

ISSF 2012: 10th International Symposium on Supercritical Fluids

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Preliminary Scientific Program

(as of February 19, 2012)

Monday, May 14, 2012

Monday Morning Plenary Lecture I

Supercritical Fluids for Effective Separation. Gerd Brunner, Hamburg University of Technology, Hamburg, GERMANY

Monday Morning Oral Session on Biomass and Energy-Related Conversions-I

Technology Innovation for the Next Generation Biodiesel Production. Shiro Saka, Kyoto University, Kyoto, JAPAN [KEYNOTE LECTURE]

Transport and Kinetic Modeling for Xylose Reforming to Hydrogen-Rich Gas by Supercritical Water in a Hastelloy Microchannel Reactor. Gregory L. Rorrer, Aaron Goodwin, Bend Research, Bend, Oregon, USA

Paper Mill Sludge Hydrolysis using Hot Compressed Water for Biodiesel Production by Oleaginous Yeast. Ana Rita Rodrigues, Pedro Simoes, Alvaro Fonseca, Susana Barreiros, Alexandre Paiva, FCT-UNL, Lisbon, PORTUGAL

Supercritical Gasification of Biomass: Implementation of Experimental Results in a Process Simulation in Order to Assess an Energetic Optimization. Olivier Boutin¹, Félicite Ondze¹, Jean-Henry Ferrasse², Jean-Christophe Ruiz¹, Frederic Charton¹, ¹CEA, Bagnols sur Ceze, FRANCE; ²Aix Marseille Universite, Aix en Provence, FRANCE

One-Pot Algal Biodiesel Production in Supercritical Carbon Dioxide. Lindsay Soh, Yale University, New Haven, CT, USA

Non-Catalytic Supercritical Dimethyl Carbonate for Biodiesel Production: An Optimization Study. Zul Ilham, Shiro Saka, Kyoto University, Kyoto, JAPAN

Chemical Conversion of Biomass Under Subcritical/Supercritical - Solvent Conditions using a Pilot Scale Flow Reactor. Sipho C. Ndlela, Norman Olson, Iowa Energy Center, Nevada, IA, USA

Monday Morning Oral Session on Thermodynamics-Phase Equilibria-Fluid Properties

Supercritical Processing of Fatty Oils: Phase Equilibrium Engineering. Pablo Hegel, Guillermo Soto, Alexis Velez, Guillermo Mabe, Selva Pereda, Esteban Brignole, Susana Bottini, PLAPIQUI UNS-CONICET, Buenos Aires, ARGENTINA [KEYNOTE LECTURE]

Experimental Supercritical Phase Equilibria Measurements of Multi-Component Systems. Frederick Fourie, Cara E. Schwarz, Johannes Knoetze, University of Stellenbosch, Stellenbosch, SOUTH AFRICA

Measuring Reactions in SCF and Properties of SCF with Magnetic Suspension Balances. Frieder Dreisbach, Rubotherm, Bochum, GERMANY

Measurement and Correlation of Infinite Dilution Diffusion Coefficients in CO₂ Expanded Liquids. Toshitaka Funazukuri, Chuo University, Tokyo, JAPAN

Modeling Tracer Diffusion Coefficients in Supercritical CO₂. Ana L. Magalhaes, Francisco A. Da Silva, Carlos M. Silva, University of Aveiro, Aveiro, PORTUGAL

Numerical Simulation of Flow of Near-Critical Fluids. Gustav Amberg, Linne FLOW Center/Mechanics, Stockholm, SWEDEN

Thermodynamic Model for the Binary Solid Mixtures in Supercritical Carbon Dioxide. Siva Mohan Reddy Narapureddy, Indian Institute of Science, Bangalore, INDIA

Monday Morning Oral Session on Industrial Applications of Critical Fluids-I

Impregnation from Supercritical Fluids - Principles and Applications. Eckhard Weidner, Fraunhofer UMSICHT, Oberhausen, GERMANY [KEYNOTE LECTURE]

Development of Pilot Scale Continuous Sub-Critical Water Plant to Produce Valuable Materials and Energy from Organic Wastes and Their Dynamic and Kinetic Analysis. Hiroyuki Yoshida, Osaka Prefecture University, Osaka, JAPAN

Supercritical Water Oxidation – Current Status of Full-Scale Commercial Activity for Waste Destruction. Philip A. Marrone, SAIC, Newton, MA, USA

Hanwha Chemical's Supercritical Hydro Technologies. Soo-Yeong Han¹, Keedo Han², Sei-Ung Park², Kyu-Ho Song², Chol-Woo Lee², ¹Hanwha Chemical Corporation, Seoul, SOUTH KOREA; ²Hanwha Chemical Corporation, Daejeon, SOUTH KOREA

Supercritical CO₂ Extraction of Omega-3 Oils from Disrupted Yarrowia Yeast. Keith W. Hutchenson⁴, William M. Jack, II¹, Val Krukoni², Shu-Chien Liang¹, Robert D. Orlandi¹, Hans Schonemann², Gregg Sunshine³, ¹DuPont Industrial Biosciences, Wilmington, DE, USA; ²PhaseX Corporation, Lawrence, MA, USA; ³DuPont CR&D, Wilmington, DE, USA; ⁴DuPont, Wilmington, DE, USA

Metal Extraction of Spiked Solid with Supercritical Carbon Dioxide. Ming-Tsai Liang, Ru-Chien Liang, Chih-Hsiung Lin, Ping-Jui Hsu, Li-Yu Wu, Hong-Fa Chen, Yuh-Wern Wu, I Shou University, Kaohsiung City, TAIWAN

Extraction of Natural Products for Industrial Applications. Nadine Igl-Schmid, Andreas Wuzik, NATECO₂, Wolnzach, GERMANY

Monday Morning Oral Session on Natural Products, Nutraceuticals and Food Related Materials-I

Recovery of Phytochemicals by Hybrid Extraction Process using Supercritical CO₂ and Water. Motonobu Goto¹, Ryuichi Fukuzato², Siti Machmudah¹, Armando Quitain¹, Mitsuru Sasaki¹, ¹Kumamoto University, Kumamoto, JAPAN; ²SCF Techno-Link, Hyogo, JAPAN [KEYNOTE LECTURE]

Extraction of Essential and Resin Oil from Eucalyptus Citriodora Leaves using Sub and Supercritical CO₂. Mirelle Dogenski, Nilson Jose Ferreira, Alessandra Lopes Oliveira, University of Sao Paulo, Pirassununga, BRAZIL

A Supercritical Fluid Based Approach to Sample Work-Up, Analysis and Purification in Natural Product Research. Rui Chen, Jacquelyn Runco, John McCauley, Harbaksh Sidhu, Waters Corporation, New Castle, DE, USA

Supercritical Antisolvent Fractionation of Lignans from Ethanolic Extract of Flaxseed. Giuseppe Perretti, Claudia Virgili, Ombretta Marconi, Gianfranco Regnicoli, Paolo Fantozzi, University of Perugia, Perugia, ITALY

Comparative Study between the Supercritical Extraction and Soxhlet Extraction of Nutmeg Seed. Nik Norulaini Nik Ab Rahman, Sawsan Al Rawi, Ahmad Ibrahim, Mohd Amin Abdul Majid, Mohd Omar Ab Kadir, Universiti Sains Malaysia, Penang, MALAYSIA

Lipase-Catalyzed Transesterification of CO₂-Expanded Canola Oil and Fully-Hydrogenated Canola Oil to Produce Base-Stock for Zero-Trans Margarines. Ehsan Jenab, Feral Temelli, University of Alberta, Alberta, CANADA

Production of Feruloylated Arabino-Polysaccharides and Oligosaccharides from Beet Fiber by using the Hydrothermal Treatment. Nobuaki Sato¹, Yohei Takano², Shingo Umemura¹, Masahiro Mizuno¹, Kouichi Nozaki¹, Tsunetomo Matsuzawa¹, Yoshihiko Amano¹, Satoshi Makishima³, ¹Shinshu University, Nagano, JAPAN; ²Nagano Food Industry Association, Shinshu University, Nagano, JAPAN; ³B Food Science Co. Ltd., Shinshu University, Tokyo, JAPAN

Monday Afternoon Oral Session on Biomass and Energy-Related Conversions-II

Biodiesel Synthesis from Rape Oil in Supercritical Methanol in Flow Type Reactor. Vladimir Anikeev, Borekov Institute of Catalysis, Novosibirsk, RUSSIA

Microwave Mediated Transesterification of Algal Biomass to Biodiesel under Supercritical Ethanol Conditions. Prafulla Patil, Shuguang Deng, New Mexico State University, Las Cruces, NM, USA

Influence of Impurities on Biodiesel Production from *Jatropha Curcas* L. by Supercritical Methyl Acetate Process. Lee Keat Teong¹, Muhammad Niza Noorzalila¹, Tat Tan Kok², ¹Universiti Sains MALAYSIA, Nibong Tebal, MALAYSIA; ²Universiti Tunku Abdul Rahman, Kampar, MALAYSIA

Application of Subcritical Water on Bioenergy Conversion. Aqsha Aqsha, Ranjani Kannaiyan, Nader Mahinpey, Robert Martinuzzi, University of Calgary, Alberta, CANADA

Monday Afternoon Oral Session on Biomass and Energy-Related Conversions-III

Hydrothermal Conversion of Glucose. 1. Analysis of the Gas, Liquid and Solid Phases Generated by Multiscale Batch Processes. Qian Wu, Elsa Weiss-Hortala, Radu Barna, Mines Albi- Rapsodee, Albi, FRANCE

Supercritical Carbon Dioxide Extraction of Microalgae Oils for Biodiesel Production. Rudy Baskette, Kenneth James, Supercritical Fluid Technologies, Newark, DE, USA

Characterization and Electrochemical Properties of Lithium Titanate Synthesized using Supercritical Fluid. Agung Nugroho¹, Jaehoon Kim², ¹University of Science and Technology, Daejeon, SOUTH KOREA; ²Korea Institute of Science and Technology, Seoul, SOUTH KOREA

Production of Biocrude From Biomass by Acidic-Subcritical-Water Followed by Alkaline-Supercritical-Water Two-Step Liquefaction. Hema Ramsurn, Ram Gupta, Auburn University, Auburn, AL, USA

Monday Afternoon Oral Session on Polymers, Materials Applications and Processes-I

Pressurized Hot Water Extraction After Pre-Concentration of Organics on Electrospun Nanofiber Molecular Imprinted Sorbents. Nelson Torto¹, Janes Mokgadi¹, Shima Batlokwa¹, Charlotta Turner², ¹Rhodes University, Grahamstown, SOUTH AFRICA; ²Lund University, Lund, SWEDEN

High-Pressure CO₂ Aided New Processes for PET Foams Preparation. Ling Zhao, Dachao Li, Hua Zhong, Chao Huang, Zhenghao Xi, Tao Liu, East China University of Science and Technology, Shanghai, CHINA

Polymer Architectural Effects on Solution Behavior at High Pressures: Linear, Hyperbranched, and Star Polymers in SCF and Liquid Solvents. Yue Wu¹, Matthew Newkirk¹, Babatunde Bamgbade¹, Mark McHugh¹, Val Krukoni², Paula Wetmore², ¹Virginia Commonwealth University, Richmond, VA, USA; ²Phasex Corporation, Lawrence, MA, USA

Fundamental Mechanisms of Cell Nucleation in Plastic Foaming Processes Blown with Carbon Dioxide – Effects of Stresses. Anson Wong, Chul B. Park, University of Toronto, Ontario, CANADA

Monday Afternoon Oral Session on Polymers, Materials Applications and Processes-II

Influence of Macromolecular Characteristics of RAFT/MADIX Poly(vinyl acetate)-Based (co)Polymers on their Solubility in Supercritical Carbon Dioxide. Etienne Girard¹, Thierry Tassaing², Jean-Daniel Marty¹, Mathias Destarac¹, ¹Paul Sabatier University, Midi-Pyrenees, FRANCE; ²University of Bordeaux, Aquitaine, FRANCE

Miscibility and Kinetics of Phase Separation in Polymer Solutions in Dense Fluid Mixtures. Erdogan Kiran, Virginia Tech, Blacksburg, VA, USA

Polymer Coatings Made by using SC-CO₂ in High Pressure Techniques. Louise Ovaskainen¹, Irene Rodriguez Meizoso², Charlotta Turner², Lars Wagberg¹, ¹KTH The Royal Institute of Technology, Stockholm, SWEDEN; ²Lund University, Lund, SWEDEN

Fractionation of Polycyclic Aromatic Hydrocarbon (PAH) Oligomers by Supercritical Extraction using N-Methyl-2-pyrrolidone/toluene Solvent Mixtures. David F. Esquerre, Mark C. Thies, Clemson University, Clemson, SC, USA

Monday Afternoon Oral Session on Industrial Applications of Critical Fluids-II

Improving CO₂ Dry-Cleaning Performance with Cavitation. Stevia Sutanto¹, Victoria Dutschk², Maaïke van Roosmalen³, Geert Jan Witkamp¹, ¹TU Delft, Delft, NETHERLANDS; ²University of Twente, Enschede, NETHERLANDS; ³Feyecan Carbon Dioxide Technologies, Weesp, NETHERLANDS

Extraction of Polyphenols from Maritime Pine Bark by Subcritical Water at Laboratory- and Industrial-Scale: Application of an Experimental Design. Clement Celhay, Celine E. Mathieu, Gerard Vilarem, Luc Rigal, Universite de Toulouse, Toulouse, FRANCE

Application of Supercritical Water Gasification to Municipal Wastewater Treatment Plant: Experimental Studies and Operational Challenges. Osamu Sawai¹, Yasunobu Tanaka², Takashi Nishihara², Teppei Nunoura¹, Kazuo Yamamoto², ¹University of Tokyo, Kashiwa, JAPAN; ²University of Tokyo, Tokyo, JAPAN

Engineering Micronization and Coating Applications with Dense Phase Carbon Dioxide. Bala Subramaniam^{1,2}, Fenghui Niu¹, Jahna Howell¹, Charles Decedue¹, David Johnston¹, ¹CritiTech, Lawrence, KS, USA; ²University of Kansas, Lawrence, KS, USA

Monday Afternoon Oral Session on Industrial Applications of Critical Fluids-III

The Scale up of Continuous Hydrothermal Synthesis to Produce Industrial Quantities of Dispersed and Formulated Nanomaterials. Ed Lester, University of Nottingham, Nottingham, UK

Mixing of Multicomponent Hydrocarbon and Water at Supercritical or Near-Critical Conditions. Sadegh Dabiri¹, Guang Wu², Ahmed Ghoniem², ¹University of Notre Dame, Notre Dame, IN, USA; ²Massachusetts Institute of Technology, Cambridge, MA, USA

Brazilian Ginseng: Use of the Supercritical Technology to Produce the Extract. Marcelle Fernanda, University of Campinas, Sao Paulo, BRAZIL

Investigation of Supercritical Water Phenomena for Space and Extraterrestrial Application. Michael C. Hicks¹, Uday G Hegde², John W. Fisher³, ¹NASA Glenn Research Center, Cleveland, OH, USA; ²National Center for Space Exploration Research, Cleveland, OH, USA; ³NASA Ames Research Center, Mountain View, CA, USA

Monday Afternoon Oral Session on Natural Products, Nutraceuticals and Food Related Materials-II

Supercritical Carbon Dioxide Inactivation of Solid Materials. Sara Spilimbergo¹, Giovanna Ferrentino¹, Sara Balzan¹, Alberto Bertucco², ¹University of Trento, Trento, ITALY; ²University of Padova, Padova, ITALY

