

**2001 Green Chemistry and Engineering Conference
Final Program**

Tuesday, June 26

7:30 - 8:15 A.M.

Continental Breakfast

8:15 - 8:30 A.M.

Opening Remarks

Paul T. Anastas

White House Office of Science and Technology Policy

Conference Co-Chair

8:30 - 11:30 A.M.

2001 Presidential Green Chemistry Challenge Award Winners Technical Session

Chair:

Tracy C. Williamson

U.S. Environmental Protection Agency

Speakers:

Quasi-nature catalysis: Developing transition metal catalysis in air and water

Chao-Jun Li

Tulane University

Messenger: A green chemistry revolution in plant production and food safety

Zhongmin Wei

EDEN Bioscience Corporation

Baypure™ CX: Iminodisuccinate

An environmentally friendly and readily biodegradable chelating agent

TBA

Bayer Corporation and Bayer AG

BioPreparation™ of cotton textiles: Enzyme technology turns environmental issues into commercial advantage

Lori Henderson

Novozymes North America, Inc.

10:00 - 10:30 A.M.

Coffee Break

11:30 A.M. - 12:15 P.M.

Global Plenary:

“Needs and Opportunities for the Business of Chemistry”

Chair:

Paul T. Anastas

White House Office of Science and Technology Policy

Speaker:

Frederick L. Webber

President and CEO

American Chemistry Council

12:15 - 1:30 P.M.

Lunch and Exhibits

Exhibits

American Chemistry Council

Chemecology Education Center

National Institute of Standards and Technology

ATP: Funding for New Technologies and New Markets

Science and Technology at NIST

U.S. Environmental Protection Agency

Green Chemistry Challenge

Office of Research and Development

DfE Formula Initiative: Applying Green Chemistry to Commercial Formulations

Green Engineering

1:30 - 3:35 P.M.

Benign Synthesis and Processing I

Chair:

Barbara Karn

U.S. Environmental Protection Agency

Speakers:

Synthesis of biodegradable polymers activated by microwave radiation

Stephen McCarthy

University of Massachusetts Lowell

Supramolecular control of C-C bond formation in the solid state

Leonard R. MacGillivray

University of Iowa

Polymer-based aqueous biphasic systems applied to the alkaline pulping process

Jonathan G. Huddleston

The University of Alabama

More green materials and processes by ATRP

Krzysztof Matyjaszewski

Carnegie Mellon University

A new type of titanium-silicalite (TS) with hollow structure (HTS)

Min Lin

Research Institute of Petroleum Processing, SINOPEC

Catalysis I

Chair:

Michael A. Matthews

University of South Carolina

Speakers:

Development of heterogeneous catalysts for hydroformylation of 1-hexene in supercritical carbon dioxide

Mark R. Mason

University of Toledo

In-vitro enzyme catalyzed polymer synthesis: Natural catalysts doing non-natural things

Richard A. Gross

Polytechnic University

From bioinspired to green oxidation chemistry via re-engineering of enzyme models active sites

Sergiu M. Gorun

Brown University

Novel single-phase fluorous-organic systems for environmentally benign catalysis

Charles A. Eckert

Georgia Institute of Technology

New FCC catalysts to adjust product slates and improve gasoline quality

Huiping Tian

Research Institute of Petroleum Processing

3:35 - 3:50 P.M.

Break

3:50 - 5:30 P.M.

Modeling/Computational Methods

Chair:

Stephen Lingle

U.S. Environmental Protection Agency

Speakers:

Uncertainty analysis for toxicity assessment of chemical process designs

David Shonnard

Michigan Technological University

An efficient multi-objective optimization framework for green process design

Urmila Diwekar

Carnegie Mellon University

A decision-making framework for designing more sustainable urban environments

Victoria C. P. Chen

Georgia Institute of Technology

Experiences in designing solvents for the environment

M. Li

U.S. Environmental Protection Agency

Solvents I

Chair:

Istvan Horvath

Eotvos University

Speakers:

Thermodynamics of ionic liquids and gases

Joan F. Brennecke

University of Notre Dame

Self-assembled monolayers (SAMS) from liquid and supercritical carbon dioxide

Randy D. Weinstein

Villanova University

Green chemistry, the carbohydrate economy, and ionic liquids: Compatible goals, compatible chemistries?

Robin D. Rogers

The University of Alabama

Synthesis of nanoparticles in supercritical carbon dioxide

C. Erkey

University of Connecticut

5:30 - 7:00 P.M.

Reception

Wednesday, June 27

7:30 - 8:30 A.M.

Continental Breakfast

8:30 - 10:10 A.M.

Bio-Based Synthesis and Processing

Chair:

Dennis L. Hjeresen

Green Chemistry Institute

Speakers:

Modification of lignin by free radical, graft copolymerization

John J. Meister

Forest Products Research Center, Inc.

