

IEC

DIVISION OF INDUSTRIAL AND ENGINEERING CHEMISTRY

Final Program, 224th ACS National Meeting, Boston, MA, August 18-22, 2002

R. M. Chamberlin, *Program Secretary*

K. L. Nash, *Program Chair*

OTHER SYMPOSIA OF INTEREST:

Green Chemistry (see *Biotechnology Secretariat*, Mon, page X)

Biotechnology and bioanalytical methods: The next generation (see *Division of Agrochemicals*, Mon, page X)

Analytical Chemistry for Homeland Defense and National Security (see *Division of Analytical Chemistry*, Tue, page X)

Advances in Chromatography Scale-up (see *Division of Biochemical Technology*, Tue, page X)

Carbohydrates as Precursors for Multiple Synthetic Targets (see *Division of Carbohydrate Chemistry*, Tue, page X)

Intellectual Property Series: Patent Law (see *Division of Chemistry and the Law*, Thu, page X)

Nanoscience and Nanotechnology (see *Division of Colloid and Surface Chemistry*, Sun, Mon, Tue, Wed, Thu, page X)

Electrochemical Methods for Wastewater and Potable Water Treatment (see *Division of Environmental Chemistry*, Mon, Tue, page X)

Separation Science and Technology for Fuel Applications (see *Division of Fuel Chemistry*, Tue, page X)

New Frontiers in Laboratory Automation (see *Division of Laboratory Automation*, Sun, page X)

Materials, Devices, and Switches (see *Division of Organic Chemistry*, Sun, page X)

Molecular Recognition and Self-Assembly (see *Division of Organic Chemistry*, Mon, page X)

Cracking Chemistry and Mechanisms in Petroleum Processing (see *Division of Petroleum Chemistry*, Tue, Wed, page X)

Green Polymer Chemistry (see *Division of Polymer Chemistry*, Wed, Thu, page X)

Polymers for Micro- and Nano-Electronics -- From Synthesis to Applications (see *Division of Polymeric Materials: Science and Engineering*, Sun, Mon, Tue, page X)

How Prepared are Ph.D's for the Workplace? (see *Division of Professional Relations*, Sun, Mon, page X)

True Stories of Small Chemical Businesses (see *Division of Small Chemical Businesses*, Tue, page X)

SOCIAL EVENT:

Green Chemistry & Eng Business M: Sun

I&EC Executive Committee: Sun

I&EC Program Committee Meeting: Mon

Industrial BioBased Technology B: Sun

Luncheon: Tue

Social Hour: Sun

BUSINESS MEETING: Tue

SUNDAY MORNING

Unknown Site

Unknown Room

Ionic Liquids as Green Solvents: Progress and Prospects (Cosponsored by Green Chemistry & Engineering and Separation Science & Technology Subdivisions)

Tutorials: Everything you wanted to know

K. R. Seddon and R. D. Rogers, *Organizer, Presiding*

8:50 — Introductory Remarks.

9:00 — **1.** Getting started with Ionic Liquids: An experience-based tutorial on synthesis and handling. **J. D. Holbrey, W. M. Reichert, S. K. Spear, R. P. Swatloski, M. B. Turner, A. E. Visser, R. D. Rogers**

10:20 — Intermission.

10:40 — **2.** Everything you ever wanted to know about ionic liquids and were afraid to ask. **K. R. Seddon, M. J. Earle, W. R. Pitner, U. Fröhlich, M. Deetlefs, M. C. Lagunas**

12:00 — Panel Discussion.

Trends in Carbon Products

Mechanisms and Novel Materials

Cosponsored with Division of Fuel Chemistry
See Page X

SUNDAY AFTERNOON

Section A

Unknown Site
Unknown Room

Ionic Liquids as Green Solvents: Progress and Prospects (Cosponsored by Green Chemistry & Engineering and Separation Science & Technology Subdivisions)

Ionic Liquids Manufacture and Synthesis - Industry

R. D. Rogers and K. R. Seddon, *Organizer*
A. J. Robertson, *Organizer, Presiding*

2:00 — Introductory Remarks.

2:05 — **3.** A versatile process for the manufacture of hydrophilic ionic liquids. **R. D. Moulton**

2:25 — **4.** Ionic liquids and Merck KGaA. **U. Welz-Biermann**, J. Vaughan-Spickers, C. Janeck, M. Weiden

2:45 — **5.** Challenges to the commercial production of ionic liquids. **P. E. Rakita**

3:05 — Intermission.

