Xue Liu	Since 2000 (Primary Advisor: Prof. B. Glasser)
Thesis Title:	Instability and Segregation in Bounded Gas-Particle Fluidized beds Ph.D. January 2005
Athanas Koynov	Since 2000 (Primary Advisor: Prof. J. Khinast).
Thesis Title:	Computational Studies of Bubble Columns Ph.D. May 2005.
Qinghua Wang,	Ph.D. September 2002 (Mechanical Engineering Department, Rutgers University, Primary Advisor: Prof. Y. Jaluria).
Thesis Title:	Instability and Heat Transfer in Mixed Convection Flow in a Horizontal Duct with Application to Cooling of Electronic Systems
Joe Kukura II,	Ph.D. July 2003 (Primary Advisor: Prof. F. Muzzio).
Thesis Title:	Computational Investigation of Laminar Mixing in Pharmaceutical Tanks
Christine Switzer,	Ph.D. May 2003 (Primary Advisor: Prof. D. Kosson).
Thesis Title:	Soil Vapor Extraction and Air Sparging Remediation of Trichlorethylene Contamination at the Savannah River Site
Elizabeth Shen,	Ph.D. 2001 (Primary Advisor: Prof. B. Narasimhan).
Thesis Title:	Microphase Separation in Bioerodible Polyanhydrides for Controlled Drug Release
Tongdan Jin,	Ph.D. 2001 (Industrial Engineering Department, Rutgers University, Primary Advisor: Prof. D. Coit).
Thesis Title:	System Reliability Assessment and Optimization Considering Estimation Uncertainty
Stephano Cerbelli,	Ph.D. 2000 (Primary Advisor:Prof. F. Muzzio).
Thesis Title:	The Topology of Mixing Structures in two-dimensional Periodic and Aperiodic Chaotic Flows

UNIVERSITY SERVICE

Undergraduate Executive Officer	2004-present
Member of School of Engineering Rules of Procedure Committee	2003-2004
Chair of Graduate Admissions Committee	2001-2002
All Class Advisor	2000-present
Departmental Web Site Coordinator	2000-present
Member of RUTCOR (Rutgers Center of Operations Research)	
Participation in program SUPER of Douglass College of women.	
Chair, School of Engineering Student Discipline Committee	2000-present
Member of the Departmental Admissions and Recruiting Committee	1998-2004
Member of the Departmental Qualifying Committee	1998-1999
Member of the Departmental Computing Committee	1998-1999
Member of the Departmental Promotional Material Committee	1998-1999
Junior Advisor	1999-2000

PROFESSIONAL ACTIVITIES

Professional Societies

Elected as a Trustee of the CACHE, the leading organization within the Chemical Engineering community promoting computational applications

Member of *American Institute of Chemical Engineers* (AIChE)

Member of *Institute of Operations Research and Management Sciences* (INFORMS)

Member of *Society of Industrial and Applied Mathematics* (SIAM)

AIChE Computing and Systems Technology (CAST) Nominated and elected 10a (Systems and Process Design) Division Director for 2006

Organizing Committee: ESCAPE 16, ESCAPE 17, PSE 2006, ESCAPE 18, Annual Meeting of Creek Chemical Engineers.

Chairing of Technical Meetings

Uncertainty in Process Design and Operations AIChE Meeting, November 2006, San Francisco, CA (Chair).

Advances in Optimization I &II AIChE Annual Meeting, November 2005, Cincinnati, OH (Chair).

Process Design and Operation Under Uncertainty, AIChE Annual Meeting, November 2005,Cincinnati, OH (Chair).

Computing Methods for CAPE, ESCAPE 15, May 2005, Barcelona, Spain (Chair).

Supply Chain Management I, AIChE Annual Meeting, November 2004, Austin, TX (Vise-Chair).

Supply Chain Management II, AIChE Annual Meeting, November 2004, Austin, TX (Vise-Chair).

Chair for Enabling Technologies in Product and Process Design: Operations, FOCAPD, Princeton, NJ, July 2004

Manufacturing and Process Operations, ESCAPE 14, Lisbon, May 2004 (Chair)

Enterprise Wide Optimization, AIChE Annual Meeting, November 2003, San Francisco, CA (Chair).

Modeling and Computation for Process Design, AIChE Annual Meeting, November 2002, Indianapolis, NV (Vice Chair).

Planning and Scheduling, AIChE Annual Meeting, November 2002, Indianapolis, NV (Vice Chair).

Flexibility and Operability in Design, AIChE Annual Meeting, November 2001, Reno, NV (Chair).

Applications of System Analysis Tools in Information Processing, AIChE Annual Meeting, November 2001, Reno, NV (Vice Chair).

Applications of Scheduling and Planning in Batch Processes, AIChE Annual Meeting, November 2001, Reno, NV (Chair).

Process Operations, 7th International Symposium on Process Systems Engineering (PSE) 2000, Collorado (Chair).

Planning and Scheduling AIChE Annual Meeting, November 2000, Los Angeles, CA (Chair).

Design of Reactive Separation Systems, AIChE Annual Meeting, November 2000, Los Angeles, CA (Chair).

Planning, Scheduling and Supply Chain Management, AIChE Annual Meeting, November 1999, Dallas, TX (Chair)

Batch Processing, AIChE Annual Meeting, November 1998, Miami Beach, FL (Chair).

Flexibility in Process Operations, AIChE Annual Meeting, November 1998, Miami Beach, FL (Chair).

Design for Flexibility and Operability, AIChE Annual Meeting, Miami Beach, Nov 1998 (Chair).

COLLABORATIONS

Internal

- Professor Georgopoulos: in the area of sensitivity and uncertainty analysis in contaminant source-to-dose sequence.
- Professor Khinast in the area of multiscale and environmental modeling.

- Professor Boros from Rutgers Center of Operations Research (RUTCOR) in the area of introducing optimization theory in engineering.
- Professor Coit from the department of Industrial Engineering in the area of Multiobjective optimization of process operations under uncertainty
- Professors Parashar from Electrical and Computer Engineering Department in the area of reactive multi-phase flows.
  Professor Roth from Chemical and Biochemical Engineering and Biomedical engineering departments in the area of hepatocyte functionality optimization.
  Professor Androulakis from Biomedical engineering in the area of modeling regulatory networks.
- Professor Yarmush from Biomedical Engineering: co-advise of one PhD thesis in the area of modeling and optimization of metabolic networks.

