

## 5. IUPAC ICGC-2

IUPACの第2回グリーンケミストリー国際会議 (ICGC-2)が2008年11月14日から20日までの日程で、モスクワからサンクトペテルブルグへ下る巡航客船 *Mikhail Kalinin* 号を会場として開催された。

プログラムによれば、①試薬と合成経路、②不均一系触媒、③均一系および酵素触媒、④将来のエネルギー源、⑤再生可能資源の利用、⑥プロセス技術、⑦教育の7つのセクションで Plenary Lecture 8件、Keynote Lecture 10件、Oral Presentation 63件、Poster Presentation 116件が行われた。

プログラムに記載された Plenary Lecture、Keynote Lecture、Oral Presentation の講演者と標題を以下に記す。なお、講演の一部の概要が IUPAC のホームページ (<http://www.iupac.org/publications/pac/81/11/>) に掲載されている。

### Plenary Lectures

- PL-1 Greener Synthetic Routes to Bioactive and Industrially Useful Compounds Through Biocatalytic and Microwave-Assisted Reactions V.Parmar(India)
- PL-2 Green Solvents : Properties and Their Applications in Green Chemistry B.X.Han(China)
- PL-3 Principles of Green Chemistry in Organic Synthesis V.N.Charushin, O.N.Chupakhin(Russia)
- PL-4 Radical Polymers Leading to Totally Organic-Based and Environmentally Benign Batteries H.Nishide(Japan)
- PL-5 Recovery of Heavy Metals from Mining Leaches and Waste Streams with Silica-Polyamine Composite : A Green Chemistry Perspective E.Rosenberg(USA)
- PL-6 Catalysis for Biofuels Production V.I.Bukhtiyarov, V.A.Yakovlev, V.N.Parmon(Russia)
- PL-7 Green Chemistry Education : Shades of Green M.M.Kirchhoff(USA)
- PL-8 Green Chemistry for Organic Synthesis H Alper(Canada)

### I. Benign Regents and Synthesis Routes

- KL-1 DABCO-Based Ionic Liquids : Properties and Applications C.Chiappe(Italy)
- KL-2 Green Chemistry - Future Prospects M.Kidwai(India)
- KL-3 Ecological Problems of Lubricants Chemistry O.P.Parenago(Russia)
- O-1 From Enantiopure Chiral Salts to Enantiopure Chiral Ionic Liquid by Controlled Structural Modifications : Efficient Modular Synthesis of Enantiopure Chiral Imidazolium Salts  
E.Garcia-Verdugo, E.Busto, R.Porcar, V.Gotor-Fernandez, N.Rios-Lombardia, I.Alfonso, M.I.Burguete, S.V.Luis, V.Gotor(Spain)
- O-2 Green Chemistry Application of CO<sub>2</sub> Reactivity  
P.G.Jessop, Y.Cui, D.Wechsler, B.Davis, R.Whitney(Canada)
- O-3 Antimicrobial Activity of Amino Acid and Dipeptide Based Amphiphiles N.Kayal, S.Roy(India)