Extraction of microcrystalline cellulose from waste coffee (coffea arabica) hull and its subsequent utilization as yogurt stabilizer

J. A. Colucci-Ríos

University of Puerto Rico-Mayaguez

Collagen based technologies - CBT for environmental remediation and pollution prevention

Gennaro J. Maffia

Widener University

Development of stable recombinant Saccharomyces yeast for the production of ethanol and lactic acid from traditional glucose-based feedstocks as well as from plant cellulosic biomass

Nancy W. Y. Ho

Purdue University

Solvents II

Chair:

Robin D. Rogers

The University of Alabama

Speakers:

Polyglycols as alternative solvents for pharmaceutical reactions

Neil F. Leininger

University of Virginia

CO₂-soluble counterion facilitated recovery of transition metals using nearcritical carbon dioxide

Kevin B. Stallone

University of Massachusetts-Lowell

Superoxide electrochemistry in environmentally friendly solvents

Michael A. Matthews

University of South Carolina

Supercritical phase behavior of neoprene systems

C. C. Yang

Johns Hopkins University

10:10 - 10:30 A.M.

Break

10:30 A.M. - 12:10 P.M.

Benign Synthesis and Processing II

Chair:

Thomas W. Chapman

National Science Foundation

Speakers:

Mechanisms for the adsorptive separations of oxygenated aromatic compounds from renewable resources

Gregory F. Payne

University of Maryland Biotechnology Institute

New acrylic wetting binders for use in magnetic dispersions containing ethyl lactate as the

solvent

Sukendu B. Hait

The University of Alabama

Green Energetic Materials

Randall J. Cramer

Naval Surface Warfare Center

Microwave enhanced chemical and biochemical reactions for eco-friendly medicinal chemistry

Ajay K. Bose

Stevens Institute of Technology

Catalysis II

Chair:

Robert Wellek

National Science Foundation

Speakers:

Semi-combinatorial approaches to attaining new environmentally benign catalytic oxidants

Scott W. Gordon-Wylie

The University of Vermont

Neutral Acid-Catalytic Reactions in Nearcritical Water

Jie Lu

Georgia Institute of Technology

Water-soluble organometallic catalysts from carbohydrates

T. V. (Babu) RajanBabu

The Ohio State University

Recent developments in the hydrogenation of CO₂ catalyzed by ruthenium phosphine complexes

Philip G. Jessop

University of California, Davis

12:10 A.M. - 1:30 P.M.

Lunch and Poster Session

12:10 - 7:00 P.M.

Poster Session

1. Lignocellulosic components depolymerization to vanillin and syringaldehyde

J. A. Colucci-Ríos

University of Puerto Rico-Mayaguez

2. Acrylate formulations for a solventless magnetic tape manufacturing process

Sukhendu B. Hait

The University of Alabama

3. The effect of silane coupling agents on rheological properties of solventless magnetic inks

Jin Young Huh

The University of Alabama

4. Vinyl ether formulations for solventless, electron beam cured coating processes

David E. Nikles

The University of Alabama

5. NMR spectroscopic studies on room temperature ionic liquids

Markus M. Hoffmann

State University of New York Brockport

6. Green energetic materials - Overview of processing with carbon dioxide

Robert E. Farncomb

Naval Surface Warfare Center

7. Peroxidase-catalyzed synthesis of 2,3-dimethyl-2,3-dinitrobutane (DMDNB), a marking agent for moldable explosives

Peter Coderre

Naval Surface Warfare Center

8. Hydrosilation polymerizations in supercritical carbon dioxide

Patrick E. Cassidy

Southwest Texas State University

9. Scale control and reduction through magnetic water conditioning

I. M. Ritchie

Indiana University Purdue University

10. Genetic engineering of microorganisms for more effective removal of organic sulfur from petroleum and coal

Nancy W. Y. Ho

Purdue University

11. Oxidatively robust linear metallopeptides as oxidation catalysts

Sean McCarthy

The University of Vermont

12. Microwave assisted large-scale organic synthesis for process research

Subhendu N. Ganguly

Stevens Institute of Technology

1:30 - 1:50 P.M.

Report on CHEMRAWN XIV

Speaker:

Dennis L. Hjeresen

Director, Green Chemistry Institute

1:50 - 3:55 P.M.

Benign Synthesis and Processing III

Chair:

Leonard R. MacGillivray

University of Iowa

Speakers:

Reaction kinetics of the solid state polymerization of poly(bisphenol A carbonate)

Chunmei Shi

North Carolina State University

Solventless coating formulations for magnetic tape manufacture

David E. Nikles

The University of Alabama

Green synthesis of propylene oxide and scale-up of the loop reactor

Chunyan Wang

Tianjin University

New radiation curable oligomers made from recycled PET

Medhat S. Farahat

The University of Alabama

The synthesis of m-isopropyl toluene with environmentally friendly heteropoly compounds catalysts

Ze-Xue Du

Research Institute of Petroleum Processing, SINOPEC

Process Design and Measurement I

Chair:

Ellyn Beary

National Institute of Standards and Technology

Speakers:

Life-cycle assessment of green chemistry technologies

Rebecca L. Lankey

AAAS/EPA

Process Feasibility and Design for Reactive Distillation

Michael F. Malone

University of Massachusetts, Amherst

Corex smelting reduction process with powdered coal-injection: a stage-wise heat balance

Y. K. Rao

University of Washington

Analytical chemistry for green chemistry

Ian D. Brindle

Brock University

Ellyn Beary

National Institute of Standards and Technology

Suspension catalytic distillation: A new generation process for the production of detergent linear alkylbenzenes

Lang-You Wen

Research Institute of Petroleum Processing, SINOPEC

3:55 - 4:15 P.M.