External

- Professor Anna Soffia Hauksdottir from University of Iceland a pioneer in the process control field.
- Professor Paul Stuart from Ecole Polytechnic in Montreal Canada in the area of optimization in pulp and paper industry.
- Professor Yannis Kevrekides from Princeton University, in the area of optimization of multiscale dynamic systems.
- Dr Avinash Sirdeshpande from BOC company in the area of design under uncertainty.
- Dr. Jeff Kelly Honeywell Hi-Spec Solutions in the area of refinery scheduling.
- Dr. Kevin Furman from ExxonMobil Research Engineering, in the area of supply chain modeling and optimization.
- Dr. John Farell from ExxonMobil Research Engineering, in the area reduction of complex reaction networks.
- Prof Greg Stephanopoulos from MIT in the area of metabolic engineering.

REFEREEING/REVIEWING ACTIVITY

Conference Organizer

FOCAPO (Foundations of Computer Aided Process Operations) Conference, 2008

Scientific Conference Reviewer

ACC (American Control Conference) 2006 Conference
8th International Symposium on Dynamics and Control of Process Systems (DYCOPS 2007)
ADCHEM (Advanced Control of Chemical Processes) Conference 2006
European Symposium of Computer Aided Process Engineering (ESCAPE)-16 / Process Systems Engineering (PSE)(2006)
Foundations of Computer Aided process Operations 2003 (FOCAPO)
European Symposium of Computer Aided Process Engineering (ESCAPE)- 6 (1996)

Scientific Journal Reviewer

Computers and Chemical Engineering
AIChE Journal
Industrial Engineering & Chemistry Research
Energy and Fuels
Combustion and Flame
Optimization and Engineering,
Chemical Engineering Communications
Chemical Engineering Science
European Journal of Operations Research
Computers and Industrial Engineering
Applied Mathematical Modeling

European Journal of Operations Research
Biotechnology and Bioengineering
Metabolic Engineering
Journal of Zhejiang University SCIENCE (JZUS)
The International Journal
Discrete Event Dynamic System

Proposal Reviewer

National Science Foundation
National Science Foundation CAREER Panel
National Science Foundation ITR Panel
Petroleum Research Fund (ACS).

FEATURED WORK

Chemical Engineering Progress "Simplifying Kinetic Models" **97**:11, 16, November 2001.

CITATIONS

379 citations as of August 2007 (source: Web of Science: Science Citation Index).

REFEREED JOURNAL PUBLICATIONS AND BOOK CHAPTERS

1. Portillo, P.M., M.G. Ierapetritou, and F.J. Muzzio Characterization of Continuous Convective Powder Mixing Processes. Powder Technology. in press, 2007
2. Li, Z. and M.G. Ierapetritou Process scheduling under uncertainty: Review and challenges. *Comp. Chem. Eng.* in press, 2007.
3. Wu, D. and M.G. Ierapetritou Hierarchical approach for production planning and scheduling under uncertainty. *Chem. Eng. Process.* in press, 2007.
4. Ierapetritou, M.G. and Z. Jia Short-term scheduling of chemical process including uncertainty. *Control Engineering Practice*. in press, 2007.
5. Davis, E. and M.G. Ierapetritou A kriging method for the solution of nonlinear programs with black-box functions. *AIChE Jl.* 53, 2001, 2007.
6. Portillo P.M., Muzzio F.J., Ierapetritou M.G. Hybrid DEM-compartment modeling approach for granular mixing. *AIChE Jl* 53 (1): 119-128, 2007.
7. Jia, Z. and M.G. Ierapetritou. Generate Pareto Optimal Solutions of Scheduling Problems using Normal Boundary Intersection Technique. *Comp. Chem. Eng*. 31, 268, 2007.
8. Davis, E., and M.G. Ierapetritou Adaptive Optimization of Noisy Black-Box Functions Inherent in Microscopic Models. *Comp. Chem. Eng.*, 31, 466, 2007.
9. Goyal, V., and M.G. Ierapetritou. Stochastic MINLP Optimization using Simplicial Approximation. *Comp. Chem. Eng.*, 31, 1081, 2007.
10. Portillo, P. F. Muzzio and M.G. Ierapetritou. Characterizing Powder Mixing Processes utilizing Compartment Models. *Int. Jl. Of Pharm.* 320, 14, 2006.
11. Jia, Z. and M.G. Ierapetritou. Uncertainty Analysis on the RHS for MILP problems. *AIChE J*., 52, 2486, 2006.
12. Wu, D., and M.G. Ierapetritou. Improved Lagrangean Decomposition Approach for MILP Problems. *Comp. Chem. Eng*. 30, 778, 2006.
13. Banerjee, I., and M.G. Ierapetritou. An Adaptive Reduction Scheme to Model Reactive Flow. *Comb. Flame*, 144, 219, 2006.
14. Bindal, A., M.G. Ierapetritou, S. Balakrishnan, A. Makeev, I. Kevrekidis and A. Armaou. Equation-free, coarse-grained computational optimization using timesteppers. *Chem. Eng. Sci.* 61, 279, 2006.
15. Sharma, N., M.G. Ierapetritou and M.L. Yarmush. Novel Quantitative Tools for Engineering Analysis of Hepatocyte Cultures in Bioartificial Liver Systems. *Biotechnology and Bioengineering*, 92(3), 321, 2005.