- O-4 Development of Efficient Processes Under Flow Conditions Based on Catalysts Immobilized onto Supported Ionic Liquid-like Phases(SILLPS)  
L.Luis, N.Karbass, V.Sans, E.Garcia-Verdugo, B.Altava, M.I/Burguete(Spain)
- O-5 Preparation and Application of Substituted Phosphines in Hydrogenation of Carbon Dioxide  
R.Z.Ma, S.Wu, F.Zhang, Y.Q.Li, J.X.Wang(China)
- O-6 Remarks on Benign Synthetic Routes by Electrochemistry  
M.Michman(Israel)
- O-7 A Novel Approach to the Organotin Detoxification  
E.R.Milaeva, V.Yu.Tyurin, Yu.A.Gracheva, V.S.Petrosyan(Russia)
- O-8 Novel Solid-phases Extractants with the Use of Ionic Liquids  
O.B.Mokhodoeva, G.V.Myasoedova, N.P.Molochnikova(Russia)
- O-9 Efficient and Green Synthesis of 2-Aryl-benzothiazoles by Using Ecofriendly Catalyst  
A.P.Nikalje, D.D.Vyawahare(India)
- O-10 Why SFC is the Fastest Growing Green Purification Technique  
T.Palcic(USA)
- O-11 Ambidentate Characteristics of Dimethyl Carbonate and Its Application in Green Chemistry  
A.E.Rosamilia, F.Arico, P.Tundo(Italy)
- O-12 A Amino Nitrile Synthesis by Ultrasound Irradiation  
S.Sedaghat, L.Ali Mohammadi, E.Alipour(Iran)
- O-13 Amino Acid Synthesis in Aqueous Media under Ultrasonic Irradiation  
S.Sedaghat, J.M.Leveque, M.Draye(Iran, France)
- O-14 Mechanochemical Solid State Reaction Oxidation Coupling of Beta-Naphthol to Binaphthole with  $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$  Using High Speed Vibration Mill and Investigation of Parameters Effects It on the Yield and Reaction Times  
K.Shayesteh, J.Moghddas, M.Haghighi, G.Imanzadeh(Iran)
- O-15 Using High Speed Vibration Mill to Ring Bromination of Beta-Naphthol and Investigation of Related Mixing Parameters Effects on the Yield and Reaction Times  
K.Shayesteh, J.Moghddas, M.Haghighi, G.Imanzadeh(Iran)
- O-16 Influence of Phase Behavior on the Selectivity of Hydrogenation in  $\text{sc-CO}_2$   
F.Y.Zhao, R.X.Liu, X.C.Meng, Q.Wang, J.M.Hao, H.Y.Cheng, Y.C.Yu, S.X.Cai(China)
- O-17 Study of Condensation of Vinyl-gem-dichlorocyclopropanes with Formaldehyde in Water and Organic Mediums  
S.S.Zlotsky, S.V.Kopsov, D.L.Rakhmankulov(Russia)

## II. Heterogeneous Catalysis

- KL-4 Modern Trends in the Development of Catalytic Aftertreatment Systems for Lean Burn and Diesel Engines  
A.Yu.Stakheev, G.O.Bragina, N.S.Telegina, G.N.Baeva, P.V.Pributkov(Russia)

- KL-5 Commercial Catalysts for Ecological Catalysis V.F.Tretyakov(Russia)
- O-18 Effect of Support Nature, Co-metal and Phase Transfer Agent on Selective Hydrodechlorination of Chlorobenzenes and p-Chloroacetophenone  
E.V.Golubina, S.A.Kachevsky, E.S.Lokteva, A.O.Turakulova, V.V.Lunin, P.Tundo(Russia, Italy)
- O-19 Metal-Carbon Nanocomposite Systems with Adjustable Selectivity for Chlorobenzene Transformations  
E.S.Lokteva, S.A.Kachevsky, L.L.Lunin, A.Yu.Yermakov, M.A.Uimin, A.A.Mysik(Russia)
- O-20 Environmentally Safe Utilization of Toxic Chlorinated Compounds Using Nano-sized Ni and Pd Containing Catalytic Systems  
E.S.Lokteva, S.A.Kachevsky, T.N.Rostovshikova, V.V.Smirmov, V.V.Lunin, D.Yavsin, S.Gurevich, V.Kozhevnikov(Russia)
- O-21 Efficient Aerobic Oxidations and Hydrogen Transfer Reactions by Supported Ruthenium Hydroxide Catalyst N.M.Mizuno(Japan)
- O-22 Keggin Type Heteropolycompounds as Green Catalysts  
V.Palermo, G.Romanelli, L.Osiglio, C.Martino, H.Thomas, P.Vazquez(Argentina)
- O-23 Asymmetric Catalysis in the Confined Space Provided by L-Proline Functionalized Mesoporous Silica Having Plugs in the Pore E.A.Prasetyanto, S.E.Park(Lorea)
- O-24 Ionic Liquid Mediated Clay-supported Catalysts for Hydrogenations  
R.T.Tao, Y.Xie, S.D.Miao, Z.M.Liu(China)
- O-25 Aniline Multiphase Oxidation Catalyzed by Keggin-type Heteropolycompounds  
P.Tundo, G.Romanelli, P.Villabrille, P.Vazquez(Italy, Argentina)
- O-26 Regio-, Stereo- and Enantioselective CH-Acid Reactions Catalyzed by Recoverable Organic Catalysts Bearing Ionic Liquid Moieties  
S.G.Zlotin, G.V.Kryshchal, G.M.Zhdankina, A.S.Kucherenko, A.V.Bogolyubov, D.E.Siyutkin(Russia)

