2002 Green Chemistry and Engineering Conference
Preliminary Program

Tuesday, June 25, 2002

8:15-8:30 A.M.
Opening Remarks

8:30-11:30 A.M.
2002 Presidential Green Chemistry Challenge Award Winners Technical Session
Chair:

Speakers:
Design of CO_2-Philic Materials: How Small Changes in Molecular Structure Lead to Large Changes in Phase Behavior
Eric J. Beckmann
University of Pittsburgh

10:00-10:30 A.M.
Coffee Break

11:30 A.M.-12:15 P.M.
Global Plenary:
Chair:

Speaker:
Paul T. Anastas
White House Office of Science and Technology Policy

12:15-1:30 P.M.
Lunch and Exhibits

Exhibits
National Institute of Standards and Technology

U.S. Environmental Protection Agency
Green Chemistry Program
Design for the Environment
Green Engineering

1:30-2:15 P.M.
Food and Agriculture Plenary
Chair:

Speaker:

TBA

2:15-3:15 P.M.
Food and Agriculture
Chair:
Ian Brindle
Brock University

Speakers:
TBA

Modeling/Computational Methods
Chair:
Ellyn Beary
National Institute of Science and Technology

Speakers:
Thermodynamic Prediction of Surfactant Enhanced Solid Surface Cleaning
S.A. Morton III
University of Tennessee

Economic Benefits of a Web-Based Virtual Media Distribution System for Radiological Samples in Environmental Stewardship
Frederic H.K. Booth
WPI

3:15-3:30 P.M.
Break

3:30-5:30 P.M.
Benign Synthesis and Processing
Chair:
Richard Engler
U.S. Environmental Protection Agency

Speakers:
Eco-Friendly Synthetic Approaches for Bio-Active Compounds
M. Kidwai
University of Delhi

Environmentally Benign Bioreversible Photoresists
Lisa Lloyd-Kindstrand
University of Massachusetts, Boston

Supercritical CO_2-Tuned Solvent Polarity of Room-Temperature Ionic Liquids
Jie Lu

Georgia Institute of Technology

Point Source Metals Recovery in a Spouted Bed Electrolytic Reactor
Joseph M. Calo
Brown University

Greener Solvents: Carbon Dioxide
Chair:

Speakers:
CO_2-Expanded Ternary Solvents for Homogeneous Catalytic Oxidation of Organic Substrates by Water-Soluble Catalysts and Oxidants
Bhuma Rajagopalan
University of Kansas

Benign Recovery of Homogeneous Catalysts
Jason P. Hallett
Georgia Institute of Technology

Phase-Transfer Catalyst Separation by Carbon Dioxide Enhanced Aqueous Extraction
Xiaofeng Xie
Georgia Institute of Technology

Supercritical CO_2-Tuned Solvent Polarity of Room-Temperature Ionic Liquids
Jie Lu
Georgia Institute of Technology

5:30-7:00 P.M.
Reception

Wednesday, June 26, 2002

8:30-9:15 A.M.
Water and Resource Depletion Plenary
Chair:
Dennis L. Hjeresen
Green Chemistry Institute

Speaker:
Terry Collins
Carnegie Mellon University

9:15-10:15 A.M.
Greener Solvents: Ionic Liquids I
Chair:

William M. Nelson
Waste Management and Research Center

Speakers:
Ionic Liquids – A Look at the Dissolution of Cellulose
Robin D. Rogers
The University of Alabama

Applications for the Electrochemically Generated Superoxide Ion in Room Temperature Ionic Liquid
M.A. Matthews
University of South Carolina

Water and Resource Depletion
Chair:

Speakers:
Green Chemistry and the Protection of Water Resources
Dennis L. Hjeresen
The Green Chemistry Institute

Greener Chlorine Wastewater Disinfection Using Alternative Dechlorination Agents
William MacCrehan
National Institute of Standards and Technology

10:15-10:45 A.M.
Coffee Break

10:45 A.M.-12:15 P.M.
Greener Solvents: Ionic Liquids II

Chair:
Robin D. Rogers
The University of Alabama

Speakers:
Cross-Coupling Reactions in Ionic Liquids
William M. Nelson
Waste Management and Research Center