16. Balakrishnan S., Roy A., Ierapetritou M.G., Flach G.P. and Georgopoulos P.G. A Comparative Assessment of Efficient Uncertainty Analysis Techniques for Environmental Fate and Transport Models: Application to the FACT Model. *Journal of Hydrology* 307 (1-4): 204-218 JUN 9 2005.
17. Banerjee, I., and M.G. Ierapetritou. Feasibility evaluation of nonconvex systems using shape reconstruction techniques. *Ind. Eng. Chem. Res.*, 44, 3638, 2005.
18. Goyal, V. and M.G. Ierapetritou. Multiobjective Framework for Modular Design Generation Incorporating Demand Uncertainty, *Ind. Eng. Chem. Res.*, 44, 3594 2005.
19. Sirdeshpande, A.R., M.G. Ierapetritou, M.J. Andrecovich, J.P. Naumovitz. Process synthesis optimization and flexibility evaluation of air separation cycles. AIChE J., 51, 1190, 2005.
20. Goyal, V. and M.G. Ierapetritou. Deterministic framework for robust modular design with integrated-demand data analysis. *Ind. Eng. Chem. Res.* 43, 6813, 2004.
21. Wu, D., and M.G. Ierapetritou. Cyclic Short-Term Scheduling of Multiproduct Batch Plants using Continuous Time Formulation. *Comput. Chem, Eng.* 28, 2271, 2004.
22. Jia, Z., and M.G. Ierapetritou. Efficient short-term scheduling of refinery operations based on a continuous time formulation. *Comput. Chem. Eng.* 28, 1001, 2004.
23. Jia, Z., and M.G. Ierapetritou. Short-Term Scheduling under Uncertainty Using MILP Sensitivity Analysis. *Ind. & Eng. Chem. Res*., 43, 3782, 2004.
24. Hauksdottir, A.S., U. Zuhlke, M.G. Ierapetritou and V. Goyal. The Solution of Simultaneous Decoupling and Pole Placement Problem using Global Optimization. Special Issue of Comp. Chem. Eng. "The integration of Process Design and Control", Panos Seferlis, Michael Georgiadis (Eds) Elsevier, 582, 2004.
25. Goyal, V. and M.G. Ierapetritou. Computational Studies using a Novel Simplicial-approximation based Algorithm for MINLP Optimization. *Comput. Chem. Engng.* 28, 1771, 2004.
26. Banerjee, I., and M.G. Ierapetritou. Model Independent Parametric Decision Making. *Ann. Oper. Res.*, 132, 135, 2004.
27. Goyal, V. and M.G. Ierapetritou. MINLP Optimization Using Simplicial Approximation Method for Classes of Nonconvex Problems. In "*Nonconvex Optimization and Its Applications #74: Frontiers in Global Optimization"*, C.A. Floudas and P.M. Pardalos (Eds), Springer, 2003, page 165.
28. Banerjee, I., and M.G. Ierapetritou. Development of an Adaptive Chemistry Model Considering Micromixing Effects. *Chem. Eng. Sci*, 8, 4537, 2003.
29. Goyal, V. and M.G. Ierapetritou. Framework for Evaluating the Feasibility/Operability of Nonconvex Processes. *AIChE J*, 49, 1233, 2003.
30. Jia, Z., and M.G. Ierapetritou. Mixed Integer Programming Model for Gasoline Blending and Distribution Scheduling, *Ind. Eng. & Chem. Res.*, 42, 825, 2003.
31. Bindal, A., M.G. Ierapetritou and J.Khinast. Adaptive Multiscale Solution of Dynamical Systems in Chemical Processes Using Wavelets. *Comp. Chem. Eng.*, 27, 131, 2003.
32. Wu, D., and M.G. Ierapetritou. Decomposition Approaches for the Efficient Solution of Short-Term Scheduling Problem. *Comp. Chem. Eng.*, 27, 1261, 2003.
33. Banerjee, I., and M.G. Ierapetritou. Process Synthesis under Parameter Variability. *Comput. Chem. Eng.*, 27, 1499, 2003.
34. Jia, Z., M.G. Ierapetritou and J. D. Kelly. Refinery Short-term Scheduling Using Continuous Time Formulation Crude Oil Operations, *Ind. Eng. & Chem. Res*, 42, 3085, 2003.
35. Balakrishnan, S., A. Roy, M.G. Ierapetritou, G.P. Flach, and P. Georgopoulos. Uncertainty Reduction and Characterization of Complex Environmental Fate and Transport Models: An Empirical Bayesian Framework Incorporating the Stochastic Response Surface Method. *Water Resources Research,* 39(12): 1350, 2003.
36. Goyal, V. and M.G. Ierapetritou. Integration of Data Analysis and Design Optimization for the systematic Generation of Equipment Portfolio. *Ind. & Eng. Chem. Res*, 42, 5204, 2003.
37. Balakrishnan, S., P. Georgopoulos, I. Banerjee and M.G. Ierapetritou. Uncertainty Considerations in the Complex Kinetic Mechanisms Reduction. *AIChE J*, 48, 2875, 2002.

38. Banerjee, I., and M.G. Ierapetritou. Design Optimization under Parameter Uncertainty for General Black Box Models. *Ind. & Eng. Chem. Res.*, 41, 6687, 2002.
39. Ierapetritou, M.G., D. Wu, J. Vin, P. Sweeney, M. Chigirinskiy. Cost Minimization in an Energy Intensive Plant Using Mathematical Programming Approaches. *Ind. & Eng. Chem. Res*, 41, 5262, 2002.
40. Goyal, V. and M.G. Ierapetritou. Determination of Operability Limits Using Simplicial Approximation. *AIChE J*, 48,2902, 2002.
41. Ierapetritou, M.G. and J.Khinast. A New Stability Analysis Approach for Chemical Reactors Based on Iterative Sampling and Optimization. *AIChE J*., 48, 187, 2002.
42. Vin, J., and M.G. Ierapetritou. Robust Short-Term Scheduling of Multiproduct Batch Plants under Demand Uncertainty. *Ind. & Eng. Chem. Res*, 40, 4543, 2001.
43. Ierapetritou M.G., and C.A. Floudas. Comments on "An improved RTN continuous-time formulation for the short-term scheduling of multipurpose batch plants". *Ind. & Eng. Chem. Res*, 40, 5040, 2001.
44. Sirdeshpande, A., M.G. Ierapetritou, and I.P. Androulakis. Design of Flexible Reduced Kinetic Mechanisms. *AIChE J*., 47, 2461, 2001.
45. Floudas, C.A., Z. Gumus, and M.G. Ierapetritou Global Optimization for the Feasibility Test and Flexibility Index Problems, *Ind. & Eng. Chem. Res*, 40, 4267, 2001.
46. Ierapetritou, M.G. A New Approach for Quantifying Process Feasibility: Convex and one Dimensional Quasi-Convex Regions. *AIChE J*., 47, 1407, 2001.
47. Ierapetritou, M.G. Bilevel Optimization: Feasibility Test and Flexibility Index *Encyclopedia of Optimization*, C.A. Floudas and P.M. Pardalos (eds), Kluwer Academic Publisher, Printed in the Netherlands, 2001.
48. Ierapetritou, M.G. MINLP: Application in Facility Location-Allocation *Encyclopedia of Optimization*, C.A. Floudas and P.M. Pardalos (eds), Kluwer Academic Publisher, Printed in the Netherlands, 2001.
49. Ierapetritou, M.G. Single Facility Location: Multi-objective Rectilinear Distance Location *Encyclopedia of Optimization*, C.A. Floudas and P.M. Pardalos (eds), Kluwer Academic Publisher, Printed in the Netherlands, 2001.
50. Ierapetritou, M.G. Single Facility Location: Multi-objective Euclidean Distance Location *Encyclopedia of Optimization*, C.A. Floudas and P.M. Pardalos (eds), Kluwer Academic Publisher, Printed in the Netherlands, 2001.
51. Vin, J., and M.G. Ierapetritou. A New Approach for Efficient Rescheduling of Multiproduct Batch Plants. *Ind. & Eng. Chem. Res*, 39, 4228, 2000.
52. Ierapetritou M.G., I.P. Androulakis, D.S. Monos and C.A. Floudas, "Structure Prediction of Binding Sites of MHC Class II Molecules based on the Crystal of HLA-DR1 and Global Optimization", State of the Art in Global Optimization: Computational Methods and Applications, Eds: C.A. Floudas and P.M. Pardalos, Kluwer, 2000.
53. Ierapetritou M.G., T.S. Hene and C.A. Floudas, Effective Continuous-Time Formulation for Short-Term Scheduling: III Multiple Intermediate Due Dates *Ind. & Eng. Chem*, 38, 9, 3446, 1999.
54. Ierapetritou M.G., and C.A. Floudas and S. Vansantharajan and A.S. Gullick, A Decomposition Based Approach for Optimal Location of Vertical Wells *AIChE J*., 45, 4, 844, 1999.
55. Ierapetritou M.G., and C.A. Floudas, Effective Continuous-Time Formulation for Short-Term Scheduling: I. Multipurpose Batch Processes *Ind. & Eng. Chem. Res*., 37, 11, 4341, 1998.
56. Ierapetritou M.G., and C.A. Floudas, Effective Continuous-Time Formulation for Short-Term Scheduling: II. Multipurpose/Multiproduct Continuous Processes *Ind. & Eng. Chem. Res.*, 37, 11, 4360, 1998.
57. Ierapetritou, M.G, and C.A. Floudas, Short-Term Scheduling: New Mathematical Models vs Algorithmic Improvements. *Comp. & Chem. Eng*., 22, S419, 1998.

