

Monday, September 28

08:00-08:30 **Chemeca2009 Opening**

08:30-09:30 **Plenary Session 1**

Accelerated Evolution - Chemical Engineers and the Survival of the Fittest

Ian Shott, Excelsyn, United Kingdom

Chair: Thys Heyns, BP Refinery Kwinana, Australia

09:30-10:00 **Morning Tea**

10:00-12:00 **Concurrent Sessions**

Grand Ballroom 1

Particle Technology Session 1:

*Chair: Iztok Livk, CSIRO Minerals, Australia
Co-Chair: Nicoleta Maynard, Curtin University of Technology, Australia*

10:00

Keynote Address: Impurity Inclusion in Crystal During Crystallization - Theory and Experiment [117]

Keisuke Fukui, University of Hyogo, Japan

10:40

Metastable Zone Width for Racemic Ibuprofen in Ethanol and Aqueous Ethanol Mixtures [118]

Abdur Rashid, The University of Queensland, Australia

11:00

Polymorphic Control of Calcium Carbonate in the Reactive Crystallization Between Na₂CO₃ and Ca(OH)₂ [119]

Mitsutaka Kitamura, University of Hyogo, Japan

11:20

Mineral Characterization Using Micro X-ray Diffraction (micro XRD), a State-of-the-Art Non-Destructive Technique [120]

Muthukumaraswamy Pannirselvam, Royal Melbourne Institute of Technology, Australia

11:40

Experimental Kinetics Studies of Seeded Batch Crystallisation of Mono-Ammonium Phosphate [121]

Johan Utomo, Curtin University of Technology, Australia

Grand Ballroom 2

Environmental Session 1:

Chair: Shaobin Wang, Curtin University of Technology, Australia

10:00

Keynote Address: Environmental Challenges in the Energy (and Mining) Sector A Chemical Engineering Perspective [107]

Philippe A Tanguy, Total S.A, France

10:40

Oxidation of Organic Contaminants by Combined Adsorption and Oxidation on Cobalt Supported Activated Carbon [108]

Pradeep R Shukla, Curtin University of Technology, Australia

11:00

Tungsten Trioxide as a Visible Light Photocatalyst for Volatile Organic Compound Removal [109]

Yossy Wicaksana, The University of New South Wales, Australia

11:20

Use of Box-Behnken Design for Producing Mesoporous Carbon Coated Monolith [110]

Yaw Shean Choong, University Putra Malaysia, Malaysia

11:40

Carbon footprint accounting for water utilities: the process, complexities and challenges [111]

Debashis Raha, Engineers Australia, Australia

Swan Room

Fuels and Energy Session 1:

Chair: Chun-Zhu Li, Curtin University of Technology, Australia

10:00

Keynote Address: Delivering Energy For the Future

Russell Scott, Uhde Shedden, Australia

10:40

Steam Reforming of Biomass Tar over Charcoal in a Coke-Deposition/Steam-Gasification Sequence [113]

Jun-ichiro Hayashi, Kyushu University, Japan

11:00

Inter-influence of Heterogeneous and Homogeneous Radical Reactions During the Catalytic Oxidation of Ethane [114]

Syed Shatir Asghar Syed-Hassan, Curtin University of Technology, Australia

11:20

Use of High Temperature Rheometry to Study the Foaming Behaviour of Coal During Pyrolysis/Carbonisation in Order to Understand the Mechanisms Responsible for Coking Pressures [115]

Karen M Steel, The University of Queensland, Australia

11:40

Thermal Decomposition of Red Gum Under Pyrolysis Conditions [116]

Cara J Mulligan, Macquarie University & The Crucible Group, Australia

Botanical One

Modelling Session 1:

Chair: Vishnu K Pareek, Curtin University of Technology, Australia

10:00

Co-Chair: Samantha C Burnham, CSIRO, Australia

10:00

Keynote Address: Meso-Scale Structure - the Common Challenge for Process Engineers

Wei Ge, Chinese Academy of Sciences, China

10:40

Viscosity Models for New Zealand Black Liquor at Low Solid Concentrations [123]

Sunday B Alabi, University of Canterbury, New Zealand

11:00

Computational Modeling of high solid flux riser flows [124]

Ranjeet P Utikar, Curtin University of Technology, Australia

11:20

Particle transport of non-Newtonian suspensions in self-formed open channel [125]

Sati Bhattacharya, Royal Melbourne Institute of Technology, Australia

11:40

Hydrodynamics Investigation of Bubble Column Reactors: Effect of Column Configuration [126]

Abid Akhtar, BHP Billiton Worsley Alumina, Australia

The Studio

Bioprocessing Session 1:

Chair: Thomas Rufford, The University of Queensland, Australia

10:00

Keynote Address: Self-Assembled Polymer Nanostructures for Delivery of Therapeutics [102]

Yi-Yan Yang, Institute of Bioengineering and Nanotechnology, Singapore

10:40

Role of the Interface in Polymeric Devices for Structural Health Monitoring [103]

Wei Ming Yek, Royal Melbourne Institute of Technology, Australia

11:00

Efficient Energy Transfer and Controlled Drug Release in Highly Stable Novel Nanoliposomes [104]