3:20 — **6.** Industrial preparation of phosphonium ionic liquids. C. J. Bradaric, **A. Downard**, C. Kennedy, A. J. Robertson, Y. Zhou

3:40 — **7.** Commercial Ionic Liquid Production. **C. Hilgers**

4:00 — **8.** Synthesis, Purification and Analysis of Ionic Liquids for ACROS Organics **J. Hamill**

Section B

Unknown Site
Unknown Room

Ionic Liquids as Green Solvents: Progress and Prospects (Cosponsored by Green Chemistry & Engineering and Separation Science & Technology Subdivisions)

Ionic Liquids Manufacture and Synthesis - Academic

R. D. Rogers, *Organizer*
K. R. Seddon, *Organizer, Presiding*

4:35 — Introductory Remarks.

4:40 — **9.** Seek and ye shall find: A search for low melting point salts in retail chemical catalogs. **J. H. Davis**

5:00 — **10.** New functionalized ionic liquids - synthesis and applications. **A. Boesmann**, P. Wasserscheid, R. van Hal

5:20 — **11.** Preparation and Physical Properties of New Nitrogen-Containing Ionic Liquids. K. R. Seddon, **M. Deetlefs**, **U. Fröhlich**, M. Earle, S. Johnston

5:40 — **12.** Clean synthesis of 1,3-dialkylimidazolium ionic liquids **J. D. Holbrey**, R. D. Rogers

Section C

Unknown Site
Unknown Room

Emerging Technologies in Hazardous Waste Management

Session A

Cosponsored with Division of Environmental Chemistry

D. W. Tedder, *Organizer*

K. R. Reddy and D. W. Tedder, *Presiding*

1:30 — **13.** Accelerated carbonation of stainless steel slag. **D. C. Johnson**, C. L. MacLeod, C. D. Hills

1:50 — **14.** Beneficial use of industrial by-products in high performance concrete. **M. A. Issa**, K. R. Reddy, A. Khalil

2:10 — **15.** Electrokinetic remediation modeling incorporating geochemical reactions. **A. Z. Al Hamdan**, K. R. Reddy

2:30 — **16.** Examination of soil/binder interactions during accelerated carbonation of. **K. Whitehead**, B. Guha, C. L. MacLeod, C. D. Hills

2:50 — Intermission.

3:10 — **17.** Hydroceramics: a contingency waste form for hazardous waste. **M. W. Grutzeck**, S. Kwan

3:30 — **18.** Ionic Injection of Lactate in Soils. **X. Wu**, A. Alshawabkeh, J. Wang, D. Gent, S. Larson

3:50 — **19.** Reactive geocomposite to remediate contaminated sediments. **T. C. Sheahan**, A. N. Alshawabkeh, M. Zhang, L. A. Fernandez

4:10 — 20. Sorption and desorption of Zinc, Lead and Chromium ions on Indian alluvial soils **R. K. Srivastava, I. C. Agarwal**

Trends in Carbon Products

Applications

Cosponsored with Division of Fuel Chemistry

See Page X

SUNDAY EVENING

Section A

Unknown Site

Unknown Room

Ionic Liquids as Green Solvents: Progress and Prospects (Cosponsored by Green Chemistry & Engineering and Separation Science & Technology Subdivisions)

K. R. Seddon, *Organizer*

R. D. Rogers, *Organizer, Presiding*

8:00 - 10:00

21. Hydrophobic *n*-alkyl-isoquinolinium ionic liquids: characterization, solvent properties, and use in separations
A. E. Visser, J. G. Huddleston, J. D. Holbrey, R. D. Rogers

22. Comparative solid state analyses of polymorphic 1-butyl-3-methylimidazolium halide ionic liquids. **W. M. Reichert**, J. D. Holbrey, R. D. Rogers

23. Cellulase activity in an ionic liquid. **M. B. Turner**, S. K. Spear, J. G. Huddleston, R. D. Rogers

24. Indium- and tin-mediated allylation reactions in ionic liquids. **C. M. Gordon**, C. Ritchie, A. McCluskey, A. Stark

25. Ionic Liquid-Phase Transfer Synthesis for Green Chemistry. **R. X. Ren**, J. X. Wu, L. D. Zueva, W. Ou, Y. Luo, W. Woodland, N. Blondin

26. Ionic liquids and related compounds in synthetic chemistry. **J. Howarth**, P. James

27. Solvent Extraction of Cesium Nitrate by Room Temperature Ionic Liquids Containing Crown Ethers. **H. Luo**, S. Dai, P. V. Bonnesen, A. C. Buchanan III