58. Klepeis, J.L., M.G. Ierapetritou, and C.A. Floudas, Protein Folding and Peptide Docking: A Molecular Modeling and Global Optimization Approach. *Comp. & Chem. Eng*., 22, S3, 1998
59. Klepeis, J.L., I.P. Androulakis, M.G. Ierapetritou, and C.A. Floudas, Predicting Solvated Peptide Conformations via Global Minimization of Energetic atom-to-atom Interactions. *Comp. & Chem. Eng*., 22, 765, 1998
60. Androulakis I.P., N.N. Nayak, M.G. Ierapetritou, D.S. Monos and C.A. Floudas, Identification of Peptide Binding Specificity for Pocket 1 of HLA-DR1 Based on Global Minimization of Energy Interactions. *Proteins: Structure, Function and Genetics*, 29, 87, 1997.
61. Epperly T., M.G. Ierapetritou and E.N. Pistikopoulos, On the global and efficient solution of stochastic batch plant design problems *Comp. & Chem. Eng.*, 21, 1411, 1997.
62. Ierapetritou, M.G., E.N. Pistikopoulos and C. A. Floudas, Operational Planning Under Uncertainty. *Comp. & Chem. Eng*., 20, S1209, 1996.
63. Ierapetritou, M.G. and E. N. Pistikopoulos, Batch Plant Design and Operations under Uncertainty *Ind. & Eng. Chem. Res*., 35, 772, 1996.
64. Ierapetritou, M.G., J. Acevedo and E.N. Pistikopoulos, An Optimization Approach for Process Engineering Problems under Uncertainty. *Comp. & Chem. Eng.*, 20, 703, 1996.
65. Pistikopoulos, E.M, T.V. Thomaidis, M. G. Ierapetritou and A. Melin, Flexibility, Reliability and Maintenance considerations in Batch Plant Design *Comp. & Chem. Eng*., 20, S1209, 1996
66. Ierapetritou, M.G. and E. N. Pistikopoulos, Global Optimization for Stochastic Planning Scheduling and Design Problems *Global Optimization in Engineering Design*, I.E.Grossmann (ed), Kluwer Academic Publisher, Printed in the Netherlands, 231-287, 1996.
67. Visweswaran V., Floudas C.A., Ierapetritou, M.G. and Pistikopoulos E.N., A Decomposition Based Global Optimization Approach for Bi-Level Convex Programming Problems. *State of the Art in Global Optimization: Computational Methods and Applications* C.A. Floudas and P.M. Pardalos (eds), Springer, 139-162, 1996.
68. Ierapetritou, M.G. and E.N. Pistikopoulos, Design of Multiproduct Batch Plants with Uncertain Demands. *Comp. & Chem. Eng*., 19**,** S627, 1995.
69. Pistikopoulos, E.N. and M.G. Ierapetritou, A Novel Approach for Optimal Process Design under Uncertainty. *Comp. & Chem. Engng.*, 19, 1089, 1995.
70. Ierapetritou, M.G. and E. N. Pistikopoulos, A Novel Optimization Approach of Stochastic Planning Models. *Ind. & Eng. Chem. Res*., 33**,** 1930, 1994.
71. Ierapetritou, M.G. and E. N. Pistikopoulos, Simultaneous incorporation of flexibility and economic risk in operational planning under uncertainty. *Comp. & Chem. Eng.*, 18, 163, 1994.

SUBMITTED/WORKING PAPERS

1. Furman, K., Z. Jia, and M.G. Ierapetritou. Continuous Time Formulation for Tank Transfer Scheduling. Submitted for publication. *Ind. Eng. Chem. Res.* 2006.
2. Davis, E., and M.G. Ierapetritou. A Kriging Based Method for the Solution of Mixed-Integer Nonlinear Programs Containing Black-Box Functions. Submitted for publication, *Jl. Glob. Opt.* 2007.
3. Saharidis, G., M.G. Ierapetritou and C.M. Minoux Accelerate benders algorithm producing sufficient cuts. Manuscript in preparation, 2007.
4. Yang, H., Roth, C.M. and M.G. Ierapetritou. Effects of Amino Acid Supplementation in Optimal Urea Production of Hepatocytes. Manuscript in preparation, 2007.
5. Li, Z., and M.G. Ierapetritou. Systematic uncertainty analysis and robust method for uncertain process scheduling. Manuscript in preparation, 2007.
6. Li, Z., and M.G. Ierapetritou. Robust optimization for process scheduling under uncertainty. Manuscript in preparation, 2007.
7. Guzikowski, S.A., Ierapetritou, M.G., and C.M. Roth. Metabolic and Genomic Analysis of Acetaminophen Metabolism. Manuscript in preparation, 2006.