Zhifei Dai, Harbin Institute of Technology, China

11:40

Using DNA as a Drug: Challenges and Opportunities for Process Engineers [106]

Gareth M Forde, Monash University, Australia

Grand Ballroom 1

Grand Ballroom 1

Studio One

Oil and Gas Session 1

Chair: Mark Trebble, Curtin University, Australia

10:00

Cold Flow Technology and Gas Hydrates Dissociation [127]

Mohammad Mahdi Shabani, Norwegian University of Science and Technology, Norway

10:20

Surface Behaviour of Gas Hydrate Kinetic Inhibitors at the Air-Liquid Interface [128]

Yenny V Rojas, Curtin University of Technology, Australia

10:40

Concentration Effect on the Inhibition Efficiency of Low Dose Hydrate Inhibitors [129]

Ailin Ding, Curtin University of Technology, Australia

11:00

Liquid Slugging Control for Oil and Gas Pipeline Riser Systems [130]

Brent R Young, The University of Auckland, New Zealand

11:20

Pipeline Protection [131]

Abdollah Esmaeili, National Iranian Oil Company, Iran

11:40

Get Chartered Information Session [615]

Tanya Graham, IChemE, Australia

Studio Two

Poster Session 1

Chair: Qin Li, Curtin University of Technology, Australia

Refer to page 13 for summary of posters on display

Monday, September 28

12:00-13:15 **Lunch**

13:15-14:55 **Concurrent Sessions**

Grand Ballroom 1

Particle Technology Session 2

Chair: Jonas Addai-Mensah, Ian Wark Research Institute, Australia

13:15

A Mineralogical, Structural and Surface Chemical Investigation of Muscovite in Aqueous Media [145]

Terry Dermis, University of South Australia, Australia

13:35

Investigation of the Structural and Interfacial Chemistry Of Pigmentary Titanium Dioxide Particles [146]

Wendy J Harrington, Ian Wark Research Institute, Australia

13:55

Interfacial Chemistry Mediated Behaviour of Aqueous Chlorite Dispersions [147]

Hui Tan, Ian Wark Research Institute, Australia

14:15

Influence of Hydrophobic Tail on the Adsorption Behaviour of Non-Ionic Surfactants at Air/Water Interface [148]

Thu N Le, Curtin University of Technology, Australia

14:35

Application and Performance of Phase Change Material into Cold Storage Applications [149]

Mohammed M Farid, The University of Auckland, New Zealand

Grand Ballroom 2

Environmental Session 2

Chair: Tushar Kanti Sen, Curtin University of Technology, Australia

Co-Chair: Leon Lorenzen, BHP Billiton Nickel West, Australia

13:15

Adsorption of Anionic Dye Solution using Chemically Modified Barley Straw [136]

Shuy Zhi Wan, Curtin University of Technology, Australia

13:35

Adsorption of O-Xylene from Gas Stream by Modified Granular Activated Carbon [137]

Xuesong Guo, Chinese Academy of Sciences, China

13:55

Thermogravimetric Analysis of the Co-Pyrolysis of the Blends with Malaysian Bituminous Coal (Silantek Coal) and Waste Tyres [138]

Sharmeela Matali, Universiti Teknologi, Malaysia

14:15

The Impact of Environmental Parameters On Toluene Degradation Using a Laboratory-Scale Reactor With Internal Recycle [139]

Peter A Gostomski, University of Canterbury, New Zealand

14:35

Effect of Sparger Type And Aspect Ratio on Gas Hold-Up in Bubble Columns Via Electrical Resistance Tomography [140]

Cyrus G Cooper, Australia

Swan Room

Fuels and Energy Session 2

Chair: Hongwei Wu, Curtin University of Technology, Australia

13:15

Combustion Synthesis of Ceramic Nanoparticles For Solid Oxide Fuel Cells [141]

Huanting Wang, Monash University, Australia

13:35

Chemistry of Formation of a Solid Oxide Fuel Cell Electrolyte (Yttria Stabilized Zirconia) [142]

James A Tardio, Royal Melbourne Institute of Technology, Australia

13:55

Mechanical Activation of Combustion-Synthesized LaFeO₃ as Catalyst for Diesel Soot Oxidation [143]

Keita Taniguchi, Hokkaido University, Japan

14:15

Temperature Dependence of Aluminum Nitride Hydrolysis in Alkaline Solution [144]

Atsushi Nosaka, Hokkaido University, Japan

14:35

Botanical One

Modelling Session 2

Chair: Vishnu K Pareek, Curtin University of Technology, Australia

Co-Chair: Tonghua Zhang, Curtin University of Technology, Australia

13:15

Optimization of a Volatile Organic Component Recovery Process for Multiple Economic and Environmental Objectives [150]

Gade P Rangaiah, National University of Singapore, Singapore

13:35

H₂/CO₂ Permeation through a Silicalite-1 Composite Membrane [151]

Sang Kompiang Wirawan, Gadjah Mada University, Indonesia

13:55

Thermodynamic Modelling of High Temperature Systems [152]