Supercritical Fluid Extraction of Phloroglucinol Derivatives from *Dryopteris Wallichiana*. Pablo Nunes¹, Alexandre Taketa¹, Maria Luisa Villarreal¹, Alexandre Espirito Santo², Gilsane von Poser³, Eduardo Cassel², Rubem Vargas², ¹UAEM, Cuernavaca, Morelos, MEXICO; ²PUCRS, Porto Alegre, BRAZIL; ³UFRGS, Porto Alegre, BRAZIL

Application of Supercritical Fluids as Biochemical Solvent. Mahesh N. Varma¹, Giridhar Madras², ¹Visvesvaraya National Institute of Technology, Nagpur, INDIA; ²Indian Institute of Science, Bangalore, INDIA

Production of Supercritical Rosemary Extracts and their Effect on Tumor Progression. Gonzalo Vicente¹, Susana Molina², Margarita Gonzalez-Vallinas², Monica Rodriguez García-Risco³, Tiziana Fornari³, Guillermo Reglero³, Ana Ramirez de Molina², ¹Instituto de Universidad Autonoma de Madrid, Madrid, SPAIN; ²IMDEA-Food Institute, Madrid, SPAIN; ³Universidad Autonoma de Madrid, Madrid, SPAIN

Monday Afternoon Oral Session on Natural Products, Nutraceuticals and Food Related Material-III

Scallop and CO₂-EtOH Extraction to Produce New Phospholipids Extracts. Pascale Subra-Paternault, Université Bordeaux1, Pessac, FRANCE

Characterization of Krill Oil by Immobilized Lipase Ethanolysis with Supercritical Carbon Dioxide. Hye-young Lee, Seon-Bong Kim, Yang-Bong Lee, Byung-soo Chun, Pukyong National University, Nam-Gu, SOUTH KOREA

Evaluation of Essential Oil Extraction of *Piptadenia Gonoacantha* E *Piptadenia Rígida* using Supercritical CO₂. Bruna Moura, Francisco Catunda Junior, Mario de Carvalho, Marisa Mendes, UFRRJ, Seropedica, Rio de Janeiro, BRAZIL

Recycling of Bovine Meat and Bone Meal and Inactivation of BSE Prion by Sub-Critical Water Treatment. Yuji Tsutsumi¹, H. Bang¹, E. Takata¹, A. Fukuda¹, Y. Murayama², M. Yoshioka², ¹Kyushu University, Fukuoka, JAPAN; ²National Institute of Animal Health, Tsukuba, JAPAN

Tuesday, May 15, 2012

Tuesday Morning Plenary Lecture II

Integrated Technology of Supercritical Water Synthesis and Supercritical Water Oxidation. Youn-Woo Lee, Seoul National University, Seoul, SOUTH KOREA

Tuesday Morning Oral Session on Reactions in Critical Fluids-I

Valorization of Aquatic Biomass via Supercritical Fluid Processes. Phillip E. Savage, Qingqing Guan, Peter Valdez, Jacob Dickinson, Shujauddin Changi, University of Michigan, Ann Arbor, MI, USA [KEYNOTE LECTURE]

Polypropylene Grafting in Supercritical Carbon Dioxide. Jacques Fages¹, Jean-Jacques Letourneau¹, Elisabeth Rodier¹, Martial Sauceau¹, Spiro Alexandratos², ¹University of Toulouse Ecole des Mines d'Albi CNRS Rapsodee Centre, Albi, FRANCE; ²Hunter College of the City University of New York, New York, NY, USA

Self-Optimizing Continuous Reactors: Accelerating Process Development in Supercritical Fluids. Richard Bourne, Martyn Poliakoff, University of Nottingham, Nottingham, UK

High-Selective Indole C3-Methylation with sc-MeOH Catalyzed by Tetraalkyl Orthosilicates. Andrey M. Chibiryayev, Ivan Kozhevnikov, Alexey Nuzhdin, Galina Bukhtiyarova, Oleg Martyanov, Boreskov Institute of Catalysis Siberian Branch of the RAS, Novosibirsk, RUSSIA

Intensified, Highly Selective Ethylene Epoxidation with Heterogeneous Catalysts in Gas-Expanded Liquids. Madhav Ghanta, Anand Ramanathan, Bala Subramaniam, Center for Environmentally Beneficial Catalysis, Lawrence, KS, USA

Chemical Modification of Natural Rubber under Supercritical Carbon Dioxide to Prepare Hydroxytelechelic Liquid Natural Rubber Based Polyurethane. Alif Duereh, Chockchai Boonchuay, Surat Areerat, King Mongkut's Institute of Technology Ladkrabang, Bangkok, THAILAND

Coupling Microwave Irradiation with Supercritical Fluid Reaction Systems. Rolf Schlake, Ernest Schlegel Applied Separations, Allentown, PA, USA

Tuesday Morning Oral Session on Materials Applications-I

Unleashing the Potential of Supercritical Fluids for Polymer Processing in Tissue Engineering and Regenerative Medicine. Ana Rita Duarte, Joao F. Mano, Rui L. Reis, 3B's Research Group, University of Minho, Caldas das Taipas, PORTUGAL [KEYNOTE LECTURE]

Use of Supercritical Fluid Technology for the Production of Tailor-Made Aerogel Particles for Delivery Systems. Carlos A. Garcia-Gonzalez, Irina Smirnova, Hamburg University of Technology, Hamburg, GERMANY

DELOS-SUSP for the Production of Vesicles with Homogeneous Lipid Supramolecular Organization. Elisa Elizondo¹, Jannik Larsen², Nikos S. Hatzakis², Ingrid Cabrera¹, Jaume Veciana¹, Dimitrios Stamou², Nora Ventosa¹, ¹Institute of Materials Science (ICMAB-CSIC), Barcelona, SPAIN; ²Bio-Nanotechnology Laboratory Department of Neuroscience and Pharmacology and Nano-Science Center, Copenhagen, DENMARK

Microencapsulation of Proteins within Hybrid Microspheres using Supercritical CO₂ Media. Frank Boury¹, My Kien Tran¹, Leila Hassani¹, Brice Calvignac¹, Thomas Beuvier², François Hindre¹, Alain Gibaud², ¹University of Angers, Angers, FRANCE; ²Universite du Maine, Le Mans, FRANCE

A Dense Gas Process for the Production of Liposomal Encapsulated Active Pharmaceutical Ingredients Formulations. Chau Beh, Thomas Jacobs, Raffaella Mammucari, Neil Foster, University of New South Wales, Sydney, AUSTRALIA

Pressurized Fluid Technology in Extraction and Separation Processes – A Green Chemistry Approach. Charlotta Turner, Victor Abrahamsson, Sofia Lindahl, Jiayin Liu, Firas Jumaah, Arwa Mustafa, Merichel Plaza, Abdelrahman Ismail, Irene Rodriguez-Meizoso, Margareta Sandahl, Lund University, Lund, SWEDEN

Physical Stabilities of Indomethacin via Amorphization using Co-Milling and Supercritical Co-Precipitation Processing. Ron Tau Yee Lim, Wai Kiong Ng, Reginald B.H. Tan, Institute of Chemical and Engineering Sciences A*STAR, Singapore, SINGAPORE

Tuesday Morning Oral Session on CO₂ Remediation and Environmental Aspects

Pre-Combustion Capture of CO₂ from Power Generation. David Luebke, National Energy Technology Laboratory, Pittsburgh, PA, USA [KEYNOTE LECTURE]

Photo-Reduction of CO₂ to Fuel by Novel Nanocatalysts Produced using Continuous Hydrothermal Synthesis. Haiping Shen, Ed Lester, Trevor Drage, University of Nottingham, Nottingham, UK

Applications of Reversible Ionic Liquids: CO₂ Capture and Nanoparticle Synthesis. Steven Saunders, Kyle Flack, Emily Nixon, Amy Rohan, Jackson Switzer, Elizabeth Biddinger, Pamela Pollet, Charles Liotta, Charles Eckert, Georgia Institute of Technology, Atlanta, GA, USA

Thermodynamic Modeling of the Solubility of Supercritical CO₂ and Other Gases on Ionic Liquids with the Soft-SAFT Equation of State. Felix Llovel¹, Mariana B. Oliveira², Oriol Vilaseca¹, Joao A.P. Coutinho², Lourdes F. Vega¹, ¹MATGAS Research Center, Barcelona, SPAIN; ²Universidade de Aveiro, Aveiro, PORTUGAL

Pre-Combustion Capture of CO₂ with Hydrophobic Polymers. Robert Enick^{1,2}, Matt Miller^{1,2}, Sam McNulty², Hunaid Nulwala³, David Luebke¹, ¹National Energy Technology Laboratory, Pittsburgh, PA, USA; ²University of Pittsburgh, Pittsburgh, PA, USA; ³National Energy Technology Laboratory and CMU

NIR-Inline-Monitoring for Micronization Processes in Supercritical CO₂. Gabriele Wiegand¹, Dennis Böhm¹, Thomas Grau¹, Siegbert Johnsen¹, Ewelina Kaczowka¹, Alexander Klotz¹, Michael Türk¹, Beat Zehnder², ¹Karlsruhe Institute of Technology, Karlsruhe, GERMANY; ²Sieber-Sitec Engineering, Zurich, SWITZERLAND

Reversible Ionic Liquids for CO₂ Capture from High Pressure Streams. Amy L. Rohan, Jackson Switzer, Kyle Flack, Emily Nixon, Amber Rumble, Elizabeth Biddinger, Manish Talreja, Pamela Pollet, Charles Liotta, Charles Eckert, Georgia Institute of Technology, Atlanta, GA, USA

Tuesday Morning Oral Session on Novel SCF Experimental Techniques

Complementarities Between Supercritical Micro- and Milli-Fluidic Synthesis of Nanocrystals for Advanced Nanostructured Materials. Cyril Aymonier, Yann Roig, Samuel Marre, ICMCB-CNRS, Bordeaux, FRANCE
[KEYNOTE LECTURE]

Conformal Copper Coating Inside High Aspect Ratio Bended Through-Holes using Supercritical Carbon Dioxide. Mitsuhiro Watanabe¹, Yuto Takeuchi¹, Takahiro Ueno¹, Masahiro Matsubara¹, Eiichi Kondoh¹, Satoshi Yamamoto², Naohiro Kikukawa², Tatsuo Suemasu², ¹University of Yamanashi, Kofu, JAPAN; ²Fujikura Ltd., Sakura, JAPAN

Jet Cutting with Liquid CO₂. Lena Engelmeier, Stefan Pollak, Andreas Kilzer, Eckhard Weidner, Ruhr-Universitaet, Bochum, GERMANY

Novel Supercritical Fluid Deposition of SiO₂ using Flow Channel Reactor. Takeshi Momose¹, Aiko Kondo¹, Hideo Yamada², Junji Ohara², Yasuhiro Kitamura², Hirohisa Uchida³, Yukihiro Shimogaki¹, Masakazu Sugiyama¹, ¹University of Tokyo, Tokyo, JAPAN; ²DENSO Corporation, Aichi, JAPAN; ³Shinshu University, Nagano, JAPAN

Preparation of Supported Metallic Nanoparticles using Supercritical Fluids. Michael Turk¹, Marlene Crone², Sabrina Mueller¹, ¹Karlsruhe Institute of Technology, Karlsruhe, Baden-Wuerttemberg, GERMANY; ²Karlsruhe Institute of Technology, Karlsruhe, GERMANY

Enzymatic Synthesis of Poly(ϵ -Caprolactone) in Supercritical Carbon Dioxide. Sibebe R. Rosso-Comim¹, Emanuel Bianchin², Debora de Oliveira¹, J. Vladimir de Oliveira¹, Sandra R. S. Ferreira¹, ¹Federal University of Santa Catarina, Florianópolis, BRAZIL; ²URI, Erechim, BRAZIL

High-Pressure Microfluidics to Explore Multi-Phase Systems: A Study Towards the Supercritical Fluid Extraction of Emulsions (SFEE). Sebastian Luther, Andreas Braeuer, Universitaet Erlangen-Nuernberg, Erlangen, GERMANY

Tuesday Afternoon Oral Session on Biomedical Applications-I

New Insights in Drug Processing using Supercritical Fluids. Elisabeth Badens, Christelle Crampon, Laurene Lesoin, Yasmine Masmoudi, Aix Marseille University, Aix-en-Provence, FRANCE [KEYNOTE LECTURE]

Supercritical CO₂ Assisted Fabrication and Impregnation of PCL-Gel Based Scaffolds for Advanced Biomedical Applications. Hrishikesh Munj, Tyler Nelson, John Lannutti, David Tomasko, Ohio State University, Columbus, OH, USA

Compressed Carbon Dioxide - A Green Washing Fluid for Medical Parts. Dennis Rebien¹, Johannes Mankiewicz², Martin Bilz², Sabine Kareth¹, Marcus Petermann¹, ¹Ruhr-University, Bochum, GERMANY; ²Fraunhofer IPK, Berlin, GERMANY

Development of a Supercritical Precipitation Process of Calcium Carbonate for Biomedical Applications. Brice Calvignac¹, Thomas Beuvier¹, Leila N. Hassani¹, François Hindre¹, Alain Gibaud², Frank Boury¹, ¹Universite d'Angers, Angers, FRANCE; ²Universite du Maine, Le Mans, FRANCE

Tuesday Afternoon Oral Session on Biomedical Applications-II

Fabrication of Porous Chitosan/Bioactive Glass Hydrogels in an Aqueous Media using CO₂ as a Gas Foaming Agent. Ali Fathi, Michael Bernard, Roya Ravarian, Fariba Dehghani, University of Sydney, Sydney, AUSTRALIA

Supercritical Development of Sustained Drug Delivery Intraocular Lenses. Yasmine Masmoudi¹, Elisabeth Badens¹, Abir Bouledjoudja¹, Olivier Forzano², Jean Marie Andre², ¹Aix Marseille University, Aix en Provence, FRANCE; ²Service d'Ophtalmologie - La Timone Hospital, Marseille, FRANCE

Engineering Supercritical Carbon Dioxide Assisted Lipid Nanocarriers: Statistical Optimization. Megha Swami, Vandana Patravale, Institute of Chemical Technology, Mumbai, INDIA

Tuesday Afternoon Oral Session on Green Chemistry, Engineering and Supercritical Fluids-I

Carbon Dioxide as Tuneable Solvent for Catalysis - From Molecular Understanding to Reaction Engineering Concepts. Walter Leitner, RWTH Aachen University, Aachen, GERMANY [KEYNOTE LECTURE]

Environmental Impact Assessment of Conventional and Supercritical Biodiesel Production Processes using the Waste Reduction (WAR) Algorithm. Victor F. Marulanda, Universidad de La Salle, Bogota, COLUMBIA

Supercritical Fluids for Sustainable Energy Applications. David Dixon¹, Alevtina Smirnova¹, Rajesh Shende¹, Jan Puszynski¹, Anja Fath², Praveen Kolla¹, Srihari Maganti¹, ¹South Dakota School of Mines and Technology, Rapid City, SD, USA; ²Technische Universitat Darmstadt, Darmstadt, GERMANY

Water and Benzyl Alcohol in Subcritical and Supercritical Conditions as Means for Carbon Fiber Recovery from Thermoset Composite Materials. Rodolfo Morales Ibarra^{1,2}, Motonobu Goto², Antonio Francisco Garcia Loera¹, Armando T. Quitain², Mitsuru Sasaki², ¹Universidad Autonoma de Nuevo Leon, San Nicolas de los Garza, Nuevo Leon, MEXICO; ²Kumamoto University, Kumamoto, JAPAN

