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The following is the preliminary technical program and is subject to change. For the latest program, visit: www.aiche.org/Conferences/SpringMeeting/MeetingProgram/TechnicalProgram.aspx.
Nanoparticles for Biolabelling
Folate Mediated Delivery of Dye-Doped Silica
Silica Nanoparticles for Bio Imaging Applications
Protection from Uva/Uvb - Rays
Benign Nano-Thin Film Composite Particles for Formulations and Applications
Spinning Wheel Powder Feeding Device - Fundamentals in Batch Fluidized Bed Granulation
Characterization of the Structure of Fractal Flows
ENGINEERED NANOPARTICLE STRUCTURES - II
Radiopaque Flame-Made Ta2O5/SiO2 Nanoparticles
ENGINEERED PARTICLES OR ENGINEERED NANOPARTICLE STRUCTURES - II

Dolphin Hotel, Asia 1
AGGLOMERATION AND BREAKAGE IN FLUID-PARTICLE SYSTEMS - I
A Population Balance Model for Flocculation of Colloidal Suspensions Incorporating the Influence of Surface Forces • 8:00 AM
Solution of Population Balance Equations for Wet • Granulation and Combination with the FLUENT Software • 8:20 AM
An Approach to Model High Shear Wet Granulation by Using a Multi-Dimensional Population Balance Equation • 8:40 AM
Dispersion Dynamics of Fractal and Non-fractal Aggregates in Shear Flow • 9:00 AM
Extension to Smoluchowski's Population Balance Equation to Include Liquid Binder • 9:20 AM
Characterization of the Structure of Fractal Aggregates • 9:40 AM

Dolphin Hotel, Asia 1
AGGLOMERATION AND BREAKAGE IN FLUID-PARTICLE SYSTEMS - II
Improving Fluidizability of Cohesive Particles by Surface Coating with Flow Conditioners • 1:00 PM
An Experimental Analysis of Fluid Bed Co-Granulation of Two Active Pharmaceutical Ingredients • 1:20 PM
Agglomeration in the Spray Zone of a Spray Drier • 1:40 PM
Drying in a Fluidized Bed of Inert Glass Spheres • 2:00 PM
Study of Particle Growth and Particle Size Distributions in Batch Fluidized Bed Granulation • 2:20 PM
Spinning Wheel Powder Feeding Device - Fundamentals and Applications • 2:40 PM

Dolphin Hotel, Asia 3
ENGINEERED PARTICLES OR ENGINEERED NANOPARTICLE STRUCTURES - I
One-Step Fabrication of Core-Shell Nanofibers from Electrified Coaxial Jets • 8:00 AM
Synthesis of Flexible Magnetic Nanowires of Permanently-Linked Core-Shell Magnetic Beads Tethered to a Glass Surface Patterned by Microcontact Printing • 8:20 AM
Effects of Temperature Cycling on Crystalization in Surfactant-Free Monodisperse Emulsions • 8:40 AM
Benign Nano-Thin Film Composite Particles for Protection from Uva/Uvb - Rays • 9:00 AM
Fluorescence and Magnetic Resonance Enabled Silica Nanoparticles for Bio Imaging Applications • 9:20 AM
Folate Mediated Delivery of Dye-Doped Silica Nanoparticles for Biolabelling • 9:40 AM

Dolphin Hotel, Asia 3
ENGINEERED PARTICLES OR ENGINEERED NANOPARTICLE STRUCTURES - II
Radiopaque Flame-Made Ta2O5/SiO2 Nanoparticles with Controlled Refractive Index and Transparency • 1:00 PM
Nanoparticle Structural Organisation and Scaffolding in Organic Media • 1:20 PM
Cubic or Monolycinic Y2O3:Eu® Nanoparticles by One Step Flame Spray Pyrolysis • 1:40 PM
Fine Poly(carbonate)Silane Particles for Precursors of Silicon Carbide Ceramics Synthesized by Precipitation Processing in Solvents • 2:00 PM
Novel Application of Surfactant to Selectivity Enhancing Agent in Chemical Mechanical Polishing • 2:20 PM
The Effects of the Operational Parameters on the Characteristics of Protein Microparticles • 2:40 PM