Winnie Wulandari, Swinburne University of Technology, Australia

14:15

A PDE Agglomeration Model for Bayer Precipitation [153]

Andrey V Bekker, CSIRO Minerals, Australia

14:35

A Dynamic CSTR Model for SOFC [154]

Shahin Hosseini, Curtin University of Technology, Australia

The Studio

Bioprocessing Session 2

Chair: Thomas E Rufford, The University of Queensland, Australia

13:15

Flocculation of Yeast Suspensions By a Cationic Polymer [132]

S Ranil Wickramasinghe, Colorado State University, United States

13:35

Mass Transfer of Photosynthetic Gases within a Multi-phase Microalgae Production System [133]

Annelie K Moberg, University of Newcastle, Australia

13:55

Microbial Production of Xanthan Gum in a Stirred-tank Bioreactor [134]

Murthy VPS Veluri, Universiti Teknologi MARA, Malaysia

14:15

Scale-Up of a Novel Protein Extraction Process [135]

Rachael L MacManus, AgResearch Limited, New Zealand

Studio One

Oil and Gas Session 2

Chair: Allan Giumelli, BP Refinery (Kwinana), Australia

13:15

Process Design Aspects of a Large Scale Onshore Gas Terminal [155]

John D Kenez, Aker Solutions Australia, Australia

13:35

Enhancement of Pt on Reducibility and Catalytic Performance For Butane Hydrogenolysis of Co Supported on Nay Prepared with Rice Husk Silica [156]

Pongtanawat Khemthong, Suranaree University of Technology, Thailand

13:55

Optimization of Epoxidation Reaction of Rice Bran Oil Using Response Surface Methodology [157]

Edy Purwanto, University of Adelaide, Australia

14:15

Effect of Mo Loading on the Performance of Methane Aromatization Reactions [158]

Chandra M Sinnathambi, Universiti Teknologi, Malaysia

14:35

Tracking Innovation Trends in Natural Gas Processing [159]

Mary L Turonek, Griffith Hack, Australia

Studio Two

Poster Session 2

Chair: Hengte Ke, Harbin Institute of Technology, China

Refer to page 14 for summary of posters on display

Monday, September 28

14:55-15:20 **Afternoon Tea**

15:20-17:00 **Concurrent Sessions**

Grand Ballroom 1

Particle Technology Session 3

Chair: George V Franks, University of Melbourne, Australia

15:20

Interaction of Fine and Ultrafine Particles with Gas Bubbles [174]

Sin Ying Tan, University of South Australia, Australia

15:40

Can Nanobubbles Repel Hydrophobic Surfaces? [175]

Orhan Ozdemir, University of Queensland, Australia

16:00

Investigating the Flotation Recovery of Silica by Using Hydrogen Gas [176]

Shahjahan K A Sarkar, The University of Newcastle, Australia

16:20

Effects of Turbulence and Mineral Density on Flotation [177]

Yunyu Shi, University of South Australia, Australia

16:40

Effect of Water Chemistry on Froth Stability and Coal Flotation [178]

Orhan Ozdemir, University of Queensland, Australia

Grand Ballroom 2

Environmental Session 3

Chair: Jon Langford, Altrum, Australia

15:20

Optimising Zinc Oxide Nanostructured Thin Films as a Photocatalyst for Industrial Wastewaters [164]

Darrell A Patterson, The University of Auckland, New Zealand

15:40

Evaluation of Ni-Co/Al₂O₃ Supported Catalysts For Glycerol Steam Reforming: Solid-State Kinetic Analysis [165]

Chin K Cheng, The University of New South Wales, Australia

16:00

DC Magnetron Sputtered TiO₂: Further Understanding the Effect of Micro Structure on its Application as a Photocatalyst [166]

Emma AC Emanuelsson, University of Auckland, New Zealand

16:20

Cost Evaluation of Different Advanced Oxidation Processes of Wastewater: A Comparison of Uv/TiO₂, uv, O₃, and uv/O₃ [167]

Tuty E Agustina, Sriwijaya University, Indonesia

16:40

Catalytic Oxidation of NO Over Activated Semi-Cokes by Different Preparation Methods [168]

Jian Gao, Chunhu Li, Lijuan Feng, Yingfei Hou, Yingmin Yu, Ocean University of China, China

Swan Room

Fuels and Energy Session 3

Chair: Vladimir Strezov, Macquarie University, Australia

15:20

Application of Low Cost Ionic Liquids for the Separation of Glycerine from Palm Oil-Based Biodiesel [169]

Mohd Ali Hashim, University of Malaya, Malaysia

15:40

Improving the Economics of Biodiesel Production through Esterification of Free Fatty Acid with Waste Glycerol [170]

Mohammed M Farid, The University of Auckland, New Zealand

16:00

Life Cycle Energy Balance of Biodiesel Production from Canola in Western Australia [171]

Hongwei Wu, Curtin University of Technology, Australia

16:20

Esterification of Free Fatty acid in Crude Palm Oil by Continuous Microwave with Ethanol [172]

Kittiphoom Suppalakpanya, Chemical Engineering Dept., Thailand

16:40

Synthesis of Mo₂C/Al₂O₃ Via Propane Carburization For Fischer-Tropsch Reaction [173]