Tuesday Afternoon Oral Session on Green Chemistry, Engineering and Supercritical Fluids-II

The Applicability of Subcritical Fluids to the Conservation of Actively Corroding Metallic Cultural Heritage. Liisa Nasanen¹, Nestor Gonzalez-Pereyra¹, Stephanie Crette¹, Philippe DeVivies², ¹Clemson University, North Charleston, SC, USA; ²A-CORROS Expertises, Arles, FRANCE

ScCO₂/Glycerol: A Biphasic Green System for Process Intensification. Yaocihuatl Medina-Gonzalez¹, Jean-Stephane Condoret¹, Thierry Tassaing², Severine Camy¹, ¹Universite de Toulouse, Toulouse, FRANCE; ²Institut de Sciences Moleculaires, Bordeaux, FRANCE

Lipids Recovery from Sunflower Wet Sludge for Biodiesel Production. Guillermo Soto, Pablo Hegel, Alexis Velez, Guillermo Mabe, Selva Pereda, PLAPIQUI-CONICET-UNS, Buenos Aires, ARGENTINA

Tuesday Afternoon Oral Session on Process Design and Economics-I

Cost of Manufacturing of Vegetable Extracts Obtained by Supercritical Fluid Extraction and Pressurized Liquid Extraction: Assisted or Not by Ultrasound. M. Angela Meireles, University of Campinas, Sao Paulo, BRAZIL [KEYNOTE LECTURE]

Free of Water Tanning – Intensified by CO₂ Parameter and Scale up Study. Manfred Renner¹, Eckhard Weidner¹, Helmut Geihlsler¹, Thomas Heinen², ¹Fraunhofer UMSICHT, Oberhausen, GERMANY; ²Josef Heinen GmbH & Co KG, Wegberg, GERMANY

Neuro Fuzzy and Gray Box Modeling of Supercritical Fluid Extraction of Pimpinella anisum L. Seed. Meysam Davoodya¹, Mazda Biglari², Gholamreza Zahedi¹, M. Angela A. Meireles³, ¹Universiti Teknologi Malaysia, Johor, MALAYSIA; ²University of Waterloo, Ontario, CANADA; ³State University of Campinas, Sao Paulo, BRAZIL

Economical Analysis of the Supercritical CO₂ Fractionation of Capsicum Liquid Oleoresin. Ignacio Gracia, Maria Teresa Garcia, Juan Francisco Rodriguez, Rosario Mazarro, Maria Pilar Fernandez, University of Castilla la Mancha, Ciudad Real, SPAIN

Tuesday Afternoon Oral Session on Process Design and Economics-II

De-Oiling of Raw Lecithin by High Pressure Extraction Processes. Volkmar Steinhagen¹, Christoph Lütge¹, Michael Bork¹, Masa Knez², Zeljko Knez², ¹Uhde High Pressure Technologies, Hagen, GERMANY; ²University of Maribor, Maribor, SLOVENIA

Costs Estimation for the Supercritical CO₂ Extraction of Prepressed Oilseeds. Jose M. del Valle, Gonzalo A. Nunez, Pontificia Universidad Catolica de Chile, Santiago, CHILE

Clean Diesel Combustion Technology using Supercritical Fluids. Ronghong Lin, George Anitescu, Lawrence Tavlarides, Syracuse University, Syracuse, NY, USA

Tuesday Afternoon Oral Session on Separation Processes-I

Oxide Nanomaterials in Supercritical CO₂ Phase: From Nano-Powders to Membrane Preparation using Original Supercritical Carbon Dioxide On-Stream Deposition Process. Audrey Hertz¹, Veronique Durand¹, Jean-Christophe Ruiz¹, Stephane Sarrade², Christian Guizard³, Anne Julbe⁴, ¹CEA, Gard, FRANCE; ²CEA, Essone, FRANCE; ³CNRS, Vaucluse, FRANCE; ⁴CNRS, Hérault, FRANCE [KEYNOTE LECTURE]

Sequential Fractionation of Milk and Whey Proteins with Supercritical Carbon Dioxide for New Health-Promoting Food Ingredients. Laetitia M. Bonnaille, Peggy M. Tomasula, U.S. Department of Agriculture, Wyndmoor, PA, USA

Study of Supercritical Fluid Extraction of Uranium from Various Matrices. Pradeep Kumar, Ankita Rao, K. L. Ramakumar, BARC, Mumbai, INDIA

Semi-Preparative Supercritical Chromatography Scale Plant for Polyunsaturated Fatty Acids Purification. Fernando Montanes, Owen Catchpole, Stephen Tallon, Kevin Mitchell, Kirill Lagutin, Industrial Research Limited, Lower Hutt, NEW ZEALAND

Tuesday Afternoon Oral Session on Separation Processes-II

Improved Method for Preparing and Packing Carbon Coated Silica Stationary Phases. Imad Haidar Ahmad, Peter Carr, University of Minnesota, Minneapolis, MN, USA

Adsorption of 2-Phenylethyl Alcohol from its Saturated Supercritical CO₂ on Silica Aerogel. Xiaohui Hu¹, Shengxuan Zheng¹, Wensheng Lv¹, Hongqiao Lan², Yanzhen Hong¹, Yuzhong Su¹, Hongtao Wang¹, Jun Li¹, ¹Xiamen University, Xiamen, CHINA; ²Technology Center of China Tobacco Fujian Industry Corporation, Xiamen, CHINA

Wednesday, May 16, 2012

Wednesday Morning Plenary Lecture III

Where Are We, May 2012? Val Krukonis, PhaseX Corporation, Lawrence, MA, USA

Wednesday Morning Oral Session on SCF Particle/Film Technology-I

Supercritical Route for Super Hybrid Materials. Tadafumi Adschiri, Tohoku University, Sendai, JAPAN
[KEYNOTE LECTURE]

Synthesis of Different Size Gold Nanoparticles via Gas Expanded Liquids. Christopher Kitchens, Ashley Hart, Clemson University, Clemson, SC, USA

Synthesis of Nanocomposites using Supercritical Fluids. Zhimin Liu, Institute of Chemistry Chinese Academy of Sciences, Beijing, CHINA

Supersaturation as Criterion for the Appearance of Amorphous Particle Precipitation or Crystallization in the Supercritical Antisolvent (SAS) Process. Matthias Rossmann¹, Andreas Braeuer², Alfred Leipertz², Eberhard Schluucker³, ¹Lehrstuhl für Prozessmaschinen und Anlagentechnik and Erlangen Graduate School in Advanced Optical Technologies (SAOT), Erlangen, GERMANY; ²Lehrstuhl für Technische Thermodynamik and Erlangen Graduate School in Advanced Optical Technologies (SAOT), Erlangen, GERMANY; ³Lehrstuhl für Prozessmaschinen und Anlagentechnik, Erlangen, GERMANY

Tunable Steric Stabilization Effects on Size-Selective Nanoparticle Dispersability in Gas Expanded Liquid Systems. Pranav S. Vengsarkar, Jennifer N. Boice, Christopher B. Roberts, Auburn University, Auburn, AL, USA

Preparation and Evaluation of MnOx-CeO₂ Nanospheres via a Supercritical Antisolvent Process. Haoxi Jiang, Dongyu Jiang, Xiuqin Dong, Minhua Zhang, Tianjin University, Tianjin, CHINA

Supercritical CO₂ as a Tool for Nanodevice Formation using Sol-Gel Chemistry. Paul Charpentier, Nasrin Farhangi, Qasem Alsharari, Serge Ayissi, Golam Moola, Adria Lotus, Rajib Chowdhury, University of Western Ontario, Ontario, CANADA

Wednesday Morning Oral Session on Pharmaceutical Applications-I

The Road to Commercialization of Dense Gas Technology in the Health Sciences Sector. Neil Foster, University of New South Wales, Sydney, AUSTRALIA [KEYNOTE LECTURE]

One-Step Methodology for Integration of Actives in Nanovesicles using Compressed Fluids. Ingrid Cabrera¹, Elisa Elizondo¹, Olga Esteban², Jose Luis Corchero³, Marta Melgarejo⁴, Daniel Pulido⁴, Alba Cordoba¹, Evelyn Moreno¹, Esther Vazquez³, Fernando Albericio⁵, Miriam Royo⁴, Antonio Villaverde³, Maria Parajo², Nora Ventosa¹, Jaume Veciana¹, ¹Institute of Materials Science (ICMAB-CSIC), Barcelona, SPAIN; ²Institut de Bioenginyeria de Catalunya (IBEC), Barcelona, SPAIN; ³Institute for Biotechnology and Biomedicine (IBB), Barcelona, SPAIN; ⁴Combinatorial Chemistry Unit, Barcelona, SPAIN; ⁵Institute for Research in Biomedicine, Barcelona, SPAIN

SCF Particle Design for Novel DDS Preparations. Yongda Sun, Haoxi Jiang, Xiuqin Dong, Minhua Zhang, Tianjin University, Tianjin, CHINA

CO₂-Assisted High-Pressure Homogenization: A Solvent-Free Process for Polymeric Microspheres. Johannes Kluge, Marco Mazzotti, ETH Zurich, Zurich, SWITZERLAND

Encapsulation of Nanoparticles by Pressure Reduction Over CO₂-Expanded Liquids. Madhu Vinjamur, Mohd Javed, Mamata Mukhopadhyay, IIT Bombay, Mumbai, INDIA

Interpenetrating Polymer Networks for Drug Delivery Devices. Martin Alm, BioModics, Taastrup, Sjaelland, DENMARK

Potential Technique for the Production of Micronized Lactose Crystals by Supercritical Fluid Conditioning. Syed Anuar Faua'ad Syed Muhammad¹, Patricia Tang², Hak-Kim Chan², Fariba Dehghani², ¹Universiti Teknologi Malaysia, Johor, MALAYSIA; ²University of Sydney, Sydney, AUSTRALIA

Wednesday Morning Oral Session on Supercritical Fluids-Ionic Liquids/Coupled Media

Engineering Reactions in Biphasic Ionic Liquid/CO₂ Systems. Aaron Scurto, University of Kansas, Lawrence, KS, USA [KEYNOTE LECTURE]

Limiting Partition Coefficients of Organic Solutes in Ionic Liquid–supercritical Carbon Dioxide Systems from Generalized Linear Solvation Energy Model. Josef Planeta, Pavel Karasek, Barbora Hohnova, Lenka Stavikova, Michal Roth, Institute of Analytical Chemistry of the ASCR, Brno, CZECH REPUBLIC

Development of Supported Ionic Liquid Membranes for High Pressure Separations. Ricardo Tomas do Couto, Rui Ruivo, Pedro Calado Simoes, Universidade Nova de Lisboa, Caparica, PORTUGAL

Ion Aggregation during Ionic Liquid Co-Solvent Based Lipid Extraction. Santosh Bandlamudi¹, Kenneth M. Benjamin¹, Michael Cooney², Georgianna Martin³, ¹South Dakota School of Mines and Technology, Rapid City, SD, USA; ²Hawaii Natural Energy Institute, Honolulu, HI, USA; ³Hawaii Pacific University, Honolulu, HI, USA

High-Pressure Gas Solubility Phenomena: Salting-Out of Solvents by "Nearcritical Gases". Gerd Maurer, University of Kaiserslautern, Kaiserslautern, GERMANY

Development of a Supercritical Assisted Particle-Agglomeration Method for the Preparation of Bioactive Chitin-Based Matrices. Simone S. Silva, Ana Rita C. Duarte, Joao F. Mano, Rui L. Reis, 3B's Research Group, University of Minho, Caldas das Taipas, PORTUGAL

Thermodynamic Prediction of Vapor-Liquid Equilibrium of Binary Systems of Ionic Liquids + Hydrocarbons using Peng–Robinson Equation of State. Victor H. Alvarez, Marleny D. A. Saldana, University of Alberta, Alberta, CANADA

Wednesday Morning Oral Session on Hydrothermal Processing and Inorganic Materials-I

Hydrothermal Processing and In situ Surface Modification of Metal Oxide Nanomaterials. K. Byrappa, University of Mysore, Mysore, INDIA [KEYNOTE LECTURE]

Synthesis of Cathode/Anode Active Materials for Large-Scale Li 2nd Battery in Supercritical Fluids. Jaehoon Kim, Korea Institute of Science and Technology, Seoul, SOUTH KOREA

Supercritical Production of Cubic Gadolinium Oxides for Real-Time Neutron Detection. Peter Molnar¹, Jennifer I. Brand², ¹Gedeon Richter, Budapest, HUNGARY; ²University of Nebraska, Lincoln, NE, USA

A Theoretical Study of Factors Affecting Corrosion in Supercritical Water Reaction Vessels. Simon Halstead, Harbin Institute of Technology, Harbin, CHINA

SCWO of Hydrocarbon-Contaminated Waters: Continuous Systems with Split-Entry Oxidant. Bushra Al-Duri, Iain Kings¹, Ponmile Osibo¹, Yoshito Oshima², ¹University of Birmingham, Birmingham, UK; ²University of Tokyo, Tokyo, JAPAN

Destruction of Organic Liquid Nuclear Wastes by a Supercritical Water Oxidation Process: Optimization of Operating Parameters, Study of the Reaction Stability and of the Process Robustness. Jean-Christophe Ruiz, Hubert-Alexandre Turc, Christophe Jousset-Dubien, Olivier Boutin, Frederic Charton, CEA Marcoule, Bagnols-sur-Ceze, FRANCE

Large-Scale Synthesis of ZnO Nanocrystals with Size-Controlled in Continuous Hot Compressed Water. Zhiqiang Mao, Shining Li, Yaping Zhao, Shanghai Jiaotong University, Shanghai, CHINA

Wednesday Afternoon Oral Session on SCF Particle/Film Technology-II

Metal Deposition on Porous Supports from Supercritical Solutions. Albertina Cabanas¹, Jacobo Morere¹, Maria Jose Tenorio¹, Maria Jose Torralvo¹, Concepcion Pando¹, Juan Antonio R. Renuncio², ¹Universidad Complutense de Madrid, Madrid, SPAIN; ²Universidad Complu, Madrid, SPAIN

Binary Adsorption of Platinum and Copper Complexes from Supercritical Carbon Dioxide on Carbon Aerogels for the Synthesis of Supported Bimetallic Nanoparticles. Selmi Erim Bozbag¹, Svetlana O. Kostenko², Michael A. Kurykin², Lichun Zhang³, Mark Aindow³, Can Erkey¹, ¹Koc University, Istanbul, TURKEY; ²Russian Academy of Sciences, Moscow, RUSSIA; ³University of Connecticut, Storrs, CT, USA

Development of Aerogel Catalyst with Tunable Nanoporosity and Photocatalytic Activity through Supercritical Drying and Impregnation. Haitao Li, Sermin Sunol, Aydin K. Sunol, University of South Florida, Tampa, FL, USA

Strategies for Nanoparticle Design of Racemic Ibuprofen by Rapid Expansion of Supercritical Solutions (RESS) Technique Using Supercritical Carbon Dioxide. Hirohisa Uchida¹, Junichi Sakabe¹, Tetsuro Kobayashi¹, Naohiro Nebashi¹, Kohei Demoto¹, Ryota Nakazawa¹, Daisuke Kondo¹, Ayumu Kataoka², Takashi Kokubun², Masayoshi Ito², Nobuhiro Sugimoto², ¹Shinshu University, Nagano, JAPAN; ²Taiatsu Techno Corporation, Saitama-city, JAPAN