### III. Homogeneous and Enzymatic Catalysis

- KL-6 Nanocatalysts Based on Macrocyclic Receptors, Dendrimers and Hybrid Materials  
E.Karakhanov, A.Maximov(Russia)
- KL-7 New Catalytic Systems for Selective Hydrogenation J.Klankermayer, W.Leitner(Germany)
- KL-8 Greener Alternative to Modified Bicyclonucleosides  
A.K.Prasad, J.Wengel, V.S.Parmer(India, Denmark)
- O-27 Facilitating Catalyst Recovery/ Reuse/ Separation Using Soluble Polymers  
D.E.Bergbreiter(USA)
- O-28 Isothermal Calorimetry of Enzymatic Biodiesel Reaction  
L.Fjerbaek(Denmark)

- O-29 Green Catalysts for Green Chemistry : New Concepts in Olefin Metathesis Catalysts Separation and Reuse  
L.Gulajski, M.Mauduit, K.Grela(Poland, France)
- O-30 The Catalytic Ozonation of the Lignin Related Materials  
A.G.Khudoshin, E.M.Benko, A.N.Mitrofanova, V.V.Lunin(Russia)
- O-31 A Study of the Mechanism of Carcinogenesis of Ni(II) and Cu(II) Metal Ions Based on Synthetic Peptide Models  
N.H.Hadjiliadis, G.Malandrinos, A.M.Nunes, K.Zavitsanos(Greece)
- O-32 Chemical Utilization of CO<sub>2</sub> in the Synthesis of Organic Carbonates and Oxazolidinones  
L.N.He, Y.Du, J.Q.Wang, C.X.Miao, X.Y.Dou(China)
- O-33 Optimizing Conditions of the Production of Indigenous Germinated Jatropha Curcas Lipase for the Synthesis of Renewable Biodiesel  
C.Hidayat, P.Hastuti, D.Sumangat, T.Hidayat(Indonesia)
- O-34 An Environmental Friendly Method for Nylon6 Fiber Hydrolysis Using Lipolytic Enzyme  
M.Parvinzadeh(Iran)
- O-35 Biocatalysts in Organic Synthesis ; A Green Protocol  
R.Poddar(india)
- O-36 Accessibility and Reactivity of Cellulases in Glycerin Containing Solutions  
C.B.Schimper, W.Harreither, T.Bechtold(Austria)

#### IV. Future Green Energy Sources

- KL-9 Hydrogen Production from Biogas  
Yu.A.Kolbanovsky, I.V.Bilera, A.A.Borisov, K.Ya.Troshin(Russia)
- O-37 Strategies for Designing Hydrogen Storing Liquids to Meet Required Physical, Chemical and Thermal Properties  
P.G.Jessop, Y.Cui, D.Wechsler, B.Davis, R.Whitney(Canada)
- O-38 Development of Catalysts for Portable Hydrogen Generation Using Sodium Borohydride  
V.I.Simagina, O.V.Netskina, O.V.Komova, A.M.Ozerova(Russia)

#### V. Use of Renewables

- O-39 Natural Rubber Based Green Nanocomposites by Latex Compounding with Cellulose Nano Fibers  
E.Abraham, B.Deepa, L.A.Pothan, T.Sabu(India)
- O-40 Development of Novel Cellulose Nanofiber Composites from Banana Fibers  
B.M.Churian, E.Abraham, L.A.Pothan(India)
- O-41 New Functionalized Derivatives from Plant and Bacterial Polysaccharides  
G.C.Chitanu, D.M.Suflet(Romania)
- O-42 Supercritical Fluid Extract of Reynoutria Sachalinensis as an Environmentally Benign Agrecultural Chemical  
S.A.Glazunova, V.A.Karavaev, O.I.Pokrovskiy, O.O.Parenago(Russia)