Cyrus G Cooper, Australia

Botanical One

Modelling Session 3

Chair: Jie Bao, UNSW, Australia
Co-Chair: Valery A Danilov, Curtin University of Technology, Australia

15:20

Online Analysis of Bubbling Phenomena [179]

Geoffrey A Brooks, Swinburne University of Technology, Australia

15:40

Prediction of Octane Number for Gasoline Blends using Artificial Neural Networks and Genetic Algorithms [180]

Mohammad Taghi Sadeghi, Iran University of Science and Technology (IUST), Iran

16:00

Application of Integrated Framework of Simulation and Heuristics for Plant-Wide Control of the Styrene Monomer Plant [181]

Rangaiah Gade Pandu, National University of Singapore, Singapore

16:20

Study of Gas-Fines in Decreasing Gas Velocity in a Packed Bed [182]

Govind S Gupta, Indian Institute of Science, India

16:40

Real Time Optimization and Control of Chemical Processes [183]

Nadeem R Chaudhary, Curtin University of Technology, Australia

The Studio

Bioprocessing Session 3

Chair: Yi-Yan Yang, Institute of Bioengineering and Nanotechnology, Singapore

15:20

Biodegradation of Photo-Degraded Polyethylene Nanocomposites [160]

Torika O Kumanayaka, Royal Melbourne Institute of Technology, Australia

15:40

Understanding the Relationship Between Water Activity and Plasticized Biopolymer Type [161]

Huihua Liu, Curtin University of Technology, Australia

16:00

The Effect of Starch-Plasticizer(S) Interactions on the Moisture Migration Behaviour of Plasticized Low Amylose-Starch Films [162]

Benu P Adhikari, University of Ballarat, Australia

16:20

SEM Evaluation Of The Structure Of Dried Oat Starch Granules [163]

Rebecca J Macdonald, AgResearch Limited, New Zealand and University of Canterbury, New Zealand

Studio One

Oil and Gas Session 3

Chair: Mark Trebble, Curtin University of Technology, Australia

15:20

The Effect of Clay in the Formulation of Non-Traditional Completion Fluid for Underbalance Perforation [184]

Munawar Khalil, University of Malaya, Malaysia

15:40

Application of Chemical Engineering Methods to Integrated Production Modelling [185]

Neil J Hawkes, FEESA, United Kingdom

16:00

Risk Matrix Fit for Purpose [186]

Raghava Nayak, Kellogg Brown & Root, Australia

Studio Two

Poster Session 3

Chair: Hongwei Wu, Curtin University of Technology, Australia

15:20

Refer to page 15 for summary of posters on display

Grand Ballroom 1

Particle Technology Session 4:

Chair: Kevin P Galvin, University of Newcastle, Australia
10:00

Keynote Address:

Embracing Reality: Dynamic Simulation of Metallurgical Processes

Andrew Shook, Uranium CSG, BHP Billiton, United States
10:40

Effect of Self-Aggregation on Collectorless Fine Molybdenite Flotation [217]

Lin Zhou, University of South Australia, Australia
11:00

A Study of Detachment of Coarse Particles from Bubbles Using Novel Electro-Acoustical Technique [218]

Danfeng Xu, Ian Wark Research Institute, Australia
11:20

Processing Fine to Ultra-fine Particles in Narrow Inclined Channels of a Reflux Classifier [219]

Kelly Walton, University of Newcastle, Australia
11:40

Hydrodynamic Study of Catalyst Lift Engager [220]

Milinkumar T Shah, Curtin University of Technology, Australia

Grand Ballroom 2

Environmental Session 4:

Chair: Ming H Ang, Curtin University of Technology, Australia
10:00

Keynote Address:

Applications of the Unusual Properties of Water

Richard Pashley, Murdoch University, Australia
10:40

A Critical Review of the Biochar Sequestration Process [208]

Kerrie J Burns, University of Western Australia and The Crucible Group, Australia
11:00

Soil Washing and Bioremediation of Slime Dam Material [209]

Leon Lorenzen, BHP Billiton, Australia
11:20

Establishment of Enhanced Biological Phosphorus Removal Process by Using Seed Sludge from A Conventional Activated Sludge Process [210]

Hui Ying Ong, University of Malaya, Malaysia
11:40

An Aerobic Composting Process of Waste from a Palm Oil Mill [211]

Florence Wong, Curtin University of Technology, Malaysia

Swan Room

Fuels and Energy Session 4

Chair: Geoffrey M Evans, Australia
10:00

A New Age in Bioenergy and Resource Recovery

Prof Mike Dureau, The University of Sydney, Australia
10:20

Doping Copper-Zinc Oxide Catalyst with Lanthanum for the Low Temperature Water-Gas Shift Reaction [212]

Rothman YF Kam, Monash University, Australia
10:40

Waste Materials as Precursors For Supercapacitor Electrodes [213]

Thomas E Rufford, The University of Queensland, Australia
11:00

A Practical Application to Utilise Low Grade Waste Heat from Bayer Alumina Calciners [214]