28. Transition structures and ionic cages in ionic liquids. **O. Acevedo**, J. D. Evanseck

29. NMR relaxation measurements on ionic liquid solvent systems. M. M. Hoffmann, **J. D. Tubbs**

Section B

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Unknown Room

General Posters

A. Gopalan, *Organizer*
R. D. Rogers, *Presiding*

8:00 - 10:00

30. Join the Separation Science and Technology Subdivision of the ACS I&EC Division! **A. H. Bond**, R. Sachleben

31. Complex Palladium Nickel Catalysts: Influence of the Nickel on the Palladium Performance. **X. Zhang**, B. Zong, E. Min

32. Highly selective Pd-catalyzed reductive coupling of substituted haloaryls with supported phase-transfer catalyst using Zn as the reducing agent. **N. Qafisheh**, S. Mukhopadhyay, Y. Sasson

33. Adsorption dynamics of methane in carbon molecular sieve. **S. W. Rutherford**, J. E. Coons

34. Grand canonical Monte Carlo simulations of sorption equilibria in silicalite-1 type zeolite: application to hydrocarbons. **S. Pricl**, M. Fermeglia, M. Simonetta

35. Prediction of the thermophysical properties and phase behavior of alternative refrigerants via computational chemistry. M. Fermeglia, **S. Pricl**

36. Kinetic modeling of high temperature heptane combustion. **V. I. Babushok**, W. Tsang

37. An alternative cheap method for production of ZnO from enriched calcine. **S. Gultekin**, S. Akcali

38. Electrodialytic removal of Cu and Cr from soil and wood contaminated by CCA-impregnation industry wastes. E. G. Velizarova, A. Ribeiro, E. P. Mateus, **L. M. Ottosen**

39. Effect of Surfactants on the Vapor-Water Partitioning of Chlorinated Solvents. **C. Zhang**, G. Zheng, C. M. Nichols

40. Efficient CVD growth of single-walled carbon nanotubes on surface. **B. Zheng**, C. Lu, J. Liu

41. Fabrication of conducting polymer nanodevices by electrochemical dip-pen nanolithography. **B. W. Maynor**, M. W. Grinstaff, J. Liu

42. Growth of SWNTs on Surfaces with Methane CVD Method. **C. Lu**, Q. Fu, J. Liu

43. New applications of inorganic nanocrystalline materials in neutron detection. **S. Saengkerdsub**, S. Dai
44. Noncovalent modification of Single-Wall Carbon Nanotubes. **Q. Fu**, J. Liu
45. pH-Sensitive Optical Transition of Water-Soluble Single-Walled Carbon Nanotubes. C. Song, **W. Zhao**
46. Ester group substituent effects on phosphoryl oxygen basicity in bisphosphonate extractants. **P. R. Zalupski**, D. R. McAlister, D. C. Stepinski, A. W. Herlinger
47. Solvent extraction of lanthanides(III) with hydroxamic acid in the absence or presence of Bis-Tris. **S. Inoue**, Q. Zhang, M. Uto, N. Takahashi
48. Lead separation using plasticized polymer membranes. **A. Y. Nazarenko**, J. Zheng
49. Particle surface modification with conformal, plasma polymer coatings **D. H. Weinkauff**, D. Harper, J. Wyatt, H. S. Jeon
50. Reductive Dechlorination of Chlorinated Solvents in Bioreactor Landfills. **J. Y. Wang**
51. Research on novel Polyisobutylphenoxyethyl polyamines as gasoline detergents. **H. Guo**, Z. Liu
52. Synthesis and Characterization of Organic-Inorganic Hybrid Mesoporous Anion-Exchange Resins for Perrhenate Anion Adsorption. **B. Lee**, L. Bao, H. Im, H. Luo, S. Dai
53. Implementing Cleaner Production in R&D projects. **S. Hsu**, J. Hwang, J. Hwang

MONDAY MORNING

Section A

Unknown Site
Unknown Room

Ionic Liquids as Green Solvents: Progress and Prospects (Cosponsored by Green Chemistry & Engineering and Separation Science & Technology Subdivisions)

Characterization and Engineering

R. D. Rogers and K. R. Seddon, *Organizer*
J. F. Brennecke, *Organizer, Presiding*

8:00 — Introductory Remarks.

8:05 — **54.** Electrochemical separation and concentration of carbon dioxide from nitrogen. **P. Scovazzo**, J. Poshusta, D. Finan, D. L. DuBois, C. Koval, R. D. Noble

8:30 — 55. Ion-Ion and Ion-solute interactions in imidazolium based ionic liquids. **C. Hardacre**, M. Deetlefs, S. McMath, M. Nieuwenhuyzen, O. Sheppard

8:55 — 56. Processes using Ionic Liquids and Permanent Gases. J. L. Anthony, A. M. Scurto, J. M. Crosthwaite, S. N. V. K. Aki, E. J. Maginn, **J. F. Brennecke**

9:20 — 57. Thermodynamic Properties of Liquid Mixtures. **A. Heintz**

9:45 — Intermission.