Wednesday Afternoon Oral Session on SCF Particle/Film Technology-III

Hollow Fibers by Electrospinning in Supercritical Carbon Dioxide. Detlef Freitag¹, Alexander Guenther¹, Wolfgang Arlt¹, Mark Mc Hugh², ¹University of Erlangen, Erlangen, GERMANY; ²Virginia Commonwealth University, Richmond, VA, USA

Dielectric Property of Titanium Dioxide Thin Films Fabricated by Supercritical Fluid Deposition. Hiroshi Uchida, Yuuki Nakagawa, Yuma Hayakawa, Kazuyuki Sekino, Seiichiro Koda, Sophia University, Tokyo, JAPAN

A New Supercritical Assisted Atomization Layout for the Micronization of Thermolabile Compounds. Renata Adami, Sara Liparoti, Ernesto Reverchon, University of Salerno, Fisciano, ITALY

Effect of Solvent Condensation during Rapid Expansion of Supercritical Solutions. Victor Stepanov¹, Lev Krasnoperov², ¹U.S. Army, Picatinny Arsenal, NJ, USA; ²New Jersey Institute of Technology, Newark, NJ, USA

Wednesday Afternoon Oral Session on Pharmaceutical Applications-II

Utilization of SC-CO₂ in the Preparation of Hemocompatible, Cell Scaffolding Cellulose Phosphate Aerogels for In vivo Preparation of Bone Tissue. Falk Liebner¹, Christian Schimper¹, Ramona Dunareanu¹, Emmerich Haimer¹, Martin Wendland¹, Dieter Loidl¹, Manfred Maitz², Philipp Seib², Carsten Werner², Maia-Alexandra Neouze³, Jean-Marie Nedelec⁴, Antje Potthast¹, Thomas Rosenau¹, ¹BOKU University, Vienna, AUSTRIA; ²Leibniz Institute of Polymer Research, Dresden, GERMANY; ³TU Wien Institute of Material Chemistry, Vienna, AUSTRIA; ⁴Ecole Nationale Supérieur de Chimie de Clermont-Ferrand, Clermont-Ferrand, FRANCE

Fabrication of Lipid Nanocarriers of Levodopa using Supercritical Fluid Technology. Clara Fernandes, Vandana Patravale, Institute of Chemical Technology, Mumbai, INDIA

SC-CO₂ Processing of Biodegradable Nanoparticles with Sustained Release of Functional siRNA. Gunilla B. Jacobson, Emilio Gonzalez-Gonzalez¹, Roger L. Kaspar², Christopher H. Contag¹, Richard N. Zare¹, ¹Stanford University, Stanford, CA, USA; ²TransDerm, Santa Cruz, CA, USA

Development of Supercritical Fluid Extraction and Supercritical Fluid Chromatography Purification Methods using Rapid Solubility Screening to Support Drug Discovery. Kyung Gahm, Amgen, Thousand Oaks, CA, USA

Wednesday Afternoon Oral Session on Pharmaceutical Applications-III

Preparation of Biodegradable Alginate Aerogels Used as Carriers for Drug Delivery. Zoran Novak, Anja Veronovski, Zeljko Knez, University of Maribor, Maribor, SLOVENIA

The Microcapsules Production by Supercritical Fluid Impinging Technology Combines with Fluidized Bed. Wei Wei, Zhiyi Li, Fengxia Liu, Zhaohong Ding, Zhijun Liu, Dalian University of Technology, Dalian, CHINA

Precipitation of Ultra-Fine Particles by Pressure Reduction of Gas Expanded Liquids: Experiments and Mathematical Modeling. Arjun Kumar¹, Madhu Vinjamur¹, Mamata Mukhopadhyay¹, Sameer Dalvi², ¹IIT Bombay, Mumbai, INDIA; ²IIT Gandhinagar, Gujarat, INDIA

Use of Supercritical Fluid Chromatography to Support in Rapid Development of Pharmaceutical Candidates. Jimmy DaSilva, Derek Henderson, Amanda Makarewicz, Lisa Frey, Merck & Co. Inc., Rahway, NJ, USA

Wednesday Afternoon Oral Session on Reactions in Critical Fluids-II

Kinetic Resolution in SC-CO₂ - Design of Continuous Reactor Based on Results of Batch Experiments. Edit Szekeley, Margita Utczas, Bela Simandi, BME, Budapest, HUNGARY

Advancement of Fischer-Tropsch Synthesis with Integrated Product Upgrading via Utilization of Supercritical Fluid Reaction Media. Sihe Zhang, Rui Xu, Ed Durham, Christopher B. Roberts, Auburn University, Auburn, AL, USA

Simultaneous Assessment of Intrapellet Heat and Mass Transfer Limitations for Supercritical Phase Fischer-Tropsch Synthesis. Aswani Mogalicherla, Elfatih Elmalik, Nimir Elbashir, Texas A&M University, Doha, QATAR

Reversible Reactions of CO₂ with Amines Employing a Protection/Deprotection Mechanism. Fiaz Mohammed, Christopher Kitchens, Clemson University, Clemson, SC, USA

Wednesday Afternoon Oral Session on Material Applications-II

Bioactive Glasses Loaded with Dexamethasone by a Supercritical Carbon Dioxide Deposition Process. Luisa Filipe¹, Ana Paula Piedade¹, James J. Watkins², Mara E. Braga¹, Herminio C. de Sousa¹, ¹University of Coimbra, Coimbra, PORTUGAL; ²University of Massachusetts, Amherst, MA, USA

Stable Emulsions in Biphasic Whole-Cell Biocatalysis: The Potential of SC-CO₂ for an Industrial Scale DSP. Christoph Brandenbusch, Jonathan Collins, Bruno Bühler, Andreas Schmid, Gabriele Sadowski, TU Dortmund, Dortmund, GERMANY

Chiral Resolution of Ibuprofen via Diastereomeric Salt Formation in Supercritical Carbon Dioxide. Gyorgy Bansaghi¹, David Mendez Sevillano², Bela Simandi¹, Zoltan Juvancz³, Edit Szekeley¹, ¹Budapest University of Technology and Economics, Budapest, HUNGARY; ²Delft University of Technology, Delft, NETHERLANDS; ³Obuda University, Budapest, HUNGARY

Formation of Drug-Cyclodextrin Inclusion Compounds via Melting in Carbon Dioxide + Co-Solvent Mixtures. Heather Grandelli, Erdogan Kiran, Virginia Tech, Blacksburg, VA, USA

Wednesday Afternoon Oral Session on Hydrothermal Processing and Inorganic Materials-II

Spherical Carbon Synthesis from Biomass-Based Resources in Subcritical and Supercritical Water. Masaru Watanabe, Tatsuya Sagara, Aya Kato, Haruyuki Kitajima, Taku M. Aida, Richard L. Smith, Tohoku University, Sendai, JAPAN

Production of Nano Oxides with a Continuous Supercritical Water Device. Frederic Demoisson¹, Moustapha Ariane¹, Romain Piolet¹, Antoine Leybros¹, Coralie Quadri², Frederic Bernard¹, ¹ICB-MaNaPI, Dijon, FRANCE; ²FRANCE

Hydrothermal and Solvothermal Syntheses, In situ Surface Modification and Antioxidant Activity of Co-Doped Advanced ZnO Nanoparticles. Namratha Keerthiraj, K. Byrappa, S. Rajesh, V. Ravishankar Rai, University of Mysore, Mysore, INDIA

Determination of the Equilibrium Constant for the Decomposition of Potassium Bicarbonate in Water at Near-Critical Conditions. Maidar Legarra Arizaleta, Ashley Blitz¹, Daniel Kahoonei¹, Zsuzsanna Czegeny², Michael Antal¹, ¹University of Hawaii, Honolulu, HI, USA; ²Hungarian Academy of Sciences, HUNGARY

Wednesday Afternoon Oral Session on Hydrothermal Processing and Inorganic Materials-III

The Synthesis of Novel BaTeM₂O₉ (M= Mo or W) Ultrafine Particles in Supercritical Water System. Bo Li, Rong Zhang, Xutang Tao, Shandong University, Jinan, CHINA

Silicon Etching under Subcritical Conditions: A Greener Approach. Nestor G. Gonzalez-Pereyra¹, Stephanie A. Crette¹, Olin Thompson Mefford², ¹Clemson University, North Charleston, SC, USA; ²Clemson University, Clemson, SC, USA

Hydrothermal Processing of Oxide Materials for Functionalities. Guangshe Li, Liping Li, Fujian Institute of Research on the Structure of Matter, Fujian, CHINA

Applications of Supercritical Water Technologies in Advanced Energy Systems. Morgan L. Thomas¹, Gaelle Dupouy¹, Ian S. Butler², Ajay K. Dalai³, Janusz A. Kozinski¹, ¹York University, Toronto, CANADA; ²McGill University, Montreal, CANADA; ³University of Saskatchewan, Saskatoon, CANADA

Program Adjourns at 5:00 p.m.

Preliminary List of Poster Presentations

Abstracts for poster presentation will be accepted up to March 1, 2012

See Author Instructions at <http://issf2012.com/author-poster.shtml>

Thermodynamics of Biodiesel Fuel Synthesis in Sub- and Supercritical Low Alcohols. Vladimir Anikeev, Borekov Institute of Catalysis, Novosibirsk, RUSSIA

Modeling of Nanoparticles Formation During the Rapid Expansion of Supercritical Fluid. Denis Stepanov, Borekov Institute of Catalysis, Novosibirsk, RUSSIA

Prediction of the Solid Solubility in Carbon Dioxide Expanded Organic Solvent using the Predictive Soave-Redlich-Kwong (PSRK) Equation of State. Chie-Shaan Su, National Taipei University of Technology, Taipei, TAIWAN

Electroless Nickel Plating on Polypropylene via Hydrophilicity Modification and Supercritical Carbon Dioxide Pd-Complex Infusion. Siwach Tengsuwan, Masahiro Ohshima, Kyoto University, Kyoto, JAPAN

High Pressure Phase Equilibria Predictions for Supercritical Extraction and Dehydration of Alcohols with Upgraded Group Contribution with Association Equation of State. Ticiana Soria, Planta Piloto de Ingenieria Quimica, Buenos Aires, ARGENTINA

Nonconventional Way Improving Performance of Preparative Supercritical Fluid Chromatography. Chuping Luo¹, Ziqiang Wang¹, Harbaksh Sidhu², ¹Waters, New Castle, DE, USA; ²Waters, Pittsburgh, PA, USA

Optimization of Isolation of Amaranth Lipophilic Constituents by Pressurized Solvent and Supercritical Carbon Dioxide Extraction. Paulius Kraujalis, Petras Rimantas Venskutonis, Jonas Damasius, Dainora Gruzdiene, Kaunas University of Technology, Kaunas, LITHUANIA

Characterization of Gold Nanoparticle Films Deposited onto Substrates of Varying Surface Energy by Gas-Expanded Liquid Process. Jie Zhong, Kendall M. Hurst, W. Robert Ashurst, Christopher B. Roberts, Auburn University, Auburn, AL, USA

Micronization and Encapsulation of 5-Fluorouracil using Dense Gas Technology. Wen Hui Teoh¹, Luu Thai Danh², Peta Nelson³, Un Teng Lam³, Raffaella Mammucari³, Neil Russell Foster³, ¹University of Malaya, Kuala Lumpur, MALAYSIA; ²Can Tho University, Can Tho, VIETNAM; ³University of New South Wales, Sydney, AUSTRALIA

Sol_Gel Dip Coating Process in Photovoltaic Application. Nouria Agoudjil, University USTHB, Alger, ALGERIA

High-Pressure, High-Temperature, Thermodynamics of Simulated Reservoir Mixtures: Phase Behavior, Density, and Modeling with PC-SAFT and a Volume-Translated, Cubic Equation of State. Babatunde Bamgbade¹, Yue Wu¹, Mark McHugh¹, Hseen Baled², Robert Enick², Ward Burgess³, Deepak Tapriyal⁴, Bryan Morreale³, ¹Virginia Commonwealth University, Richmond, VA, USA; ²University of Pittsburgh, Pittsburgh, PA, USA; ³National Energy Technical Laboratory, Pittsburgh, PA, USA; ⁴URS, Pittsburgh, PA, USA

Synergistic Effects of Supercritical Carbon Dioxide and Nitrogen Blends on Polymer Foaming. Anson Wong, Lun Howe Mark, Mohammad M. Hasan, Chul B. Park, University of Toronto, Toronto, CANADA

Synthesis of Poly(Lactide-Ethylene Oxide-Fumarate) using Dense Gas Carbon Dioxide. Sherry Lee, Fariba Dehghani, University of Sydney, Sydney, AUSTRALIA

High-Pressure Separation of CO₂ from Supercritical Fluids via Density-Driven Concentration Gradients. Doug Hendry, Andy Miller, Nikolas Wilkinson, William Jacoby, University of Missouri, Columbia, MO, USA

Effect of Compressed Gas Addition on H₂/CO Tunability and Hydroformylation Catalysis in Gas-Expanded Liquids (GXLs). Zhuanzhuan Xie, William Snavely, Swarup Maiti, Jon Tunge, Bala Subramaniam, University of Kansas, Lawrence, KS, USA

Hydrolysis Behaviors of Lignocellulosics as Treated by Two-Step Semi-Flow Hot-Compressed Water. Natthanon Phaiboonsilpa, Shiro Saka, Kyoto University, Kyoto, JAPAN

The Application of Supercritical Anti-Solvent Precipitation: The Doping of Al₂O₃ into CeO₂-ZrO₂ Composite Catalyst. Haoxi Jiang, Pan Huang, Jiyan Zhang, Guiming Li, Tianjin University, Tianjin, CHINA

Extraction of Oleoresin from Jalapeno Peppers (Capsicum annum) using Supercritical CO₂: Determination of Global Yield Isotherms. Pedro Grande-Villanueva¹, Ana Carolina Aguiar², Janclei Pereira Coutinho², Eleazar Escamilla-Silva³, Helena Teixeira Godoy², Julian Martínez², ¹Universidad Autonoma de Queretaro, Queretaro, MEXICO; ²University of Campinas, Sao Paulo, BRAZIL; ³Instituto Tecnológico de Celaya, Celaya, MEXICO

Production of Biodiesel with Glycerol Carbonate by Non-Catalytic Supercritical Dimethyl Carbonate. Zul Ilham, Shiro Saka, Kyoto University, Kyoto, JAPAN

Silica Purification by Subcritical Water Leaching. Ming-Tsai Liang¹, Yi-Chin Yang¹, Ru-Chien Liang¹, Bo-Han Chen¹, Jen-Chieh Chung², Yung-Fang Lu², Yu-Chang Liu², ¹I Shou University, Kaohsiung City, TAIWAN; ²Institute of Nuclear Energy Research, TAIWAN

Supercritical Fluid Extraction of Dioxins and Metals from Fly Ash. Ming-Tsai Liang¹, Ping-Jui Hus¹, Ku-Yuan Liang¹, Ru-Chien Liang¹, Yan-Min Chen², Tzu-Chen Kuo³, ¹I Shou University, Kaohsiung City, TAIWAN; ²Cheng-Kung University, Tainan City, TAIWAN; ³Metal Industries Research and Development Center, Kaohsiung City, TAIWAN

Utilizing Gas-Expanded Liquids for Efficient Reactions and Separations. Pamela Pollet, Charles Liotta, Charles Eckert, Elizabeth Biddinger, Georgia Institute of Technology, Atlanta, GA, USA

Exploration of the Gasification of Spirulina algae in Supercritical Water. Andrew Miller, Doug Hendry, William Jacoby, University of Missouri, Columbia, MO, USA