Peter S Hay, Alcoa World Alumina, Australia
11:20

Heat Transportation Container Using Phase Change Material to Recover Unused Thermal Energy [215]

Takahiro Nomura, Hokkaido University, Japan

Botanical One

Modelling Session 4:

Chair: Ranjeet P Utikar, Curtin University of Technology, Australia
10:00

Co-Chair: Iztok Livk, CSIRO Minerals, Australia
10:00

Keynote Address:

Learning to Deal with Complexity in Reaction Mechanisms

Ravindra Datta, Worcester Polytechnic Institute, United States
10:40

PCA-based Method of Identification of Dominant Variables for Partial Control [222]

Moses O Tade, Curtin University of Technology, Australia
11:00

The Effect of Parameter Uncertainty in Determining Reaction Networks [223]

Mark J Willis, Newcastle University, United Kingdom
11:20

Effects of the Concentration Dependence of Diffusivity on Sorption Kinetics of Riboflavin Removal from Decalcified Whey Solutions in Batch Chromatography Columns [224]

Linh T T Vu, University of Western Sydney, Australia
11:40

RAM Simulation for Process Plants [225]

Raghava Nayak, Kellogg Brown & Root, Australia

The Studio

Bioprocessing Session 4:

Chair: Warren J Batchelor, Monash University, Australia
Co-Chair: Xia Lou,

Curtin University of Technology, Australia
10:00

Keynote Address:

The Role of Monte Carlo Molecular Simulation and Monte Carlo Integration in Adsorption Science and Characterization of Porous Media

Duong Do, University of Queensland, Australia
10:40

Binary Colloidal Crystals and Hierarchical Macroporous Materials [203]

Qin Li, Curtin University of Technology, Australia
11:00

Fabrication and Characterization of Hierarchically Ordered Porous Oxide and Metal Membranes [204]

Xinyi Zhang, Monash University, Australia
11:20

Synthesis of Hierarchical Porous Zeolite Y Particles with Controllable Particle Size [205]

Yi Huang, Monash University, Australia
11:40

Cellulose nanofibre nonwovens [206]

Warren J Batchelor, Monash University, Australia
Sally L Gras, University of Melbourne and The Bio21 Institute, Australia

Studio One

Industrial Session 1:

Chair: Peter Hay, Alcoa, Australia
10:00

Keynote Address:

Driving Sustainable Business Performance Through Business Improvement [226]

Jenny Purdie, Rio Tinto Alcan, Australia
10:40

Knowledge Representation, Extraction and Generation for Supporting a Semi-Automatic Blended Hazard Identification Method [227]

Erzsébet Németh, The University of Queensland, Australia
11:00

A Novel Hazard Identification Approach to Support Intelligent Diagnosis of Process Systems [228]

Benjamin J Seligmann, University of Queensland, Australia
11:20

Safety in Design – the Aker Solutions Way [229]

Damien J Twining, Aker Solutions Australia, Australia
11:40

Carbon Pollution Measurement and Control [230]

Andrew Gunst, Carbon Intelligence, Australia

Studio Two

Poster Session 4

Chair: Deeptangshu Chaudhary, Curtin University of Technology, Australia

Refer to page 21 for summary of posters on display

Tuesday, September 29

12:00-13:15 **Lunch**

13:15-14:55 **Concurrent Sessions**

Grand Ballroom 1

Particle Technology Session 5

*Chair: Clive E Davies, Massey University, New Zealand
Co-Chair: Ted White, The University of Queensland, Australia*

13:15

Leaching and Rheological Behaviour of Chlorite with Fluoride in Sulphuric Acid [245]

Hui Tan, Ian Wark Research Institute, Australia

13:35

Modelling the Leaching of Copper From Two South Australian Ores [246]

Keith B Quast, University of South Australia, Australia

13:55

Adsorption of Polythionates and Thiosulfate on Strong Base Anion Exchange Resins [247]

Abrar Muslim, Curtin University of Technology, Australia

14:15

Thermal Degradation of Vitamin C during the Oven Drying Process [248]

Tim A Langrish, The University of Sydney, Australia

Grand Ballroom 2

Environmental Session 5

Chair: Qin Li, Curtin University of Technology, Australia

13:15

Adsorption Characteristics of Cu (II) And Ni (II) on Iron Oxide and Kaolin: A Kinetic and Equilibrium Study [236]

Tushar Kanti Sen, Curtin University of Technology, Australia

13:35

Mercury Speciation Under Laboratory Scale Direct Iron Smelting Conditions [237]

Pushan Shah, Macquarie University, Australia

13:55

Mercury Leaching in Different Thiosulfate and Cyanide Solutions and its Effects on Gold Recovery [238]

Elsayed A Oraby, Curtin University of Technology, Australia

14:15

Environmental Assessment of Different Advanced Oxidation Processes Applied to Winery Wastewater Effluent [239]

Tuty E Agustina, Sriwijaya University, Indonesia

14:35

Freezing and Thawing Concentrate an Aqueous Solution [240]