Break

4:15 - 5:30 P.M.

Designing Safer Chemicals

Chair:

Richard Engler

Environmental Protection Agency

Speakers:

Study of glycol esters derived from soybean oil fatty acids as solvent free coalescing agents in paint formulations

Arthur F. Rich

Archer Daniels Midland Company
Plastic and composite materials from plants

Richard P. Wool

University of Delaware

Sugar beets against corrosion

Christophe J. Chandler

Cortec Corporation

Process Design and Measurement II

Chair:

Carla Sullivan

American Institute of Chemical Engineers

Speakers:

Active catalyst prepared by electroless deposition of nickel on gamma-alumina for benzyl alcohol oxidation

Tse-Chuan Chou

National Cheng Kung University

Viscosity-limited recovery of 2-keto-L-gulonic acid from fermentation broth via crystallization

Nick A. Collins

Eastman Chemical Company

Water usage in industrial sites: Reuse, decentralized treatment and the possibility of zero liquid discharge

Mariano Savelski

Rowan University

5:30 - 7:00 P.M.

Reception and Posters

Thursday, June 28

7:30 - 8:30 A.M.

Continental Breakfast

8:30 - 9:30 A.M.

Student Poster Session

1. Novel in situ acid generation in CO₂/alcohol systems

Christy Wheeler

Georgia Institute of Technology

2. Novel separations using CO₂ as an anti-solvent

Jonathan P. McCarney

Georgia Institute of Technology

3. Chemical and physical characteristics of room temperature ionic liquids and the associated implications for their use as solvent alternatives

Ann E. Visser

The University of Alabama

4. Characterization of ionic liquid mixtures: Effects of ionic composition on the physical properties

W. Matthew Reichert

The University of Alabama

5. Crystallographic investigation of room-temperature ionic liquids via X-ray crystallography - characterization or low-melting analogs

Richard P. Swatloski

The University of Alabama

6. Lipase-catalyzed transesterification: New synthetic routes to copolyesters

Ajay Kumar

Polytechnic University

7. In-vitro enzyme catalyzed vinyl polymerization

Bhanu Kalra

Polytechnic University

8. Pressure effect on hydroxyl radical reactivity in supercritical water

Junbo Feng

University of Notre Dame

9. High-temperature water as a green solvent for synthetic chemistry: Acid-catalyzed hydrolysis of MTBE

Michael T. Timko

Massachusetts Institute of Technology

10. Recycling of scrap tires by high-temperature high-pressure sintering

Jeremy E. Morin

University of Massachusetts Amherst

9:30 - 10:30 A.M.

Global Plenary:

“How and Why to Get Ideas of Green Chemistry Into Chemical Education”

Chair:

Paul T. Anastas

White House Office of Science and Technology Policy

Speaker:

Ronald Breslow

S. L. Mitchill Professor of Chemistry and University Professor

Columbia University

10:30 - 11:00 A.M.

Break

11:00 A.M. - 12:40 P.M.

Initiatives in Green Chemistry and Engineering Education I

Chair:

Rebecca L. Lankey

U.S. Environmental Protection Agency

Speakers:

Green engineering throughout the curriculum

Dianne Dorland and Robert Hesketh

Rowan University

The New Green Chemistry PhD Program at the University of Massachusetts, Boston

John Warner

University of Massachusetts, Boston

P2 workshop: A web-based educational resource for pollution prevention curriculum development

David R. Shonnard

Michigan Technological University

Microwave-induced rapid reactions for eco-friendly laboratory training

Anju H. Sharma

Stevens Institute of Technology

12:40 - 1:30 P.M.

Lunch

1:30 - 2:45 P.M.

Initiatives in Green Chemistry and Engineering Education II

Chair:

Nhan Nguyen

U.S. Environmental Protection Agency

Speakers:

Educational initiatives for advancing green chemistry

Jeffrey I. Steinfeld

Massachusetts Institute of Technology

Introducing green chemistry in the organic teaching lab: The green organic lab curriculum at the University of Oregon

Jim Hutchison

University of Oregon

Environmentally conscious chemical process design

Joan F. Brennecke

University of Notre Dame

Greening across the chemistry curriculum

Michael C. Cann

University of Scranton

2:45 - 3:30 P.M.

Chair:

Mary M. Kirchhoff

U.S. Environmental Protection Agency

Panel Discussion: Current Needs and Future Challenges for Green Chemistry and Engineering Education