Coupling of CO₂ Diffusion and Induced Crystal Phase Transition from Form II to I in Isotactic Poly-1-butene. Yang Xu, Lei Li, Tao Liu, Ling Zhao, Weikang Yuan, East China University of Science and Technology, Shanghai, CHINA

Effect of Purification of Waste Cooking Oil using Supercritical CO₂ Extraction on the Production of Hydrotreated Biodiesel (HBD). Seok Ki Kim, Jae Young Han, Seung-Ah Hong, Jaehoon Kim, Korea Institute of Science and Technology, Seoul, SOUTH KOREA

Wood Liquefaction in Supercritical Alcohol. Steffen Brand, Jaehoon Kim, Korean Institute of Science and Technology, Seoul, SOUTH KOREA

Visualization Experiments of Supercritical CO₂ Flows in Microchannels. Nassim Ait-Mouheb, Joelle Aubin, Severine Camy, Jean-Stephane Condoret, Martine Poux, Universite de Toulouse, Toulouse, FRANCE

On the Chemical Fixation of Supercritical Carbon Dioxide with Epoxides Catalyzed by Ionic Liquids: A Combined Spectroscopic and Computational Study. Stephanie Foltran¹, Jerome Alsarraf¹, Frederic Robert¹, Yannick Landais¹, Eric Cloutet², Henri Cramail², Raphael Mereau¹, Thierry Tassaing¹, ¹Institute of Molecular Sciences, Talence, FRANCE; ²Organic Polymer Chemistry Laboratory, Pessac, FRANCE

Maximizing Hop Flavor Profiles through Supercritical Fluid Extraction. Rudy Baskette, Ken James, Supercritical Fluid Technologies, Newark, DE, USA

An Efficient In-situ FTIR Method for the Determination of the Thermodynamic Properties of Carbon Dioxide/Liquid Binary Mixtures. Stephanie Foltran¹, Lise Maisonneuve², Eric Cloutet², Benoit Gadenne³, Carine Alfos³, Henri Cramail¹, Thierry Tassaing¹, ²Laboratoire de Chimie des Polymères Organiques, Pessac, FRANCE; ³Institut de Corps Gras, Pessac, FRANCE; ¹Institut des Sciences Moleculaires, Talence, FRANCE

Component Analysis of Supercritical CO₂ Extract of Juniperus oblonga M.-Bieb Fruits. Aslan Aliev, Gadjji Radjabov, Mountain Botanical Garden, Makhachkala, RUSSIA

Modeling Physical Properties of Canola Oil and Its Blend with Fully-Hydrogenated Canola Oil in Equilibrium with High Pressure Carbon Dioxide. Ehsan Jenab, Feral Temelli, University of Alberta, Alberta, CANADA

Green Application of Flame Retardant Cotton Fabric using Supercritical Carbon Dioxide. SeChin Chang, Brian Condon, Jade Smith, U.S. Department of Agriculture, New Orleans, LA, USA

Continuous Biosynthesis of Biodiesel from Lipids of Corn Distillers' Dried Grains in Supercritical Carbon Dioxide. Ozan Nazim Ciftci, Feral Temelli, University of Alberta, Alberta, CANADA

Study on Mass Transfer during the Formation of Porous Poly-caprolactone 3-D Scaffolds by ScCO₂ Induced Phase Separation. Zhaohong Ding, Zhijun Liu, Wei Wei, Zhiyi Li, Dalian University of Technology, Dalian, CHINA

Investigating the Extraction of Triglycerides from Soybeans via Supercritical Carbon Dioxide. Nikolas Wilkinson, Rasmey Hilton, Doug Hendry, Chandrasekar Venkitasamy, William Jacoby, University of Missouri, Columbia, MO, USA

Inorganic Salt Removal Process using Titanium as a Pretreatment in Supercritical Water Gasification of Sewage Sludge. Yasunobu Tanaka¹, Teppei Nunoura², Fumiyouki Nakajima¹, Osamu Sawai², Kazuo Yamamoto¹,
²University of Tokyo, Kashiwa, JAPAN; ¹University of Tokyo, Bunkyo-ku, JAPAN

Solid Acid Catalyzed Reactions of Glycerol in Supercritical Water. Makoto Akizuki, Yoshito Oshima, University of Tokyo, Kashiwa, JAPAN

Effect of High Pressure Water on Reaction Kinetics in Supercritical Water. Tatsuya Fujii¹, Rumiko Hayashi², Shin-ichiro Kawasaki³, Akira Suzuki³, Yoshito Oshima¹, ¹University of Tokyo, Chiba, JAPAN; ²University of Tokyo, Tokyo, JAPAN; ³National Institute of Advanced Industrial Science and Technology, Miyagi, JAPAN

Microwave-Solvothermal Method for Rapid Facile Solid-Catalyzed Conversion of Bioalcohols to Ethyl tert-Butyl Ether. Armando Quitain, Kouhei Fuchigami, Mitsuru Sasaki, Motonobu Goto, Kumamoto University, Kumamoto, JAPAN

Direct Synthesis of DMC from scCO₂ – Assistance of Nano-Oxides Produced by an scH₂O Device. Frederic Demoisson¹, Sreevardhan Reddy Sanapureddy², Moustapha Ariane¹, Laurent Plasseraud², Frederic Bernard¹,
¹ICB-MaNaPI, Dijon, FRANCE; ²ICMUB-ICM, Dijon, FRANCE

Supercritical Carbon Dioxide-Induced Hydrolysis of Hesperidin in Subcritical Water. Armando Quitain¹, Duangkamol Ruen-ngam¹, Masahiro Tanaka², Mitsuru Sasaki¹, Motonobu Goto¹,
¹Kumamoto University, Kumamoto, JAPAN; ²ASCII Corporation, Kawasaki, JAPAN

Synthesis of Highly Active TiO₂ Nanopowders and Thin Layers from Supercritical Carbon Dioxide Process. Audrey Hertz, Jean-Christophe Ruiz, Frederic Charton, CEA Marcoule, Bagnols-sur-Ceze, FRANCE

Biodiesel Production from Vegetable Oil using Sulfated Zirconia via Supercritical Transesterification: Optimization Study. Sheila Adell, Aline Santana, Cristian Ledesma, Eliana Ramirez, Jordi Llorca, Maria Angeles Larrayoz, Universitat Politècnica de Catalunya, Barcelona, SPAIN

Optimization of Biodiesel Production by Supercritical Transesterification of Algae Oil
Aline Santana¹, Sergio Santos², Maria Angeles Larrayoz¹, Rubens Maciel², ¹Universitat Politècnica de Catalunya, Barcelona, SPAIN; ²University of Campinas, Sao Paulo, BRAZIL

Greener Solvents for Old Challenges. Mohammad-Taghi Golmakani¹, Jose A. Mendiola², Karamatollah Rezaei³, Elena Ibanez²,
¹Shiraz University, Shiraz, IRAN; ²Institute of Food Science Research CIAL (CSIC-UAM), Madrid, SPAIN; ³University of Tehran, Karaj, IRAN

Effect of Supercritical Fluid Treatment on Cell Availability of Aspergillus niger Inoculated on Biomedical Metal Implants. Mariana Altenhofen da Silva¹, Juliana de Souza Ferreira², Beatriz Thie Iamanaka³, Theo Guenter Kieckbusch¹,
²DEQ/UFU, Uberlandia, BRAZIL; ³ITAL, Sao Paulo, BRAZIL; ¹University of Campinas, Sao Paulo, BRAZIL

Elevated Pressure Supercritical Fischer-Tropsch Synthesis: Product Separation and Energy Integration. Buping Bao¹, Elfatih Elmalik², Nimir Elbashir², Mahmoud El-Halwagi¹, Fadwa Eljack²,
¹Texas A&M University, College Station, TX, USA; ²Texas A&M University, Doha, QATAR

Novel NMR-Technology to Assess Food Quality and Safety. Markus Link, Manfred Spraul, Hartmut Schaefer, Fang Fang, Birk Schutz, Bruker BioSpin, Rheinstetten, GERMANY

Amber Filling, A New Cosmetic Active Ingredient Obtained with SCF-CO₂ Extraction of Daniellia oliveri Resin. Virginie Pecher, Isabelle Renimel, Sylvie Darnault, Patrice Andre, LVMH Recherche, Saint Jean de Braye, FRANCE

Reasons of Unique Properties of Supercritical Fluid. Oleksander Alekhin¹, Oksana Bilous², Yuriy Ostapchuk¹, Evgene Rudnikov¹,
¹Taras Shevchenko National University of Kyiv, Kyiv, UKRAINE; ²National Aviation University, Kyiv, UKRAINE

Measurement and Modeling of Phase Equilibria of Hydrocarbon, Water and Supercritical Carbon Dioxide Mixtures. Inaura Rocha¹, Rosana Fialho¹, Fernando Pessoa², Jose Santos³, ¹Federal University of Bahia, Bahia, BRAZIL; ²Federal University of Rio de Janeiro, Rio de Janeiro, BRAZIL; ³Federal University of Sergipe, Sergipe, BRAZIL

A Greener Approach to Biodiesel Production. Pedro Lisboa, Jose Martin, Ana Rita Rodrigues, Pedro Simoes, Susana Barreiros, Alexandre Paiva, FCT-UNL, Lisbon, PORTUGAL

Rapid Expansion of Supercritical Solutions from Ternary Mixtures: Towards Green Production of Microcomposite Surfaces. Irene Rodriguez Meizoso¹, Pontus Olin², Lars Wagberg², Charlotta Turner¹, ¹Lund University, Lund, SWEDEN; ²Royal Institute of Technology, Stockholm, SWEDEN

Development of PURE-Type Dendrimer Copolymers for Drug Delivery. Rita B. Restani, Ana Aguiar-Ricardo, Vasco D. B. Bonifacio, FCT/UNL, Caparica, PORTUGAL

SFE from Pink Shrimp Residue: Validation of Modeled Mass Transfer Coefficient by Sherwood Correlations and Costs Estimation. Natalia Mezzomo¹, Julian Martinez², Marcelo Maraschin³, Sandra R. S. Ferreira¹, ¹EQA/UFSC, Florianopolis, BRAZIL; ²University of Campinas, Sao Paulo, BRAZIL; ³CCA/UFSC, Florianopolis, BRAZIL

Modeling of Zinc Oxide Nanoparticle Formation in a Continuous Supercritical Water Synthesis Process. Romain Piolet, Antoine Leybros, Moustapha Ariane, Frederic Demoisson, Frederic Bernard, Laboratoire Interdisciplinaire Carnot de Bourgogne, Dijon, FRANCE

Conservation and Treatment Monitoring of Waterlogged Archeological Corks using Supercritical CO₂. Stephanie A. Crette, Liisa Nasanen, Néstor G. Gonzalez-Pereyra, Benjamin Rennison, Clemson University, North Charleston, SC, USA

Supercritical Water and Ion Association in GEN IV Nuclear Power Cycle. Igor Svishchev, Trent University, Ontario, CANADA

Carotenoid Partition between Vegetable-oil-modified or Pure Supercritical Carbon Dioxide and Red Peppers. Freddy A. Urrego¹, Jose M. del Valle¹, Juan C. de la Fuente², ¹Pontificia Universidad Catolica de Chile, Santiago de Chile, CHILE; ²Universidad Tecnica Federico Santa Maria, Valparaíso, CHILE

Influence of Temperature and Pressure Conditions on the Supercritical CO₂ Extraction of Capsicum Pepper Oleoresin. Ana Carolina Aguiar, Luiz Paulo Sales Silva, Jancelei Pereira Coutinho, Helena Teixeira Godoy, Julian Martínez, State University of Campinas, Sao Paulo, BRAZIL

Reduction of CO₂ Mobility during Enhanced Oil Recovery using Dilute Concentrations of CO₂-Soluble Additives. William McLendon^{1,2}, Robert Enick^{1,2}, Peter Koronaios², Guy Biesmans³, Angie Miller⁴, Luis Salazar⁴, Yee Soong¹, Slava Romanov¹, Angela Goodman¹, Dustin McIntyre⁵, Dustin Crandall⁵, Bryan Tennant⁵, Sam McNulty², ¹National Energy Technology Laboratory, Pittsburgh, PA, USA; ²University of Pittsburgh, Pittsburgh, PA, USA; ³Huntsman, Everberg, BELGIUM; ⁴Huntsman, The Woodlands, TX, USA; ⁵National Energy Technology Laboratory, Morgantown, WV, USA

Analysis of Carotenoids in Various Matrices using Supercritical Fluid Extraction and Chromatography. Victor Abrahamsson, Irene Rodriguez-Meizoso, Charlotta Turner, Lund University, Lund, SWEDEN

Water at Elevated Temperatures: A Reactant, Catalyst, and Solvent in the Selective Catalyzed Hydrolysis of Protecting Groups. Wilmarie Medina-Ramos, Mike Mojica, Pamela Pollet, Rani Jha, Elizabeth D. Cope, Charles A. Eckert, Charles L. Liotta, Georgia Institute of Technology, Atlanta, GA, USA

Phase Behavior Measurement for Poly(isobornyl acrylate) + Cosolvent Systems in Supercritical Solvents at High Pressure. Hun-Soo Byun, Soon-Do Yoon, Hyeon-Ho Jeong, Dong-Sun Yang, Chonnam National University, Yeosu, SOUTH KOREA

High Pressure Phase Behavior of Binary Mixture for Diethylene Glycol Diacrylate and Diethylene Glycol Dimethacrylate in Supercritical Carbon Dioxide. Hun-Soo Byun, Dong-Sun Yang, Sang-Ha Cho, Chonnam National University, Yeosu, SOUTH KOREA

Preparation and Characterization of Bisphenol A Imprinted Polymers and 2,4-Dichloroacetic Acid Imprinted Polymers by using Supercritical Fluid Polymerization. Hun-Soo Byun, Sang-Ha Cho, Soon-Do Yoon, Chonnam National University, Yeosu, SOUTH KOREA

Subcritical Water Pretreatment of Lignocellulosic Biomass. Hun Wook Lee, Aye Aye Myint, Dae Sung Kim, Junho Yoon, Youn-Woo Lee, Seoul National University, Seoul, SOUTH KOREA

Recrystallization of Explosives using Supercritical Fluids. Bumjoon Seo¹, Hun Wook Lee¹, Byung-Chul Lee², Hyoun-Soo Kim³, Jong Min Lee¹, Youn-Woo Lee¹, ¹Seoul National University, Seoul, SOUTH KOREA; ²Hannam University, Daejeon, SOUTH KOREA; ³Agency for Defense Development, Daejeon, SOUTH KOREA

Measurement and Prediction of VOCs Adsorption Equilibria on Activated Carbon in Supercritical Carbon Dioxide. Ikuo Ushiki, Masaki Ota, Yoshiyuki Sato, Hiroshi Inomata, Tohoku University, Sendai, JAPAN

Chemical Study of Lavender Essential Oil Extracted by Supercritical CO₂. Luu Thai Danh¹, Ngo Duy Anh Triet², Le Thi Ngoc Han², Jian Zhao², Raffaella Mammucari², Neil Foster², ¹University of Can Tho, Can Tho, VIETNAM; ²University of New South Wales, Sydney, AUSTRALIA

Modeling High Pressure Phase Behavior of the Binary System Solvent/Antisolvent for SAS Processing of Pharmaceuticals using PR-LCVM Equation of State. Gloria Costa, Ravenna Matos, Silvio A.B. Vieira de Melo, Federal University of Bahia, Bahia, BRAZIL