Kyuya Nakagawa, University of Hyogo, Japan

Swan Room

Fuels and Energy Session 5

Chair: Hari Babu Vuthaluru, Curtin University of Technology, Australia

13:15

Combined Effects of Temperature and Air Ratio on Vapor-Phase Cracking of Nascent Tar from the Rapid Pyrolysis of Cedar Sawdust [241]

Sou Hosokai, Hokkaido University, Japan

13:35

Investigation of Chlorine Transformation During the Pyrolysis of NaCl-Loaded Victorian Brown Coal Using XANES [242]

Shu Zhang, Monash University, Australia

13:55

Catalysts for Water Gas Shift Processing of Coal-Derived Syngases [243]

Leigh D Morpeth, CSIRO Energy Technology, Australia

14:15

FT-IR Investigation of the Functional Group Effects on Amine Activity towards Carbon Dioxide [244]

Kelly M Robinson, CSIRO Division of Energy Technology, Australia

Botanical One

Modelling Session 5

Chair: Vincent G Gomes, The University of Sydney, Australia

13:15

Investigation of Impeller Type And Baffle Effects on Isolated Mixing Regions in a Laminar Stirred Tank [249]

Wei Ming Yek, Royal Melbourne Institute of Technology, Australia

13:35

CFD modeling of Brown Coal Liquefaction Reactor [250]

Novia Novia, University of Sriwijaya, Indonesia

13:55

Concentration Dependent Viscosity in Milk Evaporation Process [251]

Xiao Dong Chen, Monash University, Australia

14:15

Investigations on sonocrystallization [413]

Hussein Oubani, University of Sydney, Australia

The Studio

Bioprocessing Session 5

Chair: Brent R Young, The University of Auckland, New Zealand

13:15

Effect of Sodium Chloride on the Formation and Stability of n-Dodecane/water Nanoemulsions by the PIT Method [231]

Jeffery C Liew, University of Adelaide, Australia

13:35

Effect of Salt Concentration on N-Dodecane-In-Brine Nano-Emulsions Produced By Phase Inversion Temperature Method [232]

Firoozeh Pourjavaheri-Jad, Royal Melbourne Institute of Technology, Australia

13:55

Mutual Solubility Study in Supercritical Extraction of Monoolein Using Carbon Dioxide Solvent: Regular Solution Equations [233]

R Davarnejad, Universiti Sains Malaysia, Malaysia

14:15

Investigation of the Effect of Processing Conditions on the Rheology of Sheeted Oat/Gluten Dough [234]

Rebecca J Macdonald, University of Canterbury, New Zealand

14:35

Synthesis and Characterization of Amino-Functionalized MWNT /Poly (methyl methacrylate) Nanocomposite [235]

Hyoung Jin Choi, Inha University, Korea

Studio One

Industrial Session 2

Chair: Claire E. Butler, Woodside Energy, Energy Australia

13:15

Replacement Hydrogen Sulphide Plant Project for Kwinana Nickel Refinery [252]

Michael P Warren, Lycopodium Minerals, Australia

13:35

Supply Chain Integration - A Different Perspective to Managing Projects [253]

Zvonko Pregelj, Pregelj Process Engineers (Aust.), Australia

13:55

Soda Control - A New Approach Towards Increasing Alumina Precipitation Yield [254]

John Besida, Alcoa World Alumina, Australia

14:15

Multinational Expansion to China: Challenges and Opportunities [255]

Jonathan A Brinson, Dow Corning Corporation, United States

14:35

Evaluation of a Statistical Process Control System in a Causticisation Facility [256]

*David Caffin, BHP Worsley Alumina, Australia
Andrew R Brown, Motherwell Automation, Australia*

Studio Two

Poster Session 5

Chair: Nicoleta Maynard, Curtin University of Technology, Australia

Refer to page 22 for summary of posters on display

14:55-15:20 **Afternoon Tea**

15:20-17:00 **Concurrent Sessions**

Grand Ballroom 1

Particle Technology Session 6

Chair: Yee-Kwong Leong, The University of Western Australia, Australia

15:20

Development of Nano-Colloidal Diatomaceous Earth Particles into Advanced Material for Water Treatment Applications [272]

Yang Yu, Unisa, China

15:40

Unusual Yield Stress Behavior of Kaolin Clay Slurries [273]

Yee-Kwong Leong, The University of Western Australia, Australia

16:00

The Role of Pulp Chemistry and Particle Interaction Forces in Aqueous Muscovite Dispersions [274]

Ataollah Nosrati, Ian Wark Research Institute, Australia

16:20

Relationship Between Aggregate and Sediment Bed Properties [275]

George V Franks, University of Melbourne, Australia

16:40

The Influence of Interfacial Chemistry, PEO Adsorption Behaviour And Orthokinetic Flocculation Conditions in Enhanced Dewatering of Talc Suspensions [276]

Kai Ying Yeap, University of South Australia, Australia

Grand Ballroom 2

Environmental Session 6

Chair: Shaomin Liu, Curtin University of Technology, Australia

Co-Chair: Darrell A Patterson, University of Auckland, New Zealand

15:20

Effect of Inorganic Electrolytes on the Zeta Potential of RO Membranes [262]