Dolphin Hotel, Asia 4
FLUID-PARTICLE INTERACTIONS AND INTER-PARTICLE FORCES IN FLUID PARTICLE SYSTEMS I
Basic Investigations on Fugitive Dust Emissions Caused by Falling Bulk Solid Streams • 8:00 AM
Dispersion of High Aspect Ratio Particles in Air • 8:20 AM
Controlling the Interparticle Forces of Nanoparticles Using Atomic Layer Deposition • 8:40 AM
Simulation of the Hydrodynamic Behavior of Aggregated Particles • 9:00 AM
Fine Particle Flow - from a Discrete Element Perspective • 9:20 AM

Dolphin Hotel, Asia 4
FLUID-PARTICLE INTERACTIONS AND INTER-PARTICLE FORCES IN FLUID PARTICLE SYSTEMS II
Segregation in Polydisperse Fluidized Beds:Development and Validation of a Multi-Fluid Model • 1:00 PM
A Study on the Conductivity of the Particles-Solvent Suspensions • 1:20 PM
Coarse-Graining of Two-Fluid Models for Fluidic Gas-Particle Suspensions • 1:40 PM
A New Polydisperse Drag Law Derived from Latent Boltzmann Simulations • 2:00 PM
Surface Deformation in a Liquid Environment Resulting from Single-Particle Collisions • 2:20 PM
Multi-Scale Structure of Clustering Particles • 2:40 PM

Dolphin Hotel, Oceanic 6
FLUID/PARTICLE SYSTEMS IN MATERIAL PROCESSING
Mathematical Modeling of Reaction Kinetics of Limestone CaCO3 Decarbonization in a Stationary Furnace • 8:00 AM
Preparation of Spherical Nanstructured Particles

Topical W: Fifth World Congress on Particle Technology*

Particle and Bulk Solids Handling Technology - Bridging the Theory Practice Gap • April 24 • 10:30 AM • Alan Roberts*, University of Newcastle
Particle and Product Design Strategies Through Interfacial Engineering • April 24 • 3:20 PM • Wolfgang Peukert*, Friedrich-Alexander-University Erlangen-Nurnberg
Multi-Scale Modeling of Dense Phase Gas-Particle Flows • April 25 • 10:30 AM • Yukata Tsubi*, Osaka University
Electrical Capacitance Volume Tomography for Process Imaging • April 25 • 3:20 PM • L.S. Fan*, Ohio State University
Particle Technology Education 2006 • April 26 • 10:30 AM • Martin Rhodes*, Monash University
Functional Nanoparticles Made in Flame Aerosol Reactors • April 26 • 3:20 PM • Sotiris Pratsinis*, Swiss Federal Institute of Technology
Particle Characterization - from Bulldog, to Eagle, to Dinosaur • April 27 • 10:30 AM • Reg Davies, University of Florida
Agglomerate Shrinkage and Bubbling Stimulation on Vibrated Afp Beds • 9:40 AM

*This is only a Plenaries and Tutorial of the World Congress on Particle Technology. Other sessions appear throughout the preliminary program.
of Lithium Manganese Oxides by a Spray Pyrolysis and Fluidized Bed Hybrid System • 8:20 AM
Mortar Paste Structure Evolution During Ram Extrusion Process: An Experimental Investigation • 8:40 AM
Numerical Analysis of Air-Particles Swirl Flow in a Pipe • 9:00 AM
Characterization of Bauxite-Residue Classified by Wet Cyclone System • 9:20 AM
Comparison of Electrostatic Fine Powder Coating and Coarse Powder Coating by Numerical Simulations • 9:40 AM