Predicting the Performance of Alternative Solvents Through the Use of Free Energy Relationships
Jonathan G. Huddleston
The University of Alabama

Polymerization and Polymers in Room Temperature Ionic Liquids
John D. Holbrey
The University of Alabama

Process Design
Chair:

Speakers:
Entrainer Selection and Solvent Recycling for Better Economic Performance and Environmental Quality
Ki-Joo Kim
Carnegie Mellon University

Recycling Waste PET into Value-Added Products
David E. Nikles
The University of Alabama

The Spinning Tube-in-Tube Reactor System
S.A. Sojka
Holl Technologies Company

12:15-1:30 P.M.
Lunch and Posters

Poster Session

1. Dyeing of Polyester Fibers Using Supercritical Carbon Dioxide
S.N. Joung
Sognag University

2. The Influence of Carbon Dioxide on the Thermal and Mechanical Properties of Synthetic Fibers
H.S. Kim
SK Chemicals

3. Biomimetic Synthesis, Biomimetic Catalysis: Concise Synthesis of D-*myo*-Inositol-1-Phosphate
Bianca Sculimbrene
Boston College

4. Structural and Mechanistic Aspects of Atom Transfer Radical Polymerization in Aqueous Media
Tomislav Pintauer
Carnegie Mellon University

5. Atom Transfer Radical Polymerization (ATRP) in Aqueous Homogeneous Systems
Nicolay V. Tsarevsky
Carnegie Mellon University

6. Nucleophile Assisted Hydrolysis of Carbon-Oxygen Bonds in Ethers
D. Max Roundhill
Texas Tech University

7. Acrylate Formulations for a Solventless Magnetic Tape Manufacturing Process
David E. Nikles
The University of Alabama

8. The Green Organic Laboratory Curriculum at the University of Oregon: An Overview of Experiment Development and Implementation
Lauren M. Huffman and Marvin G. Warner
University of Oregon

9. Evidence of Chemical Reactions Between Di- and Polyglycidyl Ether Resins and Tannins Isolated from Pinus radiata D. Don BARK
Jaime G. Baeza
Universidad Concepcion

1:30-2:15 P.M.
Reduction of Toxics in Products and Processes Plenary
Chair:

Speaker:
Michael Braungart

2:15-3:45 P.M.
Green Chemistry and Engineering Metrics
Chair:
Carla Sullivan
American Institute of Chemical Engineers

Speakers:
Industrial Adoption of Green Chemistry: A Patent Analysis
Ray Garant
American Chemical Society

Metrics for Assessing Green Chemistry Technologies
Rebecca L. Lankey
ASME Fellow, White House Office of Science and Technology Policy

Innovation Through Green Chemistry: What Case Histories Tell Us
Parry Norling
RAND Science and Technology Policy Institute

Reduction of Toxics in Products and Processes
Chair:

Speakers:
Turning Gold Green: Reinventing the 100 Year Old Cyanide Process
David A. Atwood
University of Kentucky

Profitable Pollution Prevention for Electroplating
Yinlun Huang
Wayne State University

Organic Carbonates as Green Methylating Agents
Alberto Procopio
Universita' di Ca' Foscari

3:45-4:00 P.M.
Break

4:00-5:30 P.M.
Catalysis

Chair:

Speakers:
Greening of Oxidation Catalysis Through Improved Catalysts and Process Design
Michael Gonzalez
U.S. Environmental Protection Agency

Development of Heterogeneous Catalysts for Hydroformylation of 1-Hexene in Supercritical Carbon Dioxide
Anne E. Marteel
University of Toledo

Environmentally Friendly Solvent-Free Processes: Application of a Novel Surfactant Induced Catalysis in Henry Reaction
Apurba Bhattacharya
Texas A&M University

Energy
Chair:

Speakers:
Multi-Objective Optimization for Hybrid Fuel Cells Power System Design
Amit Goyal
Carnegie Mellon University

Lanthanide Nanoparticles for Magnetic Refrigeration
Jennifer A. Nelson
The George Washington University

Green Chemistry Considerations in the Construction of Solar Energy Devices
Amy S. Cannon
University of Massachusetts, Boston

5:30-7:00 P.M.
Reception

Thursday, June 27, 2002
8:30-9:15 A.M.
Climate Change Plenary
Chair:
Paul T. Anastas
White House Office of Science and Technology Policy