Tung A Hoang, University of Melbourne, Australia

15:40

Temporary Protective Coating for Stainless Steel Slab Reheating Against High-Temperature Oxidation [263]

Peng Liu, Chinese Academy of Sciences, China

16:00

Membrane Separation for Produced Water [264]

Ee-Huey Khor, Curtin University of Technology, Malaysia

16:20

Pore-Filling PDMS/PMHS Membranes for Recovery of Ethylacetate from Aqueous Solution by Pervaporation [265]

Shunsuke Tanaka, Kansai University, Japan

16:40

Preparation of Ceramic Membranes Using Industrial Waste as the Main Raw Materials: Effect of Particle Size and Sintering Temperature on the Porosity [266]

Norliza Binti Ibrahim, Universiti Teknologi MARA, Malaysia

Swan Room

Particle Technology Session 6

Chair: David AV Morton, Monash University, Australia
Co-Chair: Peter S Hay, Alcoa World Alumina, Australia

15:20

Measurement of the Fines Concentration in a Milk Powder Spray Dryer Using Optical Scintillation [277]

John R Gabites, BHP Billiton, Australia

15:40

Influence of Moisture on Surface Energy Determination by Inverse Gas Chromatography [278]

Shyamal C Das, Monash University, Australia

16:00

The Use of Helmholtz Resonance to Measure Volume: Application to Solid, Liquid and Particulate Systems [279]

Emile S Webster, Massey University, New Zealand

16:20

Particle Size Measurement of Silica Nano-Particles By Interactive Force Apparatus Under the Electric Field [280]

Akira Otsuki, University of South Australia, Japan

16:40

Stick Slip Behaviour of Agricultural Limestone During Wall Friction Tests in an Annular Shear Cell [281]

Clive E Davies, Massey University, New Zealand

Botanical One

Bioprocessing Session 6

Chair: Emma AC Emanuelsson-Patterson, University of Auckland, New Zealand

15:20

Process Modeling and Debottlenecking Study of a Vaccine Production [257]

Maizirwan M Mel, IUM, Malaysia

15:40

Block Copolymers and Living Emulsion Polymerisation [258]

Vincent Gomes, University of Sydney, Australia

16:00

Microwave Radiation Effect on Ultra Film Formation of Polyisoprene inside Admicelle Adsorbed on Silica Surface [259]

Thirawudh Pongprayoon, King Mongkut's University of Technology, Thailand

16:20

Toward Production of the Micro- And Mesoporous Activated Carbon From Oil Palm Shell by Chemical Activation Process with ZnCl₂, H₃PO₄ and KOH Under Nitrogen and Carbon Dioxide Condition [260]

Allwar Allwar, University Sains Malaysia, Malaysia

16:40

Polymorphic Design of TiO₂ Nanoparticles by Flame Engineering: Implications to Light-Induced Processes [261]

Yung Kent Kho, The University of New South Wales, Australia

The Studio

Fuels and Energy Session 6

Chair: Victor Rudolph, The University of Queensland, Australia

15:20

Performance of Remote Solar Thermal Power Plants [267]

Jeffrey Claffin, Lycopodium Minerals Ptyu, Australia

15:40

Fast Pyrolysis of Mallee Wood: Effects of Alkali And Alkaline Earth Metallic Species Removal on Yields And Bio-Oil Quality [268]

Daniel Mourant, Curtin University of Technology / Monash University, Australia

16:00

Vapour-Liquid Equilibria Data for a Range of New Carbon Dioxide Absorbents [269]

Andrew W Allport, CSIRO Energy Technology, Australia

16:20

Strategies for Characterisation of Fine Mineral Matter in Collie Coal [270]

Hongwei Wu, Curtin University of Technology, Australia

16:40

Optimization of Sintering Temperature for Producing Thermoelectric device of La-doped SrTiO₃ [271]

Asami Kikuchi, Hokkaido University, Japan

Studio One

Industrial Session 3

Chair: David Udy, Kelly Services, Australia

15:20

Assessing the Potential for Industrial Chemicals Production from the Sugarcane Industry [282]

Ridwan M Doba, Curtin University of Technology, Australia

15:40

Supercritical Fluid Extraction and its Applications [283]

Suwei Zhao, The University of Western Australia, Australia

16:00

From Rheology to Tribology: Multi-scale Dynamics of Microgels, Food and other Soft Matter Systems [284]

Jason R Stokes, University of Queensland, Australia

16:20

Numerical prediction of the surface temperature of polyoxymethylene with various sliding geometry [285]

Youhei Takagi, Shizuoka University, Japan

16:40

Close-to-streamline numerical study on gas velocity distribution in the industrial-scale electrostatic precipitator gas inlet hood [286]

Jie Zhang, Curtin University of Technology, Australia

Studio Two

Poster Session 6

Chair: Shaobin Wang, Curtin University of Technology, Australia

Co-Chair: Tushar Kanti Sen, Curtin University of Technology, Australia

Refer to page 23 for summary of posters on display

08:30-09:30 **Plenary Session 3**
Building on a Solid Base - The Requirements for a Successful Best Practice Transfer Programme
Laurence Stonehouse, Manufacturing Excellence and Global Refining Support Aloca World Alumina, Australia
Chair: Roger Kelson, WA Joint Chemical Engineering Committee, Australia