Dolphin Hotel, Australia 2

GRANULE COATING PROCESSES
The Development of New Direct Coloring Technique for Powder Coatings • 8:00 AM
Surface Modification of Silica Particles by Dry-Coating • 8:20 AM
An Investigation into the Effects of Time and Shear Rate on the Spreading of Liquid Binders in a Granular Layering Process • 8:40 AM
Particle Design for Improved Tablettability Characteristic Via Hot Granulation of Drug (Ibuprofen) Particles with Sublimation Tendency • 9:00 AM
Determination of Temperature and Moisture for Drying • 9:20 AM
Coating and Granulation of Fine Particles in Fluidized Bed • 9:40 AM

Dolphin Hotel, Oceanic 3

NANOPARTICLES PROCESSES AND APPLICATIONS
Amine Group (-NH2) Functionalized Magnetic Nanoparticles by Pulsed Plasma Polymerization • 8:00 AM
Synthesis of Metal Nanoparticles Inside a Porous Support in Fluidized Bed: Application to Supported Catalysts • 8:20 AM
Dispersion of Flame-Synthesized Silica Nanoparticles in an Aqueous Solution • 8:40 AM
Filtration + Magnetic Field = Nanoseparation • 9:00 AM
Coupling Extrusion and Supercritical CO2: A New Process for a Homogeneous Inclusion of Fragile Molecules in a Polymer Matrix • 9:20 AM
Primary Study of Polystyrene Nanoparticle Application in RfC Catalysts • 9:40 AM

Dolphin Hotel, Asia 5

NUMERICAL SIMULATION OF FLUID/PARTICLE FLOW SYSTEMS - I
A New Approach in Solving Population Balance Equations • 8:00 AM
Capturing Non-Brownian Particle Transport in Simple Periodic Flows • 8:20 AM
Direct Numerical Simulation of Particle-Fluid Flow: the State-of-the-Art • 8:40 AM
Direct Numerical Simulation of Two-Phase Flow • 9:00 AM
Effects of Lubrication and Particle Size Distribution on Fluidization Behavior - a Dem Study • 9:20 AM
Investigation of Layer-Inversion and Mixing in Binary-Solid Liquid-Fluidized Beds Using a Combined Continuum and Discrete Model • 9:40 AM

Dolphin Hotel, Asia 5

NUMERICAL SIMULATION OF FLUID/PARTICLE FLOW SYSTEMS - II
Proteus - An Efficient Computational Scheme for the Simulation of Dense Particulate Flows • 1:00 PM
Optimum Cell Condition for Fast Contact Detection in the Algorithm of Dem and Its Application to Large-Computing • 1:20 PM
Numerical Simulation of the Transport Volume Expansion Particles in Fluid Flows • 1:40 PM
A Study of the Dynamics of Homogeneous and Bubbling Fluidized Beds by means of Computational Fluid Dynamics • 2:00 PM
Modelling of the Boundary Layer in Turbulent Two-Phase-Flows • 2:20 PM

Dolphin Hotel, Northern Hemisphere A - 1

BOTTOM OF THE BARREL PROCESSING
Changes in Asphaltene Structure and Stability During Hydrotreating • 8:00 AM
Coke Quenching in the Delayed Coking Process • 8:45 AM
Stability of Water-in-Crude Oil Emulsions in the Burgan Oilfield • 9:30 AM

Dolphin Hotel, Northern Hemisphere A - 2

DESLATING TUTORIAL
Developing Crude Pre-Treating Programs to Improve Downstream Operations • 8:00 AM
Solids Handling in Crude Oil • 8:40 AM
Controlling Quality Variations in the Feed to Desalters • 9:20 AM

Dolphin Hotel, Southern Hemisphere 2

ETHYLENE PLANT PROCESS CONTROL
Introduction - Opening Remarks • 8:00 AM
Intermediate Advanced Process Control and Olefins Production Maximization on Ethylene Plant Building an Effective Operator Interface for Complex Ape Applications • 8:30 AM
An Operator Advisor/Trainer for Olefin Plant Cold Fractionation • 8:55 AM
A DEMplus Tale of Two C2s, Splitters • 9:35 AM
What Dynamic Simulation Brings to a Process Control Engineer: Applied Case Study to a Propylene/Propene Splitter • 10:00 AM
Use of External Targets to Improve Dmplus Controller Performance and Long-Term Benefits • 10:25 AM