10:00 — 58. Molecular modeling of ionic liquid / gas mixtures. **E. J. Maginn**, J. K. Shah, T. I. Morrow

10:25 — 59. Simulation studies of solvation in imidazolium ionic liquids. **R. M. Lynden-Bell**, C. Hanke

10:50 — 60. Spectroscopic investigations within multicomponent solvent mixtures containing room-temperature ionic liquids. **S. Pandey**, K. A. Fletcher, R. A. Redden

11:15 — 61. Aspects of dynamic and bio-solvation within room temperature ionic liquids: An emerging view. **G. A. Baker**, S. N. Baker

Section B

Unknown Site

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Emerging Technologies in Hazardous Waste Management

Current EPA Focus Areas

Cosponsored with Division of Environmental Chemistry

D. W. Tedder, Organizer

M. Lsatt, Presiding

8:30 — 62. Microbial framework for the design of bioreactors for mine drainage treatment. **L. A. Figueroa**, D. Ahmann

8:50 — 63. Microbial degradation of polycyclic aromatic hydrocarbons in rhizosphere soil. Y. C. Chen, **M. K. Banks**, A. P. Schwab

9:10 — 64. Emerging technologies for contaminated sediment management. **D. D. Reible**, K. T. Valsaraj, L. J. Thibodeaux, W. D. Constant

9:30 — 65. Role of root exudates in the phytoremediation of persistent organic pollutants. **J. C. White**, M. Incorvia Mattina, W. Lee, B. D. Eitzer, W. Iannucci-Berger

9:50 — Intermission.

10:10 — 66. Plant uptake and translocation of air- borne and soil-bound persistent organic pollutants. **M. I.**

Mattina, W. Lee, J. C. White, B. D. Eitzer, W. Iannucci-Berger

10:30 — 67. Center for hazardous substances in urban environments. **D. H. Fairbrother**, A. L. Roberts, E. J. Bower, H. V. Alavi

10:50 — 68. Capillary Electrophoresis Analysis of Cr(III) and Cr(VI) Aqueous Speciation. **R. F. Carbonaro**, A. T. Stone

11:10 — 69. EPA-funded Extramural Research in Hazardous Waste Management. **M. Lasat**

Recent Advances in Fuel Cells

Solid Oxide Fuel Cells

Cosponsored with Division of Fuel Chemistry

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Nanotechnology in Catalysis II

Cosponsored with Catalysis & Surface Science Secretariat

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MONDAY AFTERNOON

Section A

Unknown Site

Unknown Room

Ionic Liquids as Green Solvents: Progress and Prospects (Cosponsored by Green Chemistry & Engineering and Separation Science & Technology Subdivisions)

Novel Applications

R. D. Rogers and K. R. Seddon, *Organizer*

J. D. Holbrey, *Organizer, Presiding*

1:30 — Introductory Remarks.

1:35 — 70. Specific heat capacities of common ionic liquids: an examination of the potential for using ionic liquids as thermal fluids. **J. D. Holbrey**, W. M. Reichert, R. G. Reddy, R. D. Rogers

2:00 — 71. Contaminant effects on thermal properties of ionic liquids. **M. E. Van Valkenburg**, R. L. Vaughn, M. Williams, J. S. Wilkes

2:25 — 72. Ionic Liquids for Advanced Material Syntheses. **S. Dai**

2:50 — 73. Ionic Liquid Electrolytes for Electrochemical Actuators. **D. R. MacFarlane**, S. Forsyth, G. Wallace, G. Spinks, M. Forsyth

3:15 — Intermission.

3:30 — 74. Plasticizing effects of imidazolium salts in PMMA: high and low temperature stable flexible engineering materials. **C. S. Brazel**, M. P. Scott, M. G. Benton, M. Rahman

3:55 — 75. Transition-metal nanoparticles in imidazolium ionic liquids: Recyclable catalysts for biphasic hydrogenation reactions. **J. Dupont**

4:20 — 76. Ionic Liquids: new solvents for non-derivitized cellulose dissolution. **R. P. Swatloski**, S. K. Spear, J. D. Holbrey, R. D. Rogers

Section B

Unknown Site
Unknown Room

Emerging Technologies in Hazardous Waste Management

Session B

Cosponsored with Division of Environmental Chemistry

D. W. Tedder, *Organizer*

K. Reddy and D. W. Tedder, *Presiding*

1:30 — 77. Air-Flow Patterns and the Efficiency of Insitu Air Sparging as a Technology for the Cleanup of Contaminated Groundwater. C. Marulanda, **P. J. Culligan**, J. Germaine