09:30-10:00 **Morning Tea**

10:00-11:40 **Concurrent Sessions**

Grand Ballroom 1

Fuels and Energy Session 7

10:00

Catalytic Co-Pyrolysis of Waste Tyres with Oil Palm Empty Fruit Bunches [318]

Rusmi Alias, UiTM, Malaysia
Shah Alam, Selangor, Malaysia

10:20

Study effect of Colocasia Esculenta leaf as electrolyte to hydrogen production on electrochemical reaction by using electrochemical reactor [319]

Sri Haryati, University of Sriwijaya, Indonesia

10:40

A Comparison of Carbon Dioxide Absorption Rates Between Monoethanolamine and Ammonia [320]

Robert C Rowland, CSIRO Energy Technology, Australia

11:00

Isomerization of n-Hexane Over Pt Supported on Zeolite Y Synthesized from Rice Husk Silica [321]

Pongtanawat Khemthong, Suranaree University of Technology, Thailand

Grand Ballroom 2

Environmental Session 7

Chair: Tung A Hoang, University of Melbourne, Australia

10:00

Effective and Safe Melting Treatment Process of Asbestos Wastes [304]

Eiki Kasai, IMRAM, Tohoku University, Japan

10:20

Removal of Sodium Sulfide from Waste Water By Oxidation Process in the Presence of Nano Ferric Oxide Catalyst [305]

Saikat Maitra, Universiti Teknologi Petronas, Malaysia

10:40

Treatment of Anaerobically Digested Palm Oil Mill Effluent (POME) using Sequencing Batch Reactor (SBR) [306]

Yi Jing Chan, University of Nottingham Malaysia Campus, Malaysia

11:00

NO_x Reduction by V₂O₅/Al₂O₃-SiO₂ Catalyst in the Flue Gas of Municipal Solid Waste Incinerator [307]

Kamariah Noor Ismail, Universiti Teknologi MARA (UiTM), Malaysia

11:20

A Comparison of Sobek and Lawrence Test Methods for the Determination of Neutralisation Potential and the Influence of Sample Properties [308]

Meining Song, The University of Western Australia, Australia

Swan Room

Fuels and Energy Session 8

10:00

The Effect of Minor Components on the Ignition of Lean Mixtures of Methane in Air [309]

Yii Leng Chan, The University of Western Australia, Australia

10:20

Multi-Objective Optimisation of Single Mixed Refrigerant Natural Gas Liquefaction [310]

Nipen M Shah, Jord International, Australia

10:40

Multiobjective Multifunctional Reactor for Steam Reforming [311]

Vincent Gomes, The University of Sydney, Australia

11:00

The Role of NO and NO₂ in Partial Oxidation of Methane [312]

Yii Leng Chan, The University of Western Australia, Australia

Botanical One

Particle Technology Session 7

10:00

Chair: Karen P Hapgood, Monash University, Australia

10:00

The Effect of Spray Drying Conditions on Yields for Bioactive Extracts [313]

Roshan Premarajah, The University of Sydney, Australia

10:20

Constraints on Agglomeration in Spray Drying [314]

Tim A Langrish, The University of Sydney, Australia

10:40

Improving Liquid Distribution in Pharmaceutical Wet Granulation: A Case Study [315]

Karen P Hapgood, Monash University, Australia

11:00

Influence of Mixing and Formulation on Agglomeration And Functionality Of Micronised Drug Powders [316]

Peter J Stewart, Monash University, Australia

11:20

Energy Dissipation During Agglomerate Impact [317]

Roberto Moreno-Atanasio, University of Newcastle, Australia

The Studio

Bioprocessing Session 7

10:00

Chair: Emma Emanuelsson-Patterson, University of Auckland, New Zealand

10:00

Mesoporous Supported Catalysts for NO_x Removal [302]

Thomas E Rufford, The University of Queensland, Australia

10:20

Effect of Initial hydrothermal Temperatures on the Synthesis of Zeolites from Coal Fly Ash [303]

Hamzah Fansuri, Institute Technology Sepuluh Nopember, Indonesia

Studio One

Industrial Session 4

10:00

Chair: David Montgomery, BP Refinery, Australia

10:00

Solid-Liquid Separations Mediated By A Binary Surfactant System [322]

John-Paul O'Shea, University of Melbourne, Australia

10:20

Preparation and Characterisation of Polyamide-Tio, Membranes [323]

Robert Burford, University of New South Wales, Australia

10:40

Structural Investigation of Titanyl Sulfate Dihydrate and Intermediates Formed During Thermal Decomposition [324]

Hailey Reynolds, Royal Melbourne Institute of Technology University, Australia

11:00

Formation of Polymer Blends using Click Chemistry Aspects of Grubb's Catalysed Polymerization [325]

Robert Burford, University of New South Wales, Australia

Studio Two

Poster Session 7

Chair: Chi M Phan, Curtin University of Technology, Australia

Refer to page 27 for summary of posters on display

11:40-12:10 **Closing Ceremony**

Grand Ballroom 1