Prediction of High-Pressure Solid-Liquid-Vapor Phase Behavior using Peng-Robinson Equation of State and Group Contribution Methods Applied to SAS Processing of Pharmaceuticals. Gloria Costa, Ravenna Matos, Veronica Pereira, Geilson Lima, Silvio Vieira de Melo, Federal University of Bahia, Bahia, BRAZIL

Flash Simulation of High Pressure Liquid-Liquid-Vapor for Solvent-Antisolvent-Pharmaceutical Systems. Gloria Costa, Ravenna Matos, Veronica Pereira, Geilson Lima, Silvio Vieira de Melo, Federal University of Bahia, Bahia, BRAZIL

Multi-Stage Oxidation of Ammonia/Methanol Mixture in Supercritical Water. Eriko Shimoda¹, Tatsuya Fujii¹, Rumiko Hayashi², Yoshito Oshima¹, ¹University of Tokyo, Kashiwa, JAPAN; ²University of Tokyo, Hongo, JAPAN

Synthesis of Metal/Metal Oxide Nanoparticles using Supercritical Fluids. Ki Ho Ahn, Minsoo Kim, Hong-shik Lee, Yong-Suk Youn, Youn-Woo Lee, Seoul National University, Seoul, SOUTH KOREA

Nanoparticle Formation of Lycopene/ β -cyclodextrin Inclusion Complex using Supercritical Carbon Dioxide. Hazuki Nerome¹, Siti Machmudah¹, Armando Quitain¹, Mitsuru Sasaki¹, Yong-Suk Youn², Youn-Woo Lee², Takuma Higashiura³, Motonobu Goto¹, ¹Kumamoto University, Kumamoto, JAPAN; ²Seoul National University, Seoul, SOUTH KOREA; ³Kagome Co.,Ltd., Tochigi, JAPAN

Recycling of Crosslinked Polyolefin using Supercritical Fluids. Giyoung Hong¹, Hong-shik Lee¹, Ki Ho Ahn¹, Chong Min Koo², Soon Man Hong², Youn-Woo Lee¹, Seoul National University, Seoul, SOUTH KOREA; ²Korea Institute of Science and Technology, Seoul, SOUTH KOREA

Viscosity Reduction of Polybutadiene Induced by Carbon Dioxide and Its Prediction. Yoshiyuki Sato¹, Yuya Maeta¹, Alif Duereh², Surat Areerat², Hiroshi Inomata¹, ¹Tohoku University, Sendai, JAPAN; ²King Mongkut's Institute of Technology, Ladkrabang, THAILAND

Extraction and Solubility Evaluation of Functional Seed Oils in Supercritical Carbon Dioxide. Karin Tomita, Siti Machmudah, Hazuki Nerome, Armando Quitain, Mitsuru Sasaki, Motonobu Goto, Kumamoto University, Kumamoto, JAPAN

The Technical Feasibility of using Supercritical Fluid Extraction to Extract and Fractionate Raw Sugar Cane Wax. Herman Franken, Cara Schwarz, Johannes Knoetze, University of Stellenbosch, Stellenbosch, SOUTH AFRICA

Supercritical CO₂ Extraction of Lipids Contained in Three Different Microalgae (Chlorella, Nannochloropsis oculata and Dunaliella salina): Study of the Influence of Water Content and Pre-Treatment on the Extraction Kinetics and Yields. Adil Mouahid, Christelle Crampon, Elisabeth Badens, Aix-Marseille University, Aix-en-Provence, FRANCE

Phase Equilibria Measurements of Ethyl Esters in Supercritical Ethane. Carmen Schlechter, Cara Schwarz, Johannes Knoetze, University of Stellenbosch, Stellenbosch, SOUTH AFRICA

The Use of Continuous Hydrothermal Synthesis in the Formulation and Functionalization of Flame Retardant Polymers. Sherif ElBasuney, Derek Irvine, Ed Lester, University of Nottingham, Nottingham, UK

A Complete 3D Simulation as a Design Tool for Supercritical Antisolvent Process. Arnaud Erriguible, Pascale Subra-Paternault, Université de Bordeaux, Pessac, FRANCE

Biomass Conversion for the Microalgae Slurry using the Supercritical Methanol Method. Atsushi Kishita¹, Diah Ajeng Setiawati¹, Gede Suantika², ¹Tohoku University, Sendai, JAPAN; ²Institute Technology of Bandung, Bandung, INDONESIA

Making of Metal Containing Polymeric Composites by Supercritical Carbon Dioxide and Metal-Vapour Synthesis. Lev Nikitin, Alexander Vasilkov, Alexander Naumkin, Alexei Khokhlov, Nesmeyanov Institute of Organoelement Compounds RAS, Moscow, RUSSIA

Thermal Degradation and Synthesis in Apple Waste during Pressurized Hot Water Extraction. Merichel Plaza, Charlotta Turner, Lund University, Lund, SWEDEN

Glycerol and Bioglycerol Valorization by Supercritical Water Conversion. Qian Wu, H el ene Boucard, Elsa Weiss-Hortala, Radu Barna, Mines Albi - Rapsodee, Albi, FRANCE

New Correlations for the Solubility of Antibiotics, Anti-inflammatory and Some Strain Drugs in SC-CO₂. Garlapati Chandrasekhar, Pondicherry Engineering College, Puducherry, INDIA

Investigate High Elasticity of Health Stockings in Supercritical Fluid Dyeing Processes. Shen-Kung Liao, Hu-Uen Chen, Wei-Kang Cheng, Feng Chia University, Taichung, TAIWAN

Continuous Hydrothermal Synthesis of Stabilized Zinc Sulphide Nanoparticles with Fluorescent Properties. Selina Tang, Andrei Khlobystov, Stephen Briddon, Edward Lester, University of Nottingham, Nottingham, UK

Continuous Supercritical Hydrothermal Generation of Hexagonal Tungsten Oxide and Its Bronzes. Miquel Gimeno-Fabra, Cristina Marcos Martin, David Grant, Darren Walsh, Ed Lester, University of Nottingham, Nottingham, UK

Continuous Hydrothermal Synthesis of Functional Nanomaterials for High-Performance Textiles. Miquel Gimeno-Fabra, David Grant, Ed Lester, University of Nottingham, Nottingham, UK

Developing Green Processes: Enzymatic Glycosylation of Flavonoids In SC-CO₂. Merichel Plaza, Maria Yakovleva, Eva Nordberg Karlsson, Irene Rodriguez-Meizoso, Charlotta Turner, Lund University, Lund, SWEDEN

Photocatalytic Degradation of Pesticides using Nanoparticles from Continuous Hydrothermal Synthesis. Mutsee Termtanun, Trevor Drage, Ed Lester, University of Nottingham, Nottingham, UK

Bioactive Extracts Obtained from SFE and Soxhlet Extractions of Casearia sylvestris. Patr cia Benelli, Laura Tenfen, Rozangela C. Pedroza, Sandra R. S. Ferreira, UFSC, Florianopolis, BRAZIL

The Impact of Blending Novel Forms of Hydroxyapatite from Continuous Hydrothermal Synthesis into Bone Scaffolds. Selina Tang, Alexandra Martin-Cortes, Andrei Khlobystov, David Grant, Ed Lester, University of Nottingham, Nottingham, UK

Solubility of a Multicomponent Glyceride Mixture in SC-CO₂: Experimental Determination and Correlation. Elvis Judith Hernandez¹, Pilar Luna¹, Elena Ibanez¹, Roumiana P. Stateva², Tiziana Fornari¹, ¹Instituto de Investigacion en Ciencias de la Alimentacion CIAL (CSIC-UAM), Madrid, SPAIN; ²Bulgarian Academy of Sciences, Sofia, BULGARIA

Thermodynamical Modelling of Phase Equilibrium for Gas/Liquid Binary Mixtures from Supercritical Water Reforming Processes. Boris Kramberger, Elena Markocic, Masa Knez Hrncic, Željko Knez, University of Maribor, Maribor, SLOVENIA

A Two Phase Flow Microcapillary Device to Study Ionic Liquid - Supercritical CO₂ Binary Systems. Nayane Macedo Portella da Silva¹, Jean-Jacques Letourneau¹, Fabienne Espitalier¹, Laurent Prat², ¹Universite de Toulouse, Albi, FRANCE; ²Universite de Toulouse, Toulouse, FRANCE

The Effect of Pressure and Temperature of Supercritical Carbon Dioxide on the Biological Activity of Black Yeast Cells. Maja Čolnik¹, Mateja Primožic¹, Nina Gunde Cimerman², Polona Zalar¹, Maja Habulin¹, Željko Knez¹, ¹University of Maribor, Maribor, SLOVENIA; ²University of Ljubljana, Ljubljana, SLOVENIA

Comparison of Diastereomeric Salt Formation Reactions and Resolution of Cis-permethric Acid in Supercritical Carbon Dioxide. Gyorgy Bansaghi, Daniel Varga, Laszlo Lorincz, Laszlo Hegedus, Bela Simandi, Edit Szekely, Budapest University of Technology and Economics, Budapest, HUNGARY

CO₂ Induced Asphaltene: New Approach to Detect the Deposition Onset. Noemi Silva, Victor Oliveira, Silvio Vieira de Melo, Gloria Costa, Universidade Federal da Bahia, Bahia, BRAZIL

Investigation of Supercritical Fluids as Reaction Media for Higher Alcohol Synthesis over a Cu-Co-Zn Catalyst. Rui Xu, Sihe Zhang, Christopher Roberts, Auburn University, Auburn, AL, USA

Optimization of CO₂-Extraction Processes by In-line Monitoring. G. Wiegand¹, S. Johnsen¹, N. Igl-Schmid², J. Schulmeyr², A. Wuzik², B. Zehnder³, ¹Forschungszentrum Karlsruhe GmbH, Eggestein-Leupoldshafen, GERMANY; ²Nateco2 GmbH & Co. KG, Wolnzach, GERMANY; ³SITEC-Sieber Engineering AG, Zurich, SWITZERLAND

Effect of Microalga Preconditioning on Supercritical CO₂ Extraction of Astaxanthin from Haematococcus pluvialis. Raúl I. Aravena, Jose M. del Valle, Pontificia Universidad Catolica de Chile, Santiago, CHILE

Nanoparticle Dispersibility in a DMSO/CO₂-Gas Expanded Liquid System. Jennifer Boice, Pranav Vengsarkar, Christopher Roberts, Auburn University, Auburn, AL, USA

Cellulose Hydrolysis in Subcritical Water Associated with CO₂. Luis Alberto Follegatti-Romero, Juliana M. Prado, Maria Angela A. Meireles, University of Campinas, Sao Paulo, BRAZIL

Drying Sub-Micron Sized Powders with Supercritical Fluid. Al Kaziunas¹, Rolf Schlake¹, Madhu Anand², Peter Hobbs², Beth Champion¹, ¹Applied Separations, Allentown, PA, USA; ²Halide Group, Allentown, PA, USA

Infusion of Metals Particles into Composite Polymers using Supercritical CO₂. Al Kaziunas¹, Rolf Schlake¹, Madhu Anand², Peter Hobbs², Beth Champion¹, ¹Applied Separations, Allentown, PA, USA; ²Halide Group, Allentown, PA, USA

Supercritical Fluid Extraction of Powdered Metal Injection Molded Parts. Rolf Schlake, Al Kaziunas, Kathy Pearl, Applied Separations, Allentown, PA, USA

Biological Properties from Pink Shrimp Extracts (*P. brasiliensis* and *P. paulensis*) Obtained by Low and High Pressure Systems. Natalia Mezzomo¹, Mirelle S. Farias¹, Maria T. Friedrich², Marcelo Maraschin¹, Rozangela C. Pedrosa¹, Sandra R. S. Ferreira¹, ¹UFSC, Florianopolis, BRAZIL; ²CEPA/UPF, Passo Fundo, BRAZIL

Ethanol Co-Solvent Effect on the Supercritical Impregnation/Deposition of Piroxicam into Chitosan-Xanthan Films. Itiara Gonçalves Veiga¹, Mara Braga², Herminio de Sousa², Paulo de Tarso Viera E. Rosa¹, Ângela Maria Moraes¹, ¹State University of Campinas, Campinas, Sao Paulo, BRAZIL; ²University of Coimbra, Coimbra, PORTUGAL

Volume of Mixing and Water Solubility in Water Saturated Athabasca bitumen at High Temperature and Pressure. Mohammad J. Amani, Murray R. Gray, John M. Shaw, University of Alberta, Alberta, CANADA

Encapsulation Efficiency and Capsules Stability of Extracts from Pink Shrimp (*P. brasiliensis* and *P. paulensis*) Processing Residue. Natalia Mezzomo¹, Esther de Paz², Marcelo Maraschin¹, Ángel Martín², Maria J. Cocero², Sandra R. S. Ferreira¹, UFSC, Florianopolis, BRAZIL; ²IQ/UVA, Valladolid, SPAIN

Biological Activity of Syrah Grape Pomace Extracts. Daniela A. Oliveira, Karolina Mandella, Marcelo Maraschin, Artur Smania Jr., Elza F. A. Smania, Sandra R. S. Ferreira, UFSC, Florianopolis, BRAZIL

Biological Activities of Supercritical Extracts from Pitanga (*Eugenia uniflora* L.) Seeds. Debora Nascimento Santos, Larissa Lima Souza, Edson Roberto Silva, Alessandra Lopes Oliveira, University of Sao Paulo, Sao Paulo, BRAZIL

Natural Dye (Anthocyanin) Sensitized Nanocrystalline TiO₂ Solar Cell Fabricated using Supercritical Carbon Dioxide. Liao Shen-Kung¹, Yuan-Hsu Chang¹, Shang-Ming Lin², ¹Feng Chia University, Taichung, TAIWAN; ²Oriental Institute of Technology, Taipei, TAIWAN

Concentration of Free Fatty Acids in Rapeseed Oil. Petra Kotnik, Mojca Skerget, Zeljko Knez, University of Maribor, Maribor, SLOVENIA

MUSTANG - A Multiple Space and Time Scale Approach for the Quantification of Deep Saline Formations for CO₂ Storage. Gabriele Wiegand¹, Auli Niemi², Jacque Bensabat³, Philippe Gouze⁴, Martin Sauter⁵, ¹KIT, Karlsruhe, GERMANY; ²University of Uppsala, Uppsala, SWEDEN; ³EWRE, Haifa, ISRAEL; ⁴CNRS, Montpellier, FRANCE; ⁵University of Gottingen, Gottingen, GERMANY

Influence of Material Pre-Treatment with Supercritical Fluids on Extraction Efficiency of Flavonoids. Katja Makovsek, Mojca Skerget, Željko Knez, University of Maribor, Maribor, SLOVENIA

Supercritical Fluid Technologies for Valorization of Fish By-Products. Sagrario Beltran¹, Nuria Rubio-Rodriguez², Angela Garcia-Solaesa¹, Maria Teresa Sanz¹, ¹University of Burgos, Burgos, SPAIN; ²Productos Solubles, Palencia, SPAIN

Extraction of Alkylresorcinols from Wheat Bran with Supercritical CO₂. Sara Rebolleda, Sagrario Beltran, Maria Teresa Sanz, University of Burgos, Burgos, SPAIN

Kinetic Study of the Lipase-Catalyzed Synthesis of Poly(ϵ -caprolactone) in Supercritical Medium. Sibele R. Rosso-Comim¹, Emanuel Bianchin², Debora de Oliveira¹, J. Vladimir de Oliveira¹, Sandra R. S. Ferreira¹, ¹Federal University of Santa Catarina, Florianopolis, BRAZIL; ²URI, Erechim, Rio Grande do Sul, BRAZIL