1:50 — 78. Application of Phase Transfer Catalysis to Hazardous Waste Reduction in Chemical Byproduct Streams. **R. Bielski**, P. J. Joyce

2:10 — 79. Attenuation of lower chlorinated benzenes transport from sediments into water: experimental results and predictive models. **D. Constant**, M. Blad

2:30 — 80. Chelated iron in Fenton-like oxidation of organic solutes in aqueous systems using solid peroxygens. **A. D. Jazdanian**, K. R. Reddy

2:50 — Intermission.

3:10 — 81. Enhanced Bioremediation and Natural Attenuation for MTBE. **H. S. Rifai**, G. Shorr, A. Bagga, W. G. Rixey, D. Roberts

3:30 — 82. Enhanced electrokinetic remediation of copper and chromium from sand. **J. Virkutyte**, M. Sillanpaa

3:50 — 83. Experimental evaluation of catalyst in a liquid phase oxidation. **K. Doshi**

4:10 — 84. Mathematical modeling of air sparging. **L. Tekola**, K. Reddy

Recent Advances in Fuel Cells

Fuel Processing

Cosponsored with Division of Fuel Chemistry

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Nanotechnology in Catalysis II

B

Cosponsored with Catalysis & Surface Science Secretariat

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MONDAY EVENING

Section A

Unknown Site

Unknown Room

Sci-Mix

Ionic Liquids as Green Solvents: Progress and Prospects

R. D. Rogers, *Organizer, Presiding*

8:00 - 10:00

21-29. See previous listings.

Section B

Unknown Site

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Sci-Mix

Industrial and Engineering Chemistry Posters

A. Gopalan, *Organizer*
R. D. Rogers, *Presiding*

8:00 - 10:00

30-53. See previous listings.

TUESDAY MORNING

Section A

Unknown Site
Unknown Room

Ionic Liquids as Green Solvents: Progress and Prospects (Cosponsored by Green Chemistry & Engineering and Separation Science & Technology Subdivisions)

Separations

K. R. Seddon, *Organizer*
R. D. Rogers, *Organizer, Presiding*

8:00 — Introductory Remarks.

8:05 — **85.** Recent advances in the design and application of "task-specific" ionic liquids. **J. H. Davis**

8:30 — **86.** Conventional aspects of unconventional solvents: Room-temperature ionic liquids as ion exchangers and ionic surfactants. **M. L. Dietz**, J. A. Dzielawa, P. G. Rickert, M. P. Jensen, M. A. Firestone

8:55 — **87.** Insight into the solvent properties of ionic liquids: a comparative study of solute partitioning in organic/ionic liquid biphasic systems. **W. M. Reichert**, J. D. Holbrey, R. D. Rogers

9:20 — **88.** An investigation of actinide and fission product extraction in room temperature ionic liquids: liquid/liquid separations and in-situ solution analysis. **A. E. Visser**, M. P. Jensen, K. L. Nash, R. D. Rogers

9:45 — Intermission.

10:00 — **89.** Effect of CO₂ on the solvent properties of room-temperature ionic liquids. **J. Lu**, C. L. Liotta, C. A. Eckert

10:25 — **90.** In situ destruction of chlorinated aromatics in hydrophobic room temperature ionic liquids using advanced oxidation technologies. Q. Yang, **D. D. Dionysiou**, R. Qian, G. D. Botsaris

10:50 — **91.** Liquid-Liquid Extraction from Ionic Liquids Using Renewable Plant-Based Soybean Oil Methyl Ester as Alternatives to Organic Solvents. **S. K. Spear**, W. M. Reichert, R. D. Rogers

Section B

Unknown Site
Unknown Room

Emerging Technologies in Hazardous Waste Management

Session C

Cosponsored with Division of Environmental Chemistry

D. W. Tedder, *Organizer*

K. R. Reddy and D. W. Tedder, *Presiding*

8:30 — 92. Biosurfactant production by indigenous microorganisms in bioslurry reactors treating a PAH-contaminated soil. **D. P. Cassidy**, A. J. Hudak

8:50 — 93. Comparison of extractants for removing phenanthrene from spiked and field soils. **A. P. Khodadoust**, K. R. Reddy, K. Maturi, P. Ala

9:10 — 94. Cyclodextrin-Enhanced Electrokinetic Remediation of Soils. **K. R. Reddy**, P. R. Ala

9:30 — 95. Electrochemical treatment of wood combustion fly ash for the removal of cadmium. **A. J. Pedersen**

9:50 — Intermission.