8. Jia, Z., F. Muzzio, and M.G. Ierapetritou. Predictive Modeling for Mixing and Feeding Powder Processes using Kriging methodology. Manuscript in preparation.

REFEREED CONFERENCE PROCEEDINGS

1. P.M. Portillo, F.J. Muzzio, M.G. Ierapetritou, Modeling and designing powder mixing processes utilizing compartment modeling. Paper #1.24, European Symposium on Computer Aided Process Engineering (ESCAPE) 16/PSE'06, Garmisch-Partenkirchen, Germany, July 2006.
2. Z. Jia, M.G. Ierapetritou, Scheduling under demand uncertainty using a new multiparametric programming approach. Paper #1.42, European Symposium on Computer Aided Process Engineering (ESCAPE) 16/PSE'06, Garmisch-Partenkirchen, Germany, July 2006.
3. E. Davis, M. Ierapetritou, Solving MINLP containing noisy variables and black-box functions using branch-and-bound. Paper #3.16, European Symposium on Computer Aided Process Engineering (ESCAPE) 16/PSE'06, Garmisch-Partenkirchen, Germany, July 2006.
4. H. Yang, M.L. Yarmush, C. Roth, M.G. Ierapetritou, Minimal reaction sets and metabolic pathways for cultured hepatocytes. Paper #3.54, European Symposium on Computer Aided Process Engineering (ESCAPE) 16/PSE'06, Garmisch-Partenkirchen, Germany, July 2006.
5. Goyal, V. and M. G. Ierapetritou. Stochastic MINLP Optimization using Simplicial Approximation. CM-058, page 61, European Symposium on Computer Aided Process Engineering (ESCAPE) 15, Barcelona, Spain, May 2005.
6. Banerjee, I. and M.G. Ierapetritou. A Novel Feasibility Analysis Approach Based on Dimensionality Reduction and Shape Reconstruction. CM-017, page 85, ESCAPE 15, Barcelona, Spain, May 2005.
7. Banerjee, I. and M.G. Ierapetritou. An Adaptive Reduction Scheme to Develop Flexible Reduced Chemistry Models for Reactive Flow Simulations. MS-036, page 247, ESCAPE 15, Barcelona, Spain, May 2005.
8. Davis, E. and M.G. Ierapetritou. Adaptive Optimization of Noisy Black-Box Functions Inherent In Microscopic Models. CM-043, page 193, ESCAPE 15, Barcelona, Spain, May 2005.
9. Jia, Z., and M.G. Ierapetritou. Scheduling Under Uncertainty Using MILP Sensitivity Analysis. MPO006, page 931, ESCAPE 14, Lisbon, 2004.
10. Sharma, N., M.G. Ierapetritou, and M.L. Yarmush. Novel Quantitative Tools for Engineering Analysis of Hepatocyte Cultures used in Bioartificial Liver Systems. NCp015, Page 1057, ESCAPE 14, Lisbon, 2004.
11. Goyal, V. and M.G. Ierapetritou. Scenario-Based Approach for Robust Modular Design Generation. SPIp008 p 421. ESCAPE 14, Lisbon, 2004.
12. Banerjee, I., and M.G. Ierapetritou. Adaptive Chemistry Model Development for Combustion. 16th ONR Propulsion Meeting, Los Angeles, CA (2003).
13. Jia, Z., and M.G. Ierapetritou. Flexibility Incorporation in Scheduling Decision Making, 8th International Symposium of Process Systems Engineering, (2003).
14. Jia, Z., and M.G. Ierapetritou. Efficient short-term scheduling of refinery operation based on continuous time formulation. *Proceedings of the Foundations of Computer-Aided Process Operations*, (2003).
15. Wu, D., and M.G. Ierapetritou. A Novel Continuous-Time Formulation and Solution Approach for Simultaneous Consideration of Planning and Scheduling Decisions. *Proceedings of the Foundations of Computer-Aided Process Operations*, (2003).
16. Ierapetritou, M.G., I.P. Androulakis, Uncertainty considerations in the reduction of chemical reaction mechanisms, *Proceedings of the 5th International Conference on Foundations of Computer-Aided Process Design*, (2000).
17. Ierapetritou, M.G. and C.A. Floudas, Modeling and Optimization of Short-term Scheduling of Batch and Semi-Continuous Processes, Proceedings of 2nd Hellenic Scientific Chemical Engineering Conference, Thessaloniki, Athens, Greece (1999).