Dolphin Hotel, Europe 3

ADVANCES IN THE SEPARATIONS AND IMMOBILIZATION OF NUCLEAR WASTE
Implications for the Nuclear Power Industry Caused by New Views on Climate Change and Societal Implications Thereof • 8:00 AM
Flammable Gas Generation During Immobilization of Tetraphenylborate in a Cementitious Waste Form • 8:15 AM
Separation of Cesium and Strontium from Spent Lwr Fuel and Immobilization of the Product Using Steam Reforming Technology • 8:30 AM
Development of Waste Acceptance Criteria for Modular Caustic-Side Solvent Extraction Unit • 8:45 AM
Effect of Variation in Modular Caustic-Side Solvent Extraction Unit Parameters on Process Performance • 9:00 AM
Millimeter-Wave High and Low Level Activity Waste Glass Research • 9:15 AM
Treatment of the Sodium Bearing Waste at the Idaho Nuclear Technology and Engineering Center by Steam Reforming • 9:30 AM
On the Development of an Electrical Tomographic System for Monitoring the Performance of a Heavy Metal Precipitation Step during Nuclear Fuel Reprocessing • 9:45 AM
Defense Waste Processing Facility Recycle Stream Evaporation • 10:00 AM
Development of a Rotary Microfilter to Increase Throughput in Solid-Liquid Separation Processes • 10:15 AM
The Archimedes Filter - A Supplemental Pre-treatment Solution for Hanford • 10:30 AM
Refinement of the Alkaline/Oxidative Leaching Process to Remove Chromium from Hanford Nuclear Waste • 10:45 AM
Using an Integrated Model for Strategic Planning of Nuclear Waste Salt Processing Program in Savannah River Site • 11:00 AM
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Life Cycle Assessment of Microreaction Technology: A Revolution for the Fine Chemical and Pharmaceutical Industry?

Microreactor Technology and Molecular Industry Innovation Value?

Dolphin Hotel, Europe 7
Hydrogen Sensor Development
Fiberoptic Hydrogen Leak Detector
Low-Power Detection of Hydrogen Leakage Using a Self-Powered Wireless Hydrogen Sensor Node
Optical Hydrogen Sensor for Inert Environments
H2 Detection Via Polarography
Development of Hydrogen Detection Instruments at Kennedy Space Center

Dolphin Hotel, Oceanic 8
Innovative Environmental Management Procedures Part I
Innovative Environmental Management Procedures - Introduction
Natural Infrastructure Capabilities Requirements Management
Innovative Procedures to Accelerate Cleanup

Dolphin Hotel, Oceanic 8
Innovative Environmental Management Procedures Part II
Performance-Based Management Implementation in South Carolina
Exit Strategy and Systematic Planning Within Performance Based Management
Implementation of Performance Based Management and Performance Based Contracting
Implementation of the Methods Innovation Rule (MIR) as a Major Factor in the RCRA Performance Based Measurement (PBM) Program
Staged Electronic Data Deliverable
Uniform Federal Policy for Implementing Environmental Quality Systems
Performance Based Management Panel Discussion

Dolphin Hotel, Northern Hemisphere E - 2
LNG I - Plant and Operation
New Advances of LNG in China
Integrated Approach for the Design of Refrigeration and Power Systems
Processes for High C2 Recovery from LNG - Part I
Schemes Based on Refluxed Demethanizer
Validation of the Air Recirculation CFD Simulations on a Multi-Train LNG Plant
Reduction of Flare Loading during a Refrigerant Compressor Blocked Discharge in a LNG C3/MR Process
LNG as a Source of Clean Energy