10:10 — 96. Electrodialytic remediation of CCA-impregnated waste wood. **I. V. Kristensen**, L. M. Ottosen, A. Ribeiro, A. Villumsen

10:30 — 97. Potential for phytoextraction of cesium from contaminated soils. **L. A. Hanson**, J. B. Harsh, C. D. Palmer, M. A. Hamilton

10:50 — 98. Spouted bed electrolytic reactors (SBER) for metals recovery. **J. M. Calo**, A. Shirvanian, G. Hradil

11:10 — 99. Supported polyoxometalate photocatalysts for the oxidation of trace organics. **J. L. Ferry**, R. R. Ozer

Recent Advances in Fuel Cells

Cosponsored with Division of Fuel Chemistry

See Page X

Nanotechnology in Catalysis II

C

Cosponsored with Catalysis & Surface Science Secretariat
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TUESDAY AFTERNOON

Section A

Unknown Site
Unknown Room

Ionic Liquids as Green Solvents: Progress and Prospects (Cosponsored by Green Chemistry & Engineering and Separation Science & Technology Subdivisions)

Biotechnology in Ionic Liquids

R. D. Rogers and K. R. Seddon, *Organizer*
R. A. Sheldon, *Organizer, Presiding*

1:30 — Introductory Remarks.

1:35 — **100.** An overview of biocatalysis in ionic liquids. **R. A. Sheldon**, F. van Rantwijk, R. M. Lau

2:00 — **101.** Enzymatic catalysis in ionic liquids and supercritical carbon dioxide. **P. Lozano**, T. De Diego, D. Carrié, M. Vaultier, J. L. Iborra

2:25 — **102.** Biocatalysis and enzyme stability in ionic liquids. **A. M. Jesionowski**, M. Erbedinger, J. L. Kaar, A. J. Russell

2:50 — **103.** Efficient Lipase-catalyzed Enantioselective Acylation under Reduced Pressure Conditions in an Ionic Liquid Solvent System. **T. Itoh**, Y. Nishimura, M. Kashiwagi, M. Onaka

3:15 — Intermission.

3:30 — **104.** Dramatically more efficient lipase-catalyzed acylations of polar substrates in ionic liquids. **R. Kazlauskas**, S. Park, F. Viklund, K. Hult

3:55 — **105.** Biocatalysis in ionic liquids: Enhancing the selectivity and stability of enzyme. **M. Kim**, J. K. Lee

4:20 — **106.** Ionic Liquids as Novel Solvents for Enzyme Catalysis. **N. Kaftzik**, M. Eckstein, J. Kröckel, U. Kragl

4:45 — **107.** Peroxidase activity in ionic liquids. **J. A. Laszlo**, D. L. Compton

Section B

Unknown Site
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Breaking Glass Ceilings - Tools for Overcoming Hurdles, Barriers and Narrow Thinking

Cosponsored with Women Chemists Committee

F. K. Wood-Black, *Organizer*

1:50 — Introductory Remarks.

1:55 — **108.** Now You See It, Now You Don't - Optical Illusions and Industrial Glass **S. Davis**

2:15 — **109.** What are you waiting for? The power women have and don't often use! **J. Giordan**

2:35 — **110.** Glass Cutters - Tools for Making Holes in the Ceiling. **F. K. Wood-Black**

2:55 — **111.** PROGRESSing to the Top with the Help of the ACS. **H. M. Free**

3:15 — **112.** Cast-Iron Skillet Diplomacy as a Strategy to Shatter the Glass Ceiling. **D. R. Rolison**

3:35 — Intermission.

3:45 — **113.** Effects of Disincentives for Women and Minority Chemistry Faculty Upon the Chemical Industry. **D. J. Nelson**

4:05 — **114.** The Evolution of a Career in Research. **K. Bowman-James**

4:25 — **115.** It's not just me. **A. E. S. Miller**

4:45 — **116.** COACH: Lowering the activation energy for female academic chemists. **K. Scantlebury, R. Fassinger**

5:05 — **117.** COACH: Proactive mentoring & leadership program for female academic. **G. Richmond**

5:25 — Concluding Remarks.

Nanotechnology in Catalysis II

D

Cosponsored with Catalysis & Surface Science Secretariat

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WEDNESDAY MORNING

Section A

Unknown Site
Unknown Room

Ionic Liquids as Green Solvents: Progress and Prospects (Cosponsored by Green Chemistry & Engineering and Separation Science & Technology Subdivisions)

Catalytic Chemistry

R. D. Rogers and K. R. Seddon, *Organizer*

T. Welton, *Organizer, Presiding*

8:00 — Introductory Remarks.

8:05 — **118.** A new palladium catalyst for C-C coupling reactions in ionic liquids. **T. Welton**, P. J. .. Smith

8:30 — **119.** Application of new, halogen-free ionic liquids in catalysis P. Wasserscheid, **R. van Hal**, A. Boesmann

8:55 — **120.** Catalytic epoxidations and comparative kinetics in room-temperature ionic liquids. **M. M. Abu-Omar**, G. S. Owens, A. Durazo

9:20 — **121.** Metal-catalyzed olefin polymerization in polar, non-coordinating ionic liquids **K. H. Shaughnessy**, M. A. Klingshirn, S. J. P'Pool, J. D. Holbrey, R. D. Rogers

9:45 — Intermission.

10:00 — **122.** Multiphase catalytic oxidation in an ionic liquid. **C. A. Thomas**, E. K. Barefield, T. Belcher, C. L. Liotta, C. A. Eckert

10:25 — **123.** N-Heterocyclic carbenes in homogeneous catalysis. **S. P. Nolan**, G. A. Grasa, M. S. Viciu, R. M. Kissling

10:50 — **124.** The importance of H-bonding to catalysis in ionic liquids. **J. Xiao**, J. Ross

11:15 — **125.** The activation, tuning and immobilisation of homogeneous catalysts in an ionic liquid/compressed CO₂ continuous flow system W. Leitner, M. Solinas, E. Janssen, G. Francio, P. Wasserscheid, **A. Boesmann**

Section B

Unknown Site

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Industrial Bio-Based Technology

F. E. Barton and J. L. Massingill, *Organizer*

G. Nobes, *Presiding*

8:30 — Introductory Remarks.

8:35 — 126. Impediments to bio-mass conversion. **F. E. Barton II**, D. E. Akin, D. S. Himmelsbach

8:55 — 127. Natural fibers in composites. **J. Mussig**

9:15 — 128. Agricultural fibers for industrial use. **F. Riccio**

9:35 — 129. Characterization and use of agriculturally-derived cellulose microfibrils in novel nanocomposites. **M. Inglesby**, W. J. Orts, G. M. Glenn, G. M. Gray

9:55 — 130. Agriculturally-derived polymer/fiber composites. **W. J. Orts**, G. A. R. Nobes, G. M. Glenn, M. Inglesby, G. M. Gray

10:15 — Intermission.

10:35 — 131. Flax fiber in textiles. **J. A. Foulk**

10:55 — 132. New model for flax as a natural fiber for multiple uses. **R. B. Dodd**

11:15 — 133. Kenaf fiber for industrial applications. **G. Ramaswamy**

11:35 — 134. Preparation of soy based composites with flax fibers. **Z. Liu**, S. V. Erhan, D. E. Akin

Green Chemistry and Engineering in the Curriculum

I

Cosponsored with Division of Chemical Education

See Page X

WEDNESDAY AFTERNOON

Section A

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Ionic Liquids as Green Solvents: Progress and Prospects (Cosponsored by Green Chemistry & Engineering and Separation Science & Technology Subdivisions)

Non-catalytic Chemistry

R. D. Rogers and K. R. Seddon, *Organizer*

M. J. Earle, *Organizer, Presiding*

1:30 — Introductory Remarks.

- 1:35 — 135.** Clean Synthesis in Ionic Liquids. **M. Earle**
- 2:00 — 136.** Ionic Liquid-Phase Organic Synthesis. **R. X. Ren**, J. X. Wu, L. D. Zueva, W. Ou, Y. Luo, W. Woodland, N. Blondin
- 2:25 — 137.** Lewis Base Ionic Liquids. **D. R. MacFarlane**, S. Forsyth, J. Golding
- 2:50 — 138.** Polarity variation of room-temperature ionic liquids and its influence on a Diels-Alder reaction. **R. A. Bartsch**, S. V. Dzyuba
- 3:15 —** Intermission.
- 3:30 — 139.** Connecting physical properties with reactivity in ionic liquids: Miscibility with water and acid reactivity. **T. Welton**, S. Kazarian, L. Crowhurst, J. M. Perez-Arlandis, P. Salter
- 3:55 — 140.** Hydroformylation of long chain olefins in ionic liquids. **V. Kruger-Tissot**, F. Favre, H. Olivier-Bourbigou
- 4:20 — 141.** Theoretical assessment on how ionic liquids influence chemical reactivity and stereoselectivity of organic reactions. **J. D. Evanseck**, O. Acevedo
- 4:45 — 142.** Unprecedented synthesis of 1,3-dialkylimidazolium-2-carboxylate: a carbon dioxide transfer agent to active C-H bonds **I. Tommasi**, M. Aresta, I. Tkatchenko

Section B

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Industrial Bio-Based Technology

F. E. Barton and J. L. Massingill, *Organizer*
G. Nobes, *Presiding*

- 1:30 —** Introductory Remarks.
- 1:35 — 143.** Conversion of epoxidized soybean oil to phosphate ester polyol. Y. Guo, V. M. Mannari, **J. L. Massingill**
- 1:55 — 144.** Copolymers of aspartic acid. **G. Smith**, S. C. Sikes
- 2:15 — 145.** Use of alkaline resistant starch aquagels in lightweight concrete. **G. M. Glenn**, A. P. Klamczynski, W. J. Orts, D. Wood
- 2:35 — 146.** Mid-IR imaging of natural fibers. **D. S. Himmelsbach**

2:55 — 147. Sensors for quality characterization of natural fibers. **F. E. Barton II**

3:15 — Intermission.

3:35 — 148. Standards for bio-based fibers in industrial applications. **D. E. Akin**

3:55 — 149. Ultrastructural characterization of flax tissues. **A. Driouich**

4:15 — 150. Chemical analyses of fiber and non-fiber components of bast fibers. **W. H. Morrison III**

4:35 — 151. Morphological characterization of various natural fibers. **G. Henriksson**

Green Chemistry and Engineering in the Curriculum

II

Cosponsored with Division of Chemical Education

See Page X

THURSDAY MORNING

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Ionic Liquids as Green Solvents: Progress and Prospects (Cosponsored by Green Chemistry & Engineering and Separation Science & Technology Subdivisions)

Electrochemistry

R. D. Rogers and K. R. Seddon, *Organizer*

W. R. Pitner, *Organizer, Presiding*

8:00 — Introductory Remarks.

8:05 — 152. Ionic liquid electro-processing of reactive metals. **D. Dreisinger**, J. Lu

8:30 — 153. Acids, Bases and Weak Electrolyte Behaviour in Ionic Liquids **D. R. MacFarlane**, S. Forsyth

8:55 — 154. Solvent-solute interactions in ionic liquid media: Electrochemical studies of the ferrocene/ferrocenium couple. **M. C. Lagunas**, W. R. Pitner, K. R. Seddon

9:20 — 155. Metal deposition from novel room temperature ionic liquids. **A. P. Abbott**, D. L. Davies, R. K. Rasheed

9:45 — Intermission.

10:00 — 156. Electrochemically generated superoxide ion in ionic liquids: Applications to green chemistry. **M. A. Matthews**, J. W. Weidner, I. M. AlNashef

10:25 — 157. Development and implementation of inexpensive room temperature ionic liquids in the electrodeposition of metals. **P. Meakin**, A. J. Hill, T. Turney

10:50 — 158. Organic electrochemistry in ionic liquids. **A. P. Doherty**, C. A. Brooks

11:15 — 159. Nanoscale Electrodeposition of metals and semiconductors from ionic liquids. **F. Endres**

THURSDAY AFTERNOON

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Ionic Liquids as Green Solvents: Progress and Prospects (Cosponsored by Green Chemistry & Engineering and Separation Science & Technology Subdivisions)

Photochemistry and Reactive Intermediates

R. D. Rogers and K. R. Seddon, *Organizer*

C. M. Gordon, *Organizer, Presiding*

1:30 — Introductory Remarks.

1:35 — 160. An overview of photochemistry in ionic liquids. **R. M. Pagni**

2:00 — 161. Photoinduced electron transfer in ionic liquids: mechanisms and synthesis. **P. B. Jones**

2:25 — 162. Steady-state and time-resolved spectroscopy in ionic liquids. **F. V. Bright**

2:50 — Intermission.

3:05 — 163. Pulsed laser excitation studies of photochemical reactions in room temperature ionic liquids. **A. J. McLean**, M. J. Muldoon, C. M. Gordon, I. R. Dunkin, K. Swiderski, D. H. Vaughan, J. N. Chacon

3:30 — 164. Photochemistry in ionic liquids: reactive intermediates and applications. **C. M. Gordon**, M. J. Muldoon, A. J. McLean, I. R. Dunkin

3:55 — 165. Pulse radiolysis studies of reaction kinetics in ionic liquids. **P. Neta**, D. Behar, J. Grodkowski

4:20 — 166. Picosecond radiolysis of ionic liquids. **J. F. Wishart**, P. Neta, J. Grodkowski, S. I. Lall, R. Engel