PRESENTATIONS

1. Li, Z., and M.G. Ierapetritou. Scheduling Under Uncertainty Using Parametric Programming. *AIChE Annual Meeting*, San Francisco, Nov 2006, paper 629d.
2. Portillo P, M. G. Ierapetritou, and F. Muzzio. Characterization and Modeling of Continuous Convective Powder Mixing Processes. AIChE Annual Meeting, San Francisco, Nov 2006, paper 597c.
3. Davis, E. and M.G. Ierapetritou. A New Approach for the Solution of Noisy Black-Box Models Involving Integer Variables. *AIChE Annual Meeting*, San Francisco, Nov 2006, paper 61b.
4. Guzikowski, S.A., M. G. Ierapetritou, and C.M. Roth Metabolic and Genomic Analysis of Acetaminophen Metabolism. *AIChE Annual Meeting*, San Francisco, Nov 2006, paper 124f
5. Yang, H., C.M. Roth, and M.G. Ierapetritou. Insights into Hepatic Metabolism from Flux Balance and Pathway Analyses. *AIChE Annual Meeting*, San Francisco, Nov 2006, paper 683d.
6. Sharma, N., M.G. Ierapetritou, R. Schloss, M.L. Yarmush. Quantitative Modeling of Metabolically Mature Na-butyrate Induced Hepatocyte-Like Cells from Embryonic Stem cells. *AIChE Annual Meeting*, San Francisco, Nov 2006, paper 612b.
7. Guzikowski, S.A., S.E. Tischfield, M.G. Ierapetritou, and C.M. Roth Metabolic and Genomic Analysis of Acetaminophen Metabolism and Induced-Hepatotoxicity. Paper # BIOT 119, ACS Annual Meeting, San Francisco, Sep. 2006.
8. Jia, Z., and M.G. Ierapetritou. Generate Pareto Optimal Solutions for Scheduling Problems under Uncertainty Using Normal Boundary Intersection Technique. *AIChE Annual Meeting*, Cincinnati, Nov 2005, paper 496a.
9. Wu, D., and M.G. Ierapetritou. Hierarchical Approach for Production Planning and Scheduling under Uncertainty. *AIChE Annual Meeting*, Cincinnati, Nov 2005, paper 582d.
10. Banerjee, I., M.G. Ierapetritou, I. P. Androulakis, and T. P. Huynh. A New Adaptive Representation of Complex Kinetic Models. *AIChE Annual Meeting*, Cincinnati, Nov 2005, paper 568a.
11. Jia, Z., and M.G. Ierapetritou. Uncertainty Analysis of MILP Problems. *AIChE Annual Meeting*, Cincinnati, Nov 2005, paper 12b.
12. Davis, E. and M.G. Ierapetritou. Adaptive Optimization of Noisy Black-Box Functions Inherent in Microscopic Models. *AIChE Annual Meeting*, Cincinnati, Nov 2005, paper 570g.
13. Portillo P, F. Muzzio, and M. G. Ierapetritou. Modeling Granular Mixing Processes Utilizing a Hybrid DEM-Compartment Modeling Approach. *AIChE Annual Meeting*, Cincinnati, Nov 2005, paper 364d.
14. Ierapetritou, M.G., N. Sharma, H. Yang, S. A. Guzikowski, M. L. Yarmush, and C. M. Roth. Optimization and Control of Metabolic Activities in Hepatocytes. *AIChE Annual Meeting*, Cincinnati, Nov 2005, paper 246f.
15. Tischfield, S.E., C. M. Roth, M.G. Ierapetritou, and S. Guzikowski. A Bioinformatics Approach to Modeling Cytochrome P450 Gene Regulation in Hepatocytes. *AIChE Annual Meeting*, Cincinnati, Nov 2005, paper 93s.
16. Sharma, N. H. Yang, C.M. Roth, M. L. Yarmush, and M.G. Ierapetritou. Optimal Metabolic Control of Hepatocyte Function. Foundations of Systems Biology in Engineering (FOSBE) 2005 Santa Barbara, CA, August 2005.
17. Goyal, V. and M. G. Ierapetritou. Stochastic MINLP Optimization using Simplicial Approximation. European Symposium on Computer Aided Process Engineering (ESCAPE) 15, Barcelona, Spain, May 2005.
18. Banerjee, I. and M.G. Ierapetritou. A Novel Feasibility Analysis Approach Based on Dimensionality Reduction and Shape Reconstruction. ESCAPE 15, Barcelona, Spain, May 2005.
19. Banerjee, I. and M.G. Ierapetritou. An Adaptive Reduction Scheme to Develop Flexible Reduced Chemistry Models for Reactive Flow Simulations. ESCAPE 15, Barcelona, Spain, May 2005.
20. Davis, E. and M.G. Ierapetritou. Adaptive Optimization of Noisy Black-Box Functions Inherent In Microscopic Models. ESCAPE 15, Barcelona, Spain, May 2005.

21. Banerjee, I. and M.G. Ierapetritou. Feasibility evaluation of nonconvex systems using shape reconstruction techniques. *AIChE Annual Meeting*, Austin, Nov 2004.
22. Banerjee, I. and M.G. Ierapetritou. CFD modeling of combustion systems using an adaptive chemistry scheme. *AIChE Annual Meeting*, Austin, Nov 2004.
23. Portillo P, M. G. Ierapetritou and F. Muzzio. Development of Control Strategies for Blending Operations in Pharmaceutical Processes. *AIChE Annual Meeting*, Austin, Nov 2004.
24. Sharma, N., M.G. Ierapetritou, and M.L. Yarmush. Novel Quantitative Tools for Engineering Analysis of Hepatocyte Cultures used in Bioartificial Liver System. *AIChE Annual Meeting*, Austin, Nov 2004.
25. Sharma, N., A. Bindal, M. Benson, M.G. Ierapetritou, and J. Khinast. Dynamics and Stability Analysis of a Mixed Micro-organism environment in which a bacteria degrades a Polycyclic Aromatic Hydrocarbon contaminant. *AIChE Annual Meeting*, Austin, Nov 2004.
18. Jia, Z., and M.G. Ierapetritou. Scheduling Under Uncertainty Using MILP Sensitivity Analysis. MPO006, ESCAPE 14, Lisbon, 2004.
26. Jia, Z. and M.G. Ierapetritou. Incorporation of Flexibility in Scheduling Decision-Making. PSE, China, January 2004.
27. Goyal, V. and M.G. Ierapetritou. Stochastic Framework For Flexible Module Manufacturing. SPIp010, ESCAPE 14, Lisbon, May 2004.
28. Sharma, N., M.G. Ierapetritou and M.L. Yarmush. Novel Quantitative Tools for Engineering Analysis of Hepatocyte Cultures used in Bioartificial Liver Systems. NCp015, ESCAPE 14, Lisbon, May 2004.
29. Jia, Z. and M.G. Ierapetritou. Scheduling with Parameter Uncertainty Based on Sensitivity Analysis. ESCAPE 14, Lisbon, May 2004.
30. Jia, Z. and M.G. Ierapetritou. Short-term Scheduling Under Uncertainty Using MILP Sensitivity Analysis. *AIChE Annual Meeting*, San Francisco, Nov 2003.
31. Wu D., and M.G. Ierapetritou. Hierarchical Approach for Production Planning and Scheduling Under Uncertainty Using Continuous-Time Formulation. *AIChE Annual Meeting*, San Francisco, Nov 2003.
32. Banerjee, I. and M.G. Ierapetritou. A Framework for Coupling Adaptively Reduced Chemistry with Detailed Flow Field Models. *AIChE Annual Meeting*, San Francisco, Nov 2003.
33. Goyal, V., and M.G. Ierapetritou. Effective Convex Hull Approximation Approach for MINLP Optimization. *AIChE Annual Meeting*, San Francisco, Nov 2003.
34. Ierapetritou M.G., and V. Goyal. Design of Flexible Module Manufacturing. *AIChE Annual Meeting*, San Francisco, Nov 2003.
35. Ierapetritou, M.G., S. Balakrishnan, A. Makeev, I. Kevrekedis and A. Armaou. Coarse Computational Optimization Using Time-steppers. *AIChE Annual Meeting*, San Francisco, Nov 2003.
36. Jia, Z. and M.G. Ierapetritou. Efficient Spatial Decomposition and Scheduling of Refinery Operations Based on Continuous Time Formulation. *AIChE Annual Meeting*, Indianapolis, Nov 2002.
37. Androulakis, I.P. J.M. Grenda, J.W. Bozzelli, and M.G. Ierapetritou. Uncertainty Propagation Analyses of Chemically Activated Reaction Pathways in Gas Phase Compbustion Systems. *AIChE Annual Meeting*, Indianapolis, Nov 2002.
38. Ierapetritou M.G., and V. Goyal. Process Synthesis Optimization Based on Market Data Analysis. *AIChE Annual Meeting*, Indianapolis, Nov 2002.
39. Banerjee, I. and M.G. Ierapetritou. Adaptive Kinetic Model Reduction Considering Micromixing Effects. *AIChE Annual Meeting*, Indianapolis, Nov 2002.
40. Banerjee, I. and M.G. Ierapetritou. Design Optimization under Parameter Uncertainty for General Black Box Models. *AIChE Annual Meeting*, Indianapolis, Nov 2002.