Speaker:
Rosina Bierbaum
University of Michigan, Ann Arbor

9:15-10:15 A.M.
Climate Change
Chair:

Speakers:
Use of Renewable Phase Change Materials to Reduce Carbon Dioxide Emissions
Galen J. Suppes
The University of Missouri

Harnessing the Power of Anaerobic Metabolism
Alain A. Vertès
Research Institute of Innovative Technology for the Earth

Education
Chair:

Speakers:
ConsEnSus: An Engineering Educational Initiative in Environmental Sustainability at the University of Michigan
Angela D. Lueking and Deborah A. Ross
University of Michigan

Integrating Research and Teaching in Green Chemistry
John C. Warner
University of Massachusetts, Boston

10:15-10:45 A.M.
Coffee Break

10:45 A.M. – 12:15 P.M.
Greener Solvents
Chair:

Speakers:
Enhanced Removal of Oils from Surfaces: The Effect of Ionic Strength on Cleaning
A.N. Davis
University of Tennessee

Solvent Effects of Aqueous Polyglycols When Used as Alternative Solvents for Organic Reactions
N.F. Leininger
University of Virginia

Determination of Total Petroleum Hydrocarbons (TPH) Using Total Carbon Analysis
Amy A. Ekechukwu
Westinghouse Savannah River Company

Benign Synthesis and Processing
Chair:

Speakers:

Replacing Halogens with Phosphorous in Flame Retardants for Polymers
Manfred Doering
Institute for Technical Chemistry

Environmentally Friendly Non-Halogenated Approach to Flame Retardants: Improved Thermal Stability Imidazolium Treatments for Polymer Layered-Silicate Nanocomposites
Jeffrey W. Gilman

National Institute of Standards and Technoogy

New Isocyanates for Low VOC High Performance Polyurethane Coatings
V. Granier
PHODIA Recherches

12:15-1:30 P.M.
Lunch and Posters

Poster Session:

1. Pollution Prevention in High Tech, Coating Processes: Vinyl Ether Formulations
David E. Nikles
The University of Alabama

2. The Thermocatalytic Enhancement of Natural Decontamination Properties of Soils
Roger A. Pinto
The University of Michigan, Ann Arbor

3. A Greener Glaze: Use of Sol-Gel Chemistry to Reduce Exposure to Metals in the Preparation and Use of Ceramic Glazes
Margaret E. Kerr
Worcester State College

4. Web-Based Virtual Media Distribution System for Radiological Samples in Environmental Stewardship
Frederic H.K. Booth
Worcester Polytechnic Institute

5. Synthesis of Functionalized Gold Nanoparticles and Their Electrostatic Assembly on Surfaces Using Biomolecular Scaffolds: Greener Processes for Electronic Materials
Marvin G. Warner
University of Oregon

6. Superheated Water Degreasing of Working Stocks, Parts, and Equipment
Carl W. Lenker
University of Michigan, Ann Arbor

7. Novel Polyester Hydroxy Ether Terpolymers from Lactide and Bisphenol-A Derivatives
Nilmini K. Abayasinghe
Clemson University

8. Solvophobic Acceleration of Diels-Alder Reactions in Supercritical CO_2

Jin Qian
Massachusetts Institute of Technology

1:30-2:15 P.M.
Energy Plenary
Speaker:
Samuel Baldwin
U.S. Department of Energy

2:15-3:45 P.M.
Energy
Speakers:
Lin's Theory of Flux for Energy Conservation
Ping-Wha Lin
Lin Technologies, Inc.

Automated Flocculation Titrimeter
John Schabron
Western Research Institute

Life Cycle Inventories for the Semiconductor Industry
Jennifer L. Schuppe
University of Texas, Austin

Bio-Based Synthesis and Processing
Speakers:
Ionic Liquids as Green Solvents for Regeneration/Engineering of Cellulose Based Products
Richard P. Swatloski
The University of Alabama

A Green Process for Vanillin Synthesis
Ruizhen R. Chen
Virginia Commonwealth University

Fermentation Sugars from Biomass: The Outlook for a Sustainable Platform for Production of Fuels and Chemicals
J.R. Hettenhaus
c.e.a. Inc