- O-43 Reduction of Agriculture Wastage to Ethanol by Solid State Fermentation  
M.Haghshenas Fard, M.Shokrotahi, F.Banitabae Jeshvaghani(Iran)
- O-44 Heterogenized Polymer Complexes as Catalysts for Biodiesel Production  
N.V.Kramareva, O.P.Tkachenko, L.M.Kustov(Russia)
- O-45 Research of Antibacterial Properties of Chitosan and Its Derivatives in Relation to Various Microorganisms  
S.Sh.Rashidova, R.Yu.Milusheva, F.H.Inoyatova, I.M.Mukhamedov, Sh.Maksudova, S.R.Pulatova(Uzbekistan)
- O-46 Biofuels Obtained from Pyrolysis and Alcoholysis of Soy Bean Oil and Their Blends with Petroleum Diesel  
P.A.Z.Suarez, B.R.Moser, B.K.Sharma, K.Doll, S.Z.Erhan(Brazil, USA)
- O-47 Electrical Conducting Surface Modification of Anionic Biopolymer : Redox Polyionic Materials for Electrochemical Sensors  
A.Tiwari, B.D.Malhotra(India)
- O-48 Concentration of Bioethanol by Cellulose Ester Membranes  
T.Uragami(Japan)
- O-49 Polymer Matrix from Acrylic Copolymers for Transdermal Delivery of Plant CO<sub>2</sub> Extracts  
V.F.Uryash, A.E.Gruzdeva, V.A.Izvozchikova, N.V.Grishatova, A.V.Uryash, I.G.Karpova(Russia, USA)

## VI. Benign Process Technology

- O-50 Microwave Energy as a Green and Rapid Method in Chemical Recycling of Flexible Polyurethane Foam Wastes : Polyol Recovery  
M.M.Alavi Nigieh(Iran)
- O-51 Chemical Treatment of Polyurethane and PET Wastes for Production of Raw Materials  
A.Bagheri Garmarudi, M.M.Alavi Nikje, M.Haghshenas(Iran)
- O-52 Fluorescent Organic Nanoparticles  
D.C.Neckers(USA)
- O-53 Selective Hydrogenation of 2-Chloronitrobenzene over Supported Nickel Catalyst in Supercritical Carbon Dioxide  
X.C.Meng, Y.J.Shang, H.Y.Cheng, S.X.Cai, F.Y.Zhao(China)
- O-54 Microwave Irradiation Assisted One-pot Synthesis of 3,4-Dihydropyrimidinones under Solvent-free Condition Using Holmium Chloride as AC Catalyst  
H.Salehi, S.Kakaei, S.J.Ahmadi, M.A.Firooz Zareh(Iran)
- O-55 Continuous Flow Sequential Synthesis of Complex Intermediate Compounds  
G.Sartori, L.Soldi, S.Loebbecke, R.Maggi(Italy, Germany)
- O-56 Novel Photocatalytic Systems Based on Nano- and Mesoporous Structured Titania  
E.V.Skorb, D.G.Shchukin, D.V.Sviridov(Belarus)
- O-57 Microwaves for Synthesis of Bioactive Compounds  
E.V.Van der Eycken(Belgium)

O-58 A New Antisolvent Approach to Modification of Carbon Nanotubes Using Supercritical Carbon Dioxide  
Z.W.Zhang, Q.Xu, Z.M.Chen, J.Yue(China)

## VII. Education in Green Chemistry

KL-10 Green Chemistry as Responsible Stewardship  
N.P.Tarasova(Russia)

O-59 Sustainable Chemicals Management – Contributions and Gaps  
C.T.F.Blum, S.Richter(Germany)

O-60 Work Based Learning for the Development of the Chemistry Professional  
H.Garelick, A.Page, G.Weller(UK)

O-61 Sustainability : The Future Challenges for Students of the Present  
Zafra M.Lerman(USA)

O-62 Establishment and Corporations in the Process of Formation of Up-to-date Specialists  
T.G.Myasoedova, A.S.Smironov(Russia)

O-63 Green Chemistry/ Engineering – Practical Implementation  
P.R.Peoples(USA)