41. Ierapetritou M.G., and V. Goyal. A Novel Framework for Evaluating the Feasibility/Operability of General Non-Convex Processes. *Annual Meeting*, Indianapolis, Nov 2002.
42. Ierapetritou M.G., and V. Goyal, A Simpicial Approximation Approach to Quantify Process Feasibility. *AIChE Annual Meeting*, Reno, Nov 2001.
43. Wu D., and M.G. Ierapetritou, Using Decomposition Techniques to Solve Short-Term Scheduling Problem. *AIChE Annual Meeting*, Reno, Nov 2001.
44. Balakrishnan S., J. Benarjee and M.G. Ierapetritou, Coping with Uncertainty in the Description of Complex Kinetic Mechanisms. *AIChE Annual Meeting*, Reno, Nov 2001.
45. Ierapetritou M.G., An Efficient Approach to Quantify Process Feasibility based on Convex Hull Evaluation, ESCAPE11, Denmark, May 2001.
46. Hauksdottir A.S., and M.G. Ierapetritou, Simultaneous Decoupling and Pole Placement without Cancelling Invariant Zeros *2001 American Control Conference*, April 2001.
47. Ierapetritou M.G., A. Sirdeshpande and I.P. Androulakis, Incorporation of Uncertainty into Complex Kinetic Mechanisms. *AIChE Annual Meeting*, Los Angeles, Nov 2000.
48. Ierapetritou M.G., A New Approach for Quantifying Process Feasibility. *AIChE Annual Meeting*, Los Angeles, Nov 2000.
49. Ierapetritou M.G., J. G. Khinast and A. Bindal. A Novel Domain Decomposition Approach for Complex Multiscale Dynamic Systems. *AIChE Annual Meeting*, Los Angeles, Nov 2000.
50. Ierapetritou M.G., J. Vin. A Systematic Approach to Improve Scheduling Performance under Uncertainty. *AIChE Annual Meeting*, Los Angeles, Nov 2000.
51. Ierapetritou M.G., A. Sirdeshpande and I.P. Androulakis. Kinetic Model Reduction Considering System Variability. *AIChE Annual Meeting*, Los Angeles, Nov 2000.
52. Ierapetritou M.G., A. Sirdeshpande and I.P. Androulakis, Incorporation of Uncertainty into Complex Kinetic Mechanisms. *AIChE Annual Meeting*, Dallas, Nov 1999.
53. Floudas C.A, M.G. Ierapetritou and Z.H. Gumus, Global Optimization in Design under Uncertainty: Feasibility Test and Flexibility Index Problems. *AIChE Annual Meeting*, Dallas, Nov. 1999.
54. Hauksdottir A.S. and M.G. Ierapetritou, Simultaneous Decoupling and Pole Placement without Cancelling Invariant Zeros. *AIChE Annual Meeting*, Dallas, Nov. 1999.
55. Ierapetritou M.G., Reactive Scheduling under Uncertainty Considerations for Multiproduct Batch Plants. *AIChE Annual Meeting*, Dallas, Nov. 1999.
56. Switzer C.A., I.Massry, D.H.Berler, M.G.Ierapetritou and D.Kosson, Field Application of a Multi-Pore Regime Mass Transport Model to Evaluate Soil-Vapor Extraction and Air Sparging Remediation of Trichloroethylene Contamination. *AIChE Annual Meeting*, Dallas, Nov. 1999.
57. Ierapetritou, M.G, and I.P. Androulakis, Uncertainty Considerations in the Reduction of Chemical Reaction Mechanisms *FOCAPD*, Colorado, July 1999.
58. Ierapetritou, M.G, T. S. Hene, and C.A. Floudas, Continuous-Time Formulation for Short-Term Scheduling with Multiple Intermediate Due Dates *ESCAPE 9*, Budabest, May 1999.
59. Ierapetritou, M.G, and C.A. Floudas, Effective Continuous-Time Formulation for Short-Term Scheduling: Multiple Intermediate Due Dates *AIChE Annual Meeting*, Miami Beach, Nov 1998.
60. Ierapetritou, M.G, C.A. Floudas, S. Vansantharajan and A.S. Gullick, A Decomposition Based Approach for Optimal Location of Vertical Wells *AIChE Annual Meeting*, Miami Beach, Nov 1998.
61. Ierapetritou, M.G, and C.A. Floudas, Short-Term Scheduling: New Mathematical Models vs Algorithmic Improvements ESCAPE8 conference, Bruge, May 1998.
62. Ierapetritou M.G. and C.A. Floudas, Effective Continuous-Time Formulation for Short-Term Scheduling: Multipurpose Batch Processes *AIChE Annual Meeting*, Los Angeles November 1997.
63. Androulakis I.P., M. G. Ierapetritou, N. N. Nayak, D.S. Monos and C.A. Floudas A Predictive Method for the Evaluation of Peptide Binding in Pocket 1 of HLA-DRB1 via Global Minimization of Energy Interactions *AIChE Annual Meeting*, Los Angeles November 1997.
64. Klepeis J.L., I.P. Androulakis, M.G. Ierapetritou and C.A. Floudas Predicting Solvated Peptide Conformations via Global Minimization *AIChE Annual Meeting*, Los Angeles November 1997.