Thermal Decomposition of Motor Oil in Supercritical Water. Malithi Wickramathilaka, Doug Hendry, Andrew Miller, Nicholas Wilkinson, William Jacoby, University of Missouri, Columbia, MO, USA

Extraction and Characterization of Oil from *Thevetia peruviana* using Supercritical CO₂. Maria Jose Rubio-Rodriguez¹, Abelardo Navarrete², Julio Sacramento-Rivero³, Pablo Acereto³, Jose Antonio Rocha-Uribe³, ¹Instituto Tecnológico de Tepic, Tepic, MEXICO; ²LODEMO, Merida, MEXICO; ³FIQ-UADY, Merida, MEXICO

Liquid and Supercritical CO₂ Extraction of Fat from Rendered Materials and Solubility Correlation. Jose Luis Orellana, Tyler Smith, Christopher L. Kitchens, Clemson University, Clemson, SC, USA

Extraction and Characterization of Oil from *Moringa oleifera* using Supercritical CO₂ and Traditional Solvents. Jose Antonio Rocha Uribe, Jessica Ortiz Palafox, Jose Maria Diaz de la Fuente, Erik Antonio Figueroa Coronel, Universidad Autonoma de Yucatan, Merida, MEXICO

Enzymatic Synthesis of Phenolic Lipids using Flax Oil and Ferulic Acid in Supercritical Carbon Dioxide Media. Deniz Ciftci, Marleny D. A. Saldana, University of Alberta, Alberta, CANADA

Antioxidant and Antimicrobial Activity of PGSSTM Micronized Curcuma Powder. Zeljiko Knez, Tina Perko, Mojca Skerget, University of Maribor, Maribor, SLOVENIA

Viscosity of Hydrocarbons at Temperatures to 533 K and Pressures to 276 MPa: Experiment and Prediction. Hseen Baled², Ward Burgess¹, Deepak Tapriyal¹, Bryan Morreale¹, Robert Enick², Yue Wu³, Mark McHugh³, ¹U.S. Department of Energy, Pittsburgh, PA, USA; ²University of Pittsburgh, Pittsburgh, PA, USA; ³Virginia Commonwealth University, Richmond, VA, USA

Experimental Study of a Pilot Plant Deasphalting Process in Supercritical Conditions. Viktor Oswaldo Cardenas Concha¹, Leandro Lodi¹, Roniel Souza¹, Maria Regina Wolf Maciel¹, Rubens Maciel Filho¹, Lilian Carmem Medina², ¹University of Campinas, Sao Paulo, BRAZIL; ²Petrobras, Rio de Janeiro, BRAZIL

Uncatalyzed Wet Oxidation of D-glucose with Hydrogen Peroxide and Its Combination with Hydrothermal Electrolysis. Mitsuru Sasaki¹, Teresa Moreno Rueda², Goushi Kouzaki¹, Motonobu Goto¹, Maria Jose Cocero², ¹Kumamoto University, Kumamoto, JAPAN; ²University of Valladolid, Valladolid, SPAIN

Platelet Lysates Based Scaffolds Prepared by Supercritical Fluid Technology for the Regeneration of Orthopaedic Tissues. Vitor E. Santo, Ana Rita C. Duarte, Joao F. Mano, Manuela E. Gomes, Rui L. Reis, 3B's Research Group, University of Minho, Caldas das Taipas, PORTUGAL

Hydrothermal Degradation and Hydrolysis of Cellulosic Materials for High Yield of Dicarboxylic Acids from Cellulosic Biomass with Hydrothermal Electrolysis. Mitsuru Sasaki, Goushi Kouzaki, Armando T. Quitain, Motonobu Goto, Kumamoto University, Kumamoto, JAPAN

Low Temperature Process for Strontium Ruthenium Oxide Thin Film Deposition in Supercritical Carbon Dioxide. Kyubong Jung, Takeshi Momose, Yukihiro Shimogaki, University of Tokyo, Tokyo, JAPAN

Aqueous Reactive Pretreatment of Switchgrass for Oligomeric Sugar Production. Yu-Wu Lu, Keerthi Srinivas, Jerry W. King, University of Arkansas, Fayetteville, AR, USA

Analysis of Porphyrin Aggregates with Surfactants at the Supercritical Carbon Dioxide/Water Interface by UV-Visible External Reflection Spectrometry. Akira Ohashi, Akihiro Yamagata, Akira Yamaguchi, Haeng-Boo Kim, Ibaraki University, Mito, JAPAN

Supercritical Extraction and Fractionation of Biopolymers and Resins from Plant Materials. Rodger Marentis, Supercritical Solutions, Allentown, PA

Carbochemical Production from Switchgrass using Carbonated Subcritical Water at High Temperatures. Rohit Dhamdere, Keerthi Srinivas, Jerry W. King, University of Arkansas, Fayetteville, AR, USA

Simulation of Supercritical Multistage Countercurrent Fractionation of Crude Vegetable Oil and Byproduct. Hermann S. Vargens, Fernando F. M. Azevedo, Andreia A. Mancio, Nelio T. Machado, Marilena E. Araujo, UFPA, Belem, BRAZIL

Multicomponent High Pressure Phase Equilibrium of Vegetable Oils Ethyl Esters in Carbon Dioxide. Fernando F. M. Azevedo¹, Marilena E. Araujo¹, Gerd Brunner², Nelio T. Machado¹, ¹UFPA, Belem, BRAZIL; ²TUHH, Hamburg, GERMANY

Green Technology Education in the Undergraduate Classroom. Rolf Schlake, Al Kaziunas, Applied Separations, Allentown, PA, USA

Application of Supercritical Carbon Dioxide – Co-Solvent Mixtures for Removal of Organic Material from Archeological Artifacts for Radiocarbon Dating. Jackson O. Lay¹, Jenny Phomakay¹, Keerthi Srinivas¹, Marvin Rowe⁴, Jerry W. King¹, ¹University of Arkansas, Fayetteville, AR, USA; ²Texas A&M University, Doha, QATAR

Supercritical Carbon Dioxide Commercial Corn Oil Production Process. Rodger Marentis, Supercritical Solutions, Macungie, PA, USA

Preparation of Diamond Like Carbon (DLC) and Its Functionalization with Supercritical Fluid Pulsed Discharge Treatment. Mitsuru Sasaki, Koichi Nagafuchi, Wahyu Diono, Atsushi Nagira, Tsuyoshi Kiyan, Motonobu Goto, Hidenori Akiyama, Kumamoto University, Kumamoto, JAPAN

Monte Carlo Simulation of Methanol and Formamide Adsorption During Nickel Catalyzed Supercritical Water Gasification. Vinod Amar, Kenneth Benjamin, South Dakota School of Mines and Technology, Rapid City, SD, USA

Supercritical Process for Removal of Cutting Oils from Swarf. Rodger Marentis, Supercritical Solutions, Allentown, PA, USA

Energy Optimization of a Novel FT-SCF Technology. Fadwa Eljack¹, Elfatih Elmalik², Nimir Elbashir², Mahmoud ElHalwagi³, ¹Qatar University, Doha, QATAR; ²Texas A&M University, Doha, QATAR; ³Texas A&M University, College Station, TX, USA

Kinetic Resolution of Tert-butyl-3-hydroxy-4-phenylpyrrolidine-1-carboxylate in Supercritical Carbon Dioxide. Ágnes Szecsenyi, Margita Utczas, Ervin Kovacs, Dora Balogh, Ferenc Faigl, Bela Simandi, Edit Szekely, BME, Budapest, HUNGARY

Possibilities of Laser Diagnostics to Study the Supercritical Extraction of Emulsions Process. Salima Varona Iglesias¹, Matthias Rossmann², Robert Hankel², Andreas Braeuer², Eberhard Schlucker², Maria Jose Cocero¹, Alfred Leipertz², ¹University of Valladolid, Valladolid, SPAIN; ²Friedrich-Alexander Universitaet Erlangen-Nuernberg, Erlangen, GERMANY

Different Routes to Use Supercritical Water in the Environmental Context. Anne Loppinet-Serani, Francois Cansell, Cyril Aymonier, ICMCB-CNRS, Pessac, FRANCE

Supercritical Fluid Extraction of *Alpinia galangal* and *Alpinia malacensis*. Saidatul Husni Binti Saidin¹, Alberto Bertucco², Antonella Calabretti³, Ireneo Kikic³, Dario Solinas³, ¹FRIM, Kepong, MALAYSIA; ²University of Padova, Padova, ITALY; ³University of Trieste, Trieste, ITALY

Influence of Mixing Conditions Upon the Crystalline Powder Characteristics Formed with the Supercritical Anti Solvent (SAS) Process – Calculation of Dissipated Power. Laurene Lesoin¹, Thomas Petit-Gars², Elisabeth Badens¹, ¹Aix Marseille Universite, Aix-en-Provence, FRANCE; ²FRANCE

Quantitative Analysis of Polydisperse Systems via Solvent-Free MALDI-TOF Mass Spectrometry. Sourabh Kulkarni, David F. Esguerra, Mark C. Thies, Clemson University, Clemson, SC, USA

New Fractionation of Potato Peel by Subcritical Fluids. Victor H. Alvarez, Marleny D. A. Saldana, University of Alberta, Alberta, CANADA

Supercritical Carbon Dioxide Induced Swelling of a Cured Polydimethylsiloxane-Based Polymer - Copper Nanoparticle Matrix for Improving the Fabrication of a MEMS-Based Corrosion Sensor. Teng Yang, Jeremy Hutson, Jerry W. King, Keerthi Srinivas, Douglas Spearot, Po-Hao Adam Huang, University of Arkansas, Fayetteville, AR, USA

Extraction of the Oil Present in *Carica Papaya* L. Seeds with Supercritical Carbon Dioxide. Pedro Barroso¹, Fernando Pessoa², Marisa Mendes³, ¹IQ/UFRJ, Rio de Janeiro, BRAZIL; ²EQ/UFRJ, Rio de Janeiro, BRAZIL; ³DEQ/UFRJ, Seropedica, BRAZIL

Obtaining Corozo Seed Oil (*Bactris minor*) by Supercritical CO₂ Extraction. Catalina Romero, Ligia Ines Rodriguez, Byron Yopez, University Jorge Tadeo Lozano, Bogota, COLOMBIA

Preparation of Silica with High Pore Volume and Its Application as a Catalyst Support. Xiaohui Hu, Wensheng Lv, Jun Li, Xiamen University, Xiamen, CHINA

Titanium Oxide Nanoparticles Modified Chemically with Polyacrylic Acid in Supercritical Carbon Dioxide. Kazuhiro Tamura, Koji Urano, Soichiro Mochiduki, Tomohiro Kaijo, Akinori Hirose, Kanazawa University, Kanazawa, JAPAN

Formation of 5-(hydroxymethyl)furfural during Subcritical Water Extraction of Natural Matrices. Is It Bioactivity-Relevant? Miguel Herrero¹, Maria Castro-Puyana¹, Lourdes Rocamora-Reverte², Jose A. Ferragut², Alejandro Cifuentes¹, Elena Ibanez¹, ¹Institute of Food Science Research, Madrid, SPAIN; ²University Miguel Hernandez, Elche, SPAIN

Comparative Life Cycle Assessment Study of Green Extraction Processes to Obtain Antioxidants from Rosemary Leaves. Maria Castro-Puyana¹, Jose Antonio Mendiola¹, Irene Rodríguez-Meizoso², Charlotta Turner², Elena Ibanez¹, ¹Institute of Food Science Research, Madrid, SPAIN; ²Lund University, Lund, SWEDEN

Extraction Kinetics of Triterpenoid Components from Forest Residues. Yacine Boumghar, Mathieu Sarazin, Naima El Mehdi, CEPROCQ, Montreal, CANADA

Operational Recycling Study on a Preparative Supercritical Fluid Chromatography System. John Whelan, II, John Baugher, Ziqiang Wang, Waters Corporation, New Castle, DE, USA

Extraction of Polyphenols and Polysaccharides from Flaxseed Hulls by Pressurized Hot Water. Ivor Martin Prado, Marleny D. Aranda-Saldana, University of Alberta, Alberta, CANADA

Optimization of Sacha Inchi Oil Enzymatic Hydrolysis in Supercritical Carbon Dioxide Media. Glucia Helena Carvalho do Prado, Marleny D. Aranda-Saldana, University of Alberta, Alberta, CANADA

Co-Precipitation of Flaxseed Oil and Polyethylene Glycol by Supercritical Anti-Solvent Process. Ivor Martin Prado, Víctor H. Alvarez, Marleny D. Aranda-Saldana, University of Alberta, Alberta, CANADA

Quantitative Composition Measurements in High Pressure Systems by Means of Raman Spectroscopy. Oliver Sven Knauer, Andreas Braeuer, Robert Fabian Hanke, Universitaet Erlangen-Nuernberg, Erlangen, GERMANY

Ethanol as Co-Solvent for Flaxseed Oil Extraction. Giuseppe Perretti, Gianfranco Regnicoli, Ombretta Marconi, Paolo Fantozzi, University of Perugia, Perugia, ITALY

Cross-Linking Marine-Origin Collagen Sponges/Hydrogels under High Pressure CO₂. Susana Fernandes-Silva¹, Joana Moreira-Silva¹, Tiago Silva¹, Ricardo I. Perez-Martin², Carmen G. Sotelo², Joao F. Mano¹, Ana Rita C. Duarte¹, Rui L. Reis¹, ¹3B's Research Group, University of Minho, Caldas das Taipas, PORTUGAL; ²CSIC Inst. Invest Marinas, PORTUGAL

Solubility Modeling of Polychlorinated Aromatic Compounds and Mixtures in Supercritical CO₂. Ruben Oliveira Chivone¹, Dannielle Janainne Silva², Claudio Augusto Oller do Nascimento², Osvaldo Chivone-Filho¹, Camila Gambini Pereira¹, ¹Federal University of Rio Grande do Norte, Natal, BRAZIL; ²University of Sao Paulo, Sao Paulo, BRAZIL

Extraction/Reaction of Carbohydrates and Phenolics from Barley Hull by Pressurized Fluids. Suparna Sarkar, Victor H. Alvarez, Maleny A. Saldana, University of Alberta, Alberta, CANADA

Subcritical Water Extraction/Reaction of Bio-Molecules from Lentil Husk. Marleny A. Saldana, Anupam Haldar, Víctor H. Alvarez, University of Alberta, Alberta, CANADA

Jobo Oil Extraction by Liquid CO₂+Propane Mixtures. Lucrecia Alonso, Pablo Hegel, Nicolas Gagnan, Guillermo Mabe, Esteban Brignole, PLAPIQUI-CONICET, Bahia Blanca, ARGENTINA

Biodiesel Production from Microalgae by Supercritical Methanolysis. Guillermo Soto¹, Pablo Hegel¹, Cecilia Popovich², Cecilia Damiani³, Selva Pereda¹, Patricia Leonardi², ¹PLAPIQUI-CONICET, Bahia Blanca, ARGENTINA; ²CERZOS-UNS, Bahia Blanca, ARGENTINA; ³University of Ferrara, Bahia Blanca, ARGENTINA

Removal of Cd and Pb from Tobacco Leaves by Supercritical CO₂ Extraction. Ankita Rao, Pradeep Kumar, B.S. Tomar, BARC, Mumbai, INDIA

The Theory of Water Phase Transitions Controlling Hydrothermal Mineralization. Baoqun Hu, East China Institute of Technology, Fuzhou City, P.R. CHINA