Dolphin Hotel, Northern Hemisphere E - 2
LNG II - Technology & Equipment
LNG-Fired Peak-Shaving Power Plants in China
A Flexible LNG Conditioning and NGL Recovery Process in LNG Receiving Terminal
Processes for High C2 Recovery from LNG - Part II
Schemes Based on Expanader Technology
Precooling Concepts for Large Base Load LNG Plants
Integrate LNG Terminal with Power Plant to Achieve BTU Control and Efficiency Enhancement
Snohvit LNG - Leading LNG Business into a Promising Region
LNG Applications of Printed Circuit Heat Exchangers

Swan Hotel, Parrott
Microtechnology in Catalyzed Reaction Systems I
An Overview of Microchannel Reactor Technology and Its Applications
Biodiesel Synthesis in Multichannel Microreactor
Catalyst Uniformity Requirements for Industrial Microchannel Applications
Experimental Studies of Nitration of Toluene in a Microchannel Reactor
Catalytic Selective Oxidations in Microchannel Reactors
Kinetic Investigation of H2O2 Synthesis by Controlled H2O2 Reaction in a Microchannel Reactor

Swan Hotel, Parrott
Microtechnology in Catalyzed Reaction Systems II
Structured Microreactors for Intensification of Catalytic Process
Development of Integrated Ceramic Microreactors for Production of Hydrogen
Steam-Reforming of Methanol over Zn-Cr Catalysts in a Microreactor
Catalyst Coatings in Ceramic Microreactors for Steam Reforming of Methanol
Integrated Micro System for Controlled Delivery of Hydrogen from Metal Ammonia
Robust Ceramic SiC-Microreactors with Catalytic Coatings
Scale-up of Microtechnology for Fuel Processing Applications: Comparison Between Fixed-Bed and Microchannel Reactor Systems

Dolphin Hotel, Northern Hemisphere E - 3
Separations Research Programs
Recent Distillation Research at FRI
Modeling Reboilers with HTRI Technology
Optimizing the Performance of High Capacity Corrugated Sheet Structured Packings
Optimum Product Yields of Vacuum Distillation Unit from Petroleum Refinery Process
Simulation of Ternary Distillation in a Heat Integrated Distillation Column (HIDIC) with a Rate-Based Model

Dolphin Hotel, Southern Hemisphere 1
Self-Inflicted Contaminants and Fouling
Introductory Speech
Hydrate Formation in Ethylene, Acetylene, and Propylene
Corrosive Chemicals in Bfw, Defective Analysing Systems and Incomplete Treatment of Steam Systems Resulting Serious Transfer Line Exchanger Failures
Methodology for Minimizing Self Inflicted Contaminants in Ethylene Plants
Unintended Consequences of Process Additives on Acetylene Converter Performance in a Gas Feed Steam Cracker

Dolphin Hotel, Southern Hemisphere 3
Process Safety Requirements and Conducting Business in Foreign Countries
Representative from Sinopec
Representative from Braskem, Brazil
Senior Group Vice President, Safety and Operations, BP
UK Heath and Safety Executive

Dolphin Hotel, Oceanic 3
Fluid/Particle Flow Measurements
Improved Resolution of Charge Distribution Around a Rising Bubble in a Two-Dimensional Fluidized Bed

Monday, April 24

Swan Hotel, Lark
Energy, Cost and Eco-Efficiency Analysis in Micro-Systems
The Impact of Microtechnologies in Chemical and Pharmaceutical Production Processes
BASF’s Eco-Efficiency Analysis Method
Microreactor Technology: A Revolution for the Fine Chemical and Pharmaceutical Industry?
Micro Reaction Technology and Molecular Industry Innovation Value?

Dolphin Hotel, Northern Hemisphere E - 2
PJM Fuel Cells - Challenge in Science and Technology
Sub-Freezing Conditions on a PJM Fuel Cell Performance and Components
Nanostructured Polymer Electrodes
Electrochemical Impedance Spectroscopic Studies of Non-Fluorinate Proton Exchange Membranes in DMf
Photoproduction of Hydrogen from Hydrogen Sulfide Using a Novel Metal Oxide Photocatalyst

Dolphin Hotel, American Seminar