65. Epperly T., M.G. Ierapetritou and E.N. Pistikopoulos, On the global and efficient solution of stochastic batch plant design problems *AIChE Annual Meeting*, Chicago November 1996.
66. Ierapetritou M.G., J. Acevedo and E.N. Pistikopoulos, Stochastic Optimization of Manufacturing Systems Under Uncertainty *AIChE Annual Meeting*, Chicago November 1996.
67. Pistikopoulos, E.M, T.V. Thomaidis, M. G. Ierapetritou and A. Melin, Flexibility, Reliability and Maintenance considerations in Batch Plant Design *ESCAPE6*, Rhodes, May 1996.
68. Ierapetritou, M.G. and E.N. Pistikopoulos, Design of Multiproduct Batch Plants with Uncertain Demands. *ESCAPE5*, Bled, June 1995.
69. Visweswaran V., Floudas C.A., Ierapetritou, M.G. and Pistikopoulos E.N., A Decomposition Based Global Optimization Approach for Bi-Level Convex Programming *Problems Global Optimization: Computational methods and Applications*, Princeton University, April 1995.
70. Ierapetritou, M.G. and E. N. Pistikopoulos, Design of Multiproduct Batch Plants under Uncertainty: A Global Optimization Approach. *AIChE Annual Meeting*, San Francisco November 1994.
71. Ierapetritou, M.G. and E. N. Pistikopoulos, An Optimization Approach for Process Engineering Problems under Uncertainty. *PSE4*, Korea, May 1994.
72. Pistikopoulos, E.N. and M. G. Ierapetritou, Optimization of Production and Capacity Planning under Uncertainty. *TIMS/ORSA*, Boston, April 1994 (Chairman of the Session ``Models for Production Capacity Planning").
73. Ierapetritou, M.G. and E. N. Pistikopoulos, Long Range Planning under Uncertainty. *ESCAPE4*, Dublin, March 1994.
74. Ierapetritou, M.G. and E. N. Pistikopoulos, Production and Capacity Planning under Uncertainty. *IChemE94* London, January 1994.
75. Ierapetritou, M.G., E.N. Pistikopoulos and C.A. Floudas, Operational Planning Under Uncertainty. *ESCAPE3*, Graz, June 1993.
76. Ierapetritou, M.G. and E. N. Pistikopoulos, Measuring Decision Flexibility and Economic Risk in Operational Planning. *IFORS 93*, Lisbon, July 1993.
77. Ierapetritou, M.G. and E. N. Pistikopoulos, Integration of Decision Flexibility and Economic Risk in Operational Planning. *IChemE93* Birmingham, January 1993.

INVITED PRESENTATIONS

1. November 2007, Rice University.
2. Analysis of Complex Kinetic Networks Using Systems Approaches. March 2007, Lehigh University
3. Mathematical programming techniques to analyze complex reaction networks. May 2007, CCNY
4. Uncertainty in Process Scheduling using Parametric Programming. Co-author with Li, Z., INFORMS (Institute for Operations Research and the Management Science) 2006.
5. Frameworks for Analyzing Complex Networks from Combustion to Metabolism: Effects of Uncertainty, MIT, March 2006.
6. A Systems Approach for Analyzing Complex Processes. University of Massachusetts at Amherst, March 2006.
7. Mathematical Programming as a tool for Learning. Tufts University, May 2006.
8. Modeling Reactive Flows using Adaptive Chemistry. Northeastern University, February 2006.
9. Short term scheduling of Chemical Processes, Keynote lecture ADCHEM (Advanced Control of Chemical Processes) Gamado, Brazil, 2006.
10. Process Design and Operations: Modeling and Optimization. 12th Symposium in Chemical Engineering, Puerto Rico, October 2005.
11. Uncertainty issues in process design and operations. Texas A&M, November 2005.
12. Combustion modeling including detailed adaptive chemistry. Lab for Surface Modification, Physics Departments, Rutgers University, 2005.
13. Uncertainty analysis for process design and operations. Pan American Advanced Studies Institute Program on Process Systems Engineering (PASI), Iguassu Falls, Brazil, August 2005.

14. Scheduling under uncertainty. PASI, Iguassu Falls, Brazil, August 2005.
15. Adaptive Kinetic Model Reduction Framework Considering Micromixing Effects. Imperial College, London, UK, May 2004.
16. Women in Engineering: The Myth and Reality. Society of Women Engineers, Rutgers University, April 2004.
17. Development of an Adaptive Chemistry Model for Reactive Flow Simulations. University of Rhode Island, March 2004.
18. Process Operations in Dynamic Environment. University of Kansas, February 2004.
19. Process Synthesis and Design within a Dynamic Environment. University of Southern California, February 2004.
20. Design of Flexible Module-Based manufacturing. New Jersey Institute of Technology, October 2003.
21. Modeling and Optimization of Process Design and Operations. ExxonMobil, Houston, August 2003.
22. Product Portfolio and Capacity Planning Under Uncertainty. Purdue University, February 2003.
23. Product and Process Design Optimization under Uncertainty**.** Ecole Polytechnique de Montreal, Canada, March 2003.
24. Optimization of Process Design and Operations Including Uncertainty. ABB July 2002.
25. Uncertainty Quantification and its Uses. Brooklyn Polytechnic, April 2002.
26. Efficient Scheduling of Refinery Operations. Honeywell Hi-Spec Solutions, Toronto, Canada, July 2002.
27. Developing Efficient Approaches to Quantify and Manage Uncertainty in Process Operations. City College of New York, October 2001.
28. Decomposition Approaches for the Efficient Solution of Short-Term Scheduling Problem. 2nd Pan American Workshop on Process Systems Engineering, Brazil Sep 19-21, 2001.
29. Short-term Scheduling under Uncertainty: Issues and Answers. Plenary Speaker, ENPROMER 2001, 3rd Mercosur Congress on Process Systems Engineering, Argentina, September 16-20, 2001.
30. Developing Efficient Approaches to Quantify and Manage Uncertainty in Process Operations, University of Iceland, May 2001.
31. “NSF Young Faculty Panel Discussion”. AIChE Annual Meeting, Los Angeles, 2000.
32. Women in Academia the myth and the reality. Panel Discussion. Princeton University, April 2000.
33. Process Operations in an Uncertain Environment. Rutgers Center of Operations Research (RUTCOR), March 2000.
34. Parameter Variability in Plant Design and Synthesis. BOC Gases Technical Group, October 1998.
35. Process Design and Operations: Uncertainty and Scheduling. Department of Chemical Engineering, Carnegie Melon University, April 1998.
36. Uncertainty in Process Systems Engineering. Department of Chemical Engineering, Lehigh University, April 1997.
37. Uncertainty in Process Design and Operations. Department of Chemical Engineering, University of Arizona, Tucson, June 1997.
38. Process Design and Operations: Uncertainty and Scheduling. Department of Chemical Engineering, Berkeley, CA, April, 1997.