Production of Curcumin Proliposome using Ultrasound-Assisted Supercritical CO₂ Antisolvent Technique. Yaping Zhao, Jingfu Jia, Na Xin, Shanghai Jiaotong University, Shanghai, CHINA

Facile Preparation of Graphene with Large Flakes via Supercritical CO₂ Exfoliation of Graphite. Wuchong Wang, Yan Wang, Yaping Zhao, Shanghai Jiaotong University, Shanghai, CHINA

Production of Heavy Oil from Rice Husk by Hydrothermal Processing. Yaping Zhao, Wen Shi, Shining Li, Shanghai Jiaotong University, Shanghai, CHINA

Supercritical Carbon Dioxide-Regulated Self-Assembly of a Rod-Coil Diblock Copolymer. Ling-Ying Shi, Zhihao Shen, Xing-He Fan, Zhihao Shen, Peking University, Beijing, CHINA

Supercritical CO₂ Extraction of Fucoxanthin from *Sargassum muticum*. Beatriz Diaz-Reinoso, Enma Conde, Andres Moure, Herminia Dominguez, Juan C. Parajo, University of Vigo, Ourense, SPAIN

Hydrothermal Extraction of Fucoidan from *Sargassum muticum*. Elena M. Balboa, Noelia Gonzalez-Lopez, Sandra Rivas, Andres Moure, Herminia Dominguez, Juan C. Parajo, University of Vigo, Ourense, SPAIN

Supercritical Fluid Extraction of *Achyrocline satureioides* (LAM) DC: Mathematical Modeling and Potentiality of Extracts as New Aroma Source. Maurean Barroso, Roberto Goes Neto, Eduardo Cassel, Rubem Vargas, PUCRS, Porto Alegre, BRAZIL

Applying Fuzzy Decision Tree for Modeling the Process of Supercritical Fluid Extraction of *Pimpinella anisum* L. seed. Bahman Fakhr, Meysam Davoodi, Gholamreza Zahedi, UTM, Skudai, MALAYSIA

Estimation of Density of Supercritical Carbon Dioxide using Equations of State. Geetha Devi, Caledonian College of Engineering, Muscat, OMAN

In vitro Cytotoxicity Study of the Supercritical Carbon Dioxide Engineered PEGylated Nano Liposomes of Irinotecan on Breast Cancer Cells. Sachin Naik¹, Deepa Patel², Ambikanandan Misra¹
¹Maharaja Sayajirao University of Baroda, Vadodara, GUJARAT; ²Baroda College of Pharmacy, Vadodara, GUJARAT

Supercritical Extraction of Coumarins from *Pterocaulon balansae*. Fernando Torres¹, Cassel Eduardo², Rubem Vargas², Vera Lima¹, Gilsane von Poser¹, ¹UFRGS, Porto Alegre, BRAZIL; ²PUCRS, Porto Alegre, BRAZIL

Mathematical Modelling of Palm Kernel's Oil-Bearing Cell during Supercritical Fluid Extraction: One Dimensional Problem. Abu Hanipah Nawati, Nik Norulaini Nik Ab Rahman, Mohd Omar Ab Kadir, Universiti Sains Malaysia, Penang, MALAYSIA

Supercritical Extraction of Propolis from Southern Brazil. Daniel Fasolo¹, Izabela Pereira¹, Helder Teixeira¹, Alexandre Espirito Santo², Joao Anzolin², Rubem Vargas², Eduardo Cassel², Gislane von Poser¹, ¹UFRGS, Porto Alegre, BRAZIL; ²PUCRS, Porto Alegre, BRAZIL

Supercritical Fluid Extraction of Phloroglucinol Derivatives from the Rhizomes of a Fern from the Genus *Elaphoglossum*. Pablo Nunes¹, Alexandre Taketa¹, Maria Luisa Villarreal¹, Joao Anzolin², Rodrigo Silva², Gilsane von Poser³, Rubem Vargas², Eduardo Cassel², ¹UAEM, Cuernavaca, MEXICO; ²PUCRS, Porto Alegre, BRAZIL; ³UFRGS, Porto Alegre, BRAZIL

Spray Formation of Water, Rape Seed Oil and Different Polyethyleneglycols Saturated with Carbon Dioxide Under High Pressure. Andreas Kilzer, Pavlinka Ilieva, Ruhr University, Bochum, GERMANY

Formation of Anchovy Lecithin Microparticles with Polyethylene Glycol by PGSS Process. Jun-Ho Yun, Jung-Nam Park, A.K.M. Asaduzzaman, Hye-Youn Lee, Byung-Soo Chun, Pukyong National University Food Science and Technology, Nam-Gu, SOUTH KOREA

Antioxidant Improvement Effect of Seaweed Oil Obtained by Supercritical Carbon Dioxide Extraction. Joo-Hee Lee, Jung-Nam Park, Jun-Ho Yun, Byung-Soo Chun, Pukyong National University, Busan, SOUTH KOREA

Production of Amino Acids from Laminaria Japonica by Subcritical Water Hydrolysis. Jung-Nam Park¹, Joo-Hee Lee¹, Tai-Sun Shin², Hee-Chul Woo¹, Chul-Woo Lee³, Byung-Soo Chun¹, ¹Pukyong National University, Busan, SOUTH KOREA, ²Food Science and Nutrition, Yeosu, SOUTH KOREA; ³Hanbat National University, Daejeon, SOUTH KOREA

Characterization of Digestive Enzymes in De-Oiled Anchovy Residues after Supercritical Carbon Dioxide and Organic Solvent Extraction. Seung-Mi Lee, Joo-Hee Lee, Jung-Nam Park, A.K.M. Asaduzzaman, Byung-soo Chun, Pukyong National University, Busan, SOUTH KOREA

Supercritical Solvent Impregnation of Natamycin into Calcium Cross-Linked Alginate Films. Andrea Cristiane Krause Bierhalz¹, Mariana Altenhofen da Silva¹, Herminio C. de Sousa², Mara E. Medeiros Braga², ¹University of Campinas, Sao Paulo, BRAZIL; ²CIEPQPF/DEQ/FCTUC, Coimbra, PORTUGAL

Production of Nanoparticles of Theophylline using Rapid Expansion of Supercritical Solutions (RESS) Technique. Junichi Sakabe¹, Kohei Demoto¹, Ayumu Kataoka², Takashi Kokubun², Masayoshi Ito², Nobuhiro Sugimoto², Hirohisa Uchida³, ¹Shinshu University, Nagano-city, JAPAN; ²Taiatsu Techno Corporation, Saitama-city, JAPAN; ³Shinshu University, Saitama-city, JAPAN

Phase Behavior of Fish and Corn Oil and Biodiesel in Carbon Dioxide at High Pressure: Experimental and Modelling. Filipe Feitosa, Marcia Silveira, Fabiano Fernandes, Rílvia Santiago-Aguiar, Hosiberto de Sant'Ana, Universidade Federal do Ceara, Fortaleza, BRAZIL

Hydrolysis of Starch Processing Residues in Subcritical Water Condition for Production of Valuable Materials. Junya Ishii¹, Hideyuki Saito¹, Koichi Fujie¹, Hiroyuki Daimon², ¹Yokohama National University, Yokohama, JAPAN; ²Toyohashi University of Technology, Toyohashi, JAPAN

Low Waste Decontamination in Ozone-Friendly Medium. Denis Shavikov¹, Vladislav Kamachev¹, Andrey Shadrin², ¹Khlopin Institute, St. Petersburg, RUSSIA; ²Bochvar Institute, Moscow, RUSSIA

Experimental Investigations and Simulation of Antisolvent Crystallization Processes in Supercritical Fluids. Laurene Lesoin¹, Arnaud Erriguible², Elisabeth Badens¹, Pascale Subra-Paternault², ¹Aix Marseille Universite Laboratoire, Aix-en-Provence, FRANCE; ²Universite de Bordeaux Institut Polytechnique de Bordeaux, Pessac, FRANCE

Hydrogen Production from Biomass using Supercritical Water Gasification. Paul Charpentier, Muhammad Choudhury, Emhemmed Youssef, Zakir Hossain, University of Western Ontario, London, CANADA

Crystallization of Pharmaceutical Solids through Supercritical Fluid Extraction of Emulsions. Johannes Kluge, Lisa Joss, Sebastian Viereck, Marco Mazzotti, ETH Zurich, Zurich, SWITZERLAND

Selected Bioprocessing Applications of Supercritical Carbon Dioxide. Douglas Raynie, Jeremy Kroon, George Gachumi, Vara Sakampally, South Dakota State University, Brookings, SD, USA

SCF-Assisted Fabrication of Dexamethasone-Loaded Poly(ϵ -caprolactone)/MCM-41 Composite Materials. Maria Betania de Matos¹, Ana Paula Piedade¹, Carmen Alvarez-Lorenzo², Angel Concheiro², Mara Elga Braga¹, Herminio C. de Sousa¹, ¹University of Coimbra, Coimbra, PORTUGAL; ²Universidad de Santiago de Compostela, Santiago de Compostela, SPAIN

Production Costs of Supercritical CO₂ Oilseed Extraction in Multi-Vessel Plants: Effect of Pressure and Plant Size. Gonzalo A. Nunez, Jose M. del Valle, Pontificia Universidad Catolica de Chile, Santiago, CHILE

A Subcritical Fluid Plant Applied for Recovering Nitric Acid from Pickling Acids and for Dechlorinating of Waste Solvents. Masatoshi Tanaka, Yasunori Tanaka, Rematec Corporation, Kishiwada City, JAPAN

A New Method Based on Molecular Surface Structure for the Prediction of Physicochemical Properties of Biomolecules. Victor H. Alvarez¹, Martin W. Cordoba², Gustavo A. Alvarez², Marleny D. A. Saldana¹, ¹University of Alberta, Alberta, CANADA; ²University of Trujillo, Trujillo, PERU

New Methane Fermentation Process using Subcritical Water Treatment for Sewage Sludge. Eiichi Hasegawa, Nichiyo Engineering Corporation, Toda-shi, JAPAN

Effect of Temperature on the Encapsulation of Amoxicillin Microparticles by Sas Process. Antonio Montes, Dolores Gordillo, Clara Pereyra, Enrique Martinez de la Ossa, University of Cadiz, Puerto Real, SPAIN

Anti-Inflammatory Activity of Chelidonium Majus Extracts Obtained by SC-CO₂. Nicolas Ganan¹, Fernanda Bombaldi², Agostinho Alexandre², Ana Dias², Ines Seabra², Julio A. Zygodlo³, Esteban A. Brignole¹, Mara E. M. Braga², Herminio C. de Sousa², ¹Universidad Nacional del Sur, Bahia Blanca, ARGENTINA; ²University of Coimbra, Coimbra, PORTUGAL; ³Universidad Nacional de Cordoba, Cordoba, ARGENTINA

Micronization of Calcium Salts by using Sub and Supercritical Carbon Dioxide: Equilibrium Measurements and Thermodynamic Modeling. Isabel Mejia, Gustavo Bolanos, Universidad del Valle, Cali, COLOMBIA

Correlation of the Solid Solubilities of Pharmaceutical Compounds in Supercritical Carbon Dioxide using Solution Model Approach. Chie-Shaan Su, National Taipei University of Technology, Taipei, TAIWAN

In-situ Spectroscopic Ellipsometry of Cu Deposition Process from Supercritical Fluids - Evidence for a Surface Condensation Layer Formation. Eiichi Kondoh, Takuya Sasaki, Yukihiko Tamegai, Mitsuhiro Watanabe, Lianhua Jin, University of Yamanashi, Kofu, JAPAN

SEE-C Technology for the Production of PLGA Microdevices to be used as Bioactive Support for Cell Growth in Tissue Engineering. Giovanna Della Porta¹, Emanuele Giordano¹, Ernesto Reverchon², ¹Universita di Bologna, Bologna, ITALY; ²Universita di Salerno, Salerno, ITALY

Preparation of Carbon Supported Platinum Alloy Nanoparticles using Supercritical Carbon Dioxide. Mitsuhiro Watanabe, Tatsunori Akimoto, Eiichi Kondoh, University of Yamanashi, Kofu, JAPAN

Multilayer Absorption Kinetics in Nickel Thin Film Deposition from Supercritical CO₂. Kazuma Osada, Mitsuhiro Watanabe, Eiichi Kondoh, University of Yamanashi, Kofu, JAPAN

SFE of Pomegranate Seed. Fedor Lepeshkin¹, Svetlana Glazunova¹, Olga Parenago², ¹ZAO "SCHAG", Moscow, RUSSIA, ²IGIC RAS, Moscow, RUSSIA

Application of Response Surface Methodology to Study the Enzymatic Synthesis of Biodiesel in Supercritical Carbon Dioxide. Jose Cleiton Sousa dos Santos, Leonardo Jose Brandao Lima de Matos, Hosiberto Batista de Sant'Ana, Luciana Rocha Barros Gonçalves, Rilvia Saraiva de Santiago-Aguiar, Federal University of Ceara, Fortaleza, BRAZIL

Supercritical Carbon Dioxide Soluble Hybrid Nanocages and their Applications in Polymers. Cerag Dilek¹, Betul Unlusu², Ali Durmus³, Sezen Gurdag⁴, ¹Middle East Technical University, Ankara, TURKEY; ²Yeditepe University, Istanbul, TURKEY; ³Istanbul University, Istanbul, TURKEY; ⁴KordsaGlobal, Kocaeli, TURKEY

Production of Biolubricants from Castor Oil in Sub and Supercritical Carbon Dioxide Mediated Enzymatic Reactions. Chandu Madankar, Subhalaxmi Pradhan, Satyanarayan Naik, Indian Institute of Technology, Delhi, New Delhi, INDIA

Determination of Testosterone Propionate Residues in Aquatic Products using Subcritical 1,1,1,2-tetrafluoroethane(R134a) Extraction and Liquid Chromatography. Yuqian Han, Yalei Fu, Qinchuan Ma, Ocean University of China, Qingdao, Shandong, CHINA

Crystal Growth Mechanism of Anthracene Thin Films Produced by Rapid Expansion of Supercritical Solutions (RESS) Technique using Supercritical Carbon Dioxide. Tatsuya Fujii¹, Hirohisa Uchida¹, Masakazu Sugiyama², ¹Shinshu University, Nagano, JAPAN; ²University of Tokyo, Tokyo, JAPAN

The Extractability of Galanthamine from the Matrix Plant with Supercritical CO₂ Extraction. Orchidea Rachmaniah¹, Bas Vermeulen², Jaap van Spronsen¹, Rob Verpoorte³, Geert-Jan Witkamp¹, ¹TU-Delft, Delft, NETHERLANDS; ²Feyceon BV, Weesp, NETHERLANDS; ³Leiden University, Leiden, NETHERLANDS

Comparison of Extraction Techniques for Antioxidant Activity of Essential Oil from Tetraclinis Articulate. Nejia Herzi¹, Jalloul Bouajila¹, Severine Camy¹, Mehrez Romdhane², Jean-Stephane Condoret¹, ¹University of Toulouse/ Laboratoire de Genie Chimique, Toulouse, FRANCE; ²Unite de Recherche MACS, Gabes, TUNISIE

CO₂-Active Polypropylene Carbonate Derivatives. Jeongeop Choi, Seola Kim, SK Innovation, Daejeon, SOUTH KOREA

Influence of Processing Parameters on Generation of Lipid Nanoparticles of Genistein using Supercritical Fluid Technology. Ankita Pai, Vandana Patravale, Institute of Chemical Technology, Mumbai, INDIA