



Green Industrial Applications of Ionic Liquids
A NATO Advanced Research Workshop
Crete, Greece - April 12-16, 2000

FINAL PROGRAM

April 11: ARRIVAL

16:00 Mixer and Registration

April 12: Green Chemistry and Industrial Needs; Industrial Applications of Ionic Liquids

9:00 Green Chemistry and Industrial Needs

9:00 R. D. Rogers (USA), Introduction

9:10 J. Warner (USA): Green Chemistry, Theory and Practice

9:50 J. Kotlán (Czech Republic): Potential for Use of Ionic Liquids in Czech Industry

10:30 Coffee Break and Informal Discussion

11:00 P. Wasserscheid (Germany): Potential to Apply Ionic Liquids in Industry

11:40 B. Ellis (United Kingdom): Ionic Liquids and the Petrochemical Industry

12:20-13:00 Informal Discussion/Brainstorming Period

13:00-14:30 Lunch

14:30 Industrial Applications of Ionic Liquids

14:30 J Wilkes (USA), Introduction

14:40 H. Olivier (France): Application of Ionic Liquids to Biphasic Catalysis

15:20 O. Lapina (Russia): High Temperature NMR studies of Ionic Liquids Catalysts

16:00 Tea Break and Informal Discussion

16:30 R. Pagni (USA): Ionic Liquids as Alternatives to Traditional Organic and Inorganic Solvents

17:10 R. Freer (United Kingdom): Ionic Liquids and the Pharmaceutical Industry

17:50 D. Rooney (United Kingdom): Chemical Engineering Requirements for Use of Ionic Liquids

18:30-19:15 Informal Discussion/Brainstorming Period

19:30 Dinner



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April 13: Separations

9:00 Separations I

9:00 M. Koel (Estonia), Introduction

9:10 R. D. Rogers (USA): Ionic Liquids as Solvent Replacements in Industrial-Scale Separations – Opportunities and Challenges

9:50 L. Moens (USA): Applications of Ionic Liquids to the Chemical Processing of Biomass-Derived Renewable Feedstocks

10:30 Coffee Break and Informal Discussion

11:00 V. Pekhnyo (Ukraine): Room Temperature Sulfur Chloride Ionic Liquids in Processes for Isolation of Noble and Other Metals

11:40 M. Koel (Estonia): Using Ionic Liquids for Oil Shale Extraction

12:20-13:00 Informal Discussion/Brainstorming Period

13:00-14:30 Lunch

14:30 Separations II

14:30 J. Davis (USA), Introduction

14:40 W. Pitner (United Kingdom): Ionic Liquids in the Nuclear Industry

15:30 M. Brooker (Canada): Non-invasive Online Methods to Monitor Industrial Processes

16:00 Tea Break and Informal Discussion

16:30 R. Fehrmann (Denmark): Ionic Liquids as Catalysts for Sulfuric Acid Production and Cleaning of Flue Gases

17:10 E. Gontcharenko (Russia): Modelling the Liquid Behavior of Ionic Liquids

17:50 M. Gaune-Escard (France): The Challenges of Building a Molten Salt Database

18:30 Poster Session Preview, 5 Minutes per Poster

19:00-19:30 Informal Discussion/Brainstorming Period

19:30-21:00 Dinner

21:00 Poster Session by Invitation for Further Discussion of Key Topics; E. Gontcharenko (Russia), Moderator



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April 14: Electrochemistry and Novel Chemistries in Ionic Liquids

8:10 Electrochemistry

8:10 P. Bonhôte (Switzerland), Introduction

8:20 J. Wilkes (USA): The Past, Present, and Future of Ionic Liquids as Battery Electrolytes

9:10 Z. Fokina (Ukraine): Molten Ion-Radical Aluminum, Gallium, and Sulfur Galides for Novel Power Sources

9:50 Coffee Break and Informal Discussion

10:20 P. Bonhôte (Switzerland): Properties of Highly Conductive Imidazolium Ionic Liquids, and Applications to Nanocrystalline Photovoltaic and Electrochromic Devices

11:00 N. Tumanova (Ukraine): Electrochemistry of Nb, Ta and Ti in Carbamide-Ionic Liquids. Application to Nuclear Power Generation

11:40 V. Grinevitch (Russia): Electrochemistry of Nb in Rb and Cs Halide and Oxohalide Melts and Electrochemical Synthesis of Novel Niobium Compounds

12:20-13:00 Informal Discussion/Brainstorming Period

13:00-14:30 Lunch

14:30 Novel Chemistries in Ionic Liquids

14:30 K. R. Seddon (United Kingdom), Introduction

14:40 C. Gordon (United Kingdom): Photochemistry in Ionic Liquids

15:20 J. Davis (USA): Ionic Liquids Derived from Natural Products and Other Novel Chemistries

16:00 Tea Break and Informal Discussion

16:30 J. Brennecke (USA): Ionic Liquids and Supercritical CO₂

17:10 K. Johnson (Canada): Acids and Bases in Ionic Liquids

17:50 T. Mirnaya: Ionic Liquids Crystals as Universal Matrices (Solvents) for Novel Materials for Opto- and Microelectronics

18:30 T. Welton (United Kingdom): Organic Chemistry in Ionic Liquids

19:00-19:30 Informal Discussion/Brainstorming Period

20:00 Dinner



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April 15: Green Catalysis, East-West Collaborations and Roundtable 1: Industry Needs

8:30-12:30 Visit to Knossos (Optional)

13:00-14:30 Lunch

14:30 Green Catalysis

14:30 R. Fehrmann (Denmark), Introduction

14:40 C. Adams (United Kingdom): Industry Perspective of Green Catalysis

15:20 D. Moody (United Kingdom): Ionic Liquids and Specialty Chemicals

16:00-16:45 Tea Break Informal Discussion/Brainstorming Period

16:45 Industrial Challenges/Opportunities

Roundtable 1, L. Manzer (USA), Facilitator: Outlining Industrial Priorities, Needs, and Challenges in Green Chemistry. Chemical and Business Opportunities and Legislative Targets. (Co-Facilitators: J. Warner (USA) and C. Adams (United Kingdom))

19:00-20:30 Dinner

21:00 Continuation of Discussion in Roundtable 1



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April 16: Roundtable 2: Drafting Industrial Applications of Ionic Liquids; Roundtable 3: Drafting East-West Collaboration Protocols

9:00-12:00 Industrial Applications of Ionic Liquids

Roundtable 2, K. R. Seddon (United Kingdom), Facilitator: Drafting Ionic Liquids Research Priorities to Meet the Green Needs of the Chemical Industry. (Co-Facilitators: D. Moody (United Kingdom) and R. D. Rogers (USA))

12:00-13:30 Lunch

13:30 East-West Collaborations

13:30 S. Volkov (Ukraine), Introduction

13:40 V. Danek (Slovakia): Challenges in East-West Collaborative Research

14:20 S. Boghosian (Greece): East-West Collaboration within the SfP Programme: Opportunities and Project Management

15:00-15:30 Tea Break Informal Discussion/Brainstorming Period

15:30-18:30 East-West Collaboration Protocols

Roundtable 3, V. Danek (Slovakia), Facilitator: Developing Protocols to Enhance East-West Collaborations in Ionic Liquids Research. (Co-Facilitators: J. Kotlán (Czech Republic), S. Boghosian (Greece), and G. Kaptay (Hungary))

18:30-19:00 Closing Ceremonies: Workshop Summary, Future Meetings, Organizing Committees

19:00 ARW Banquet

April 17: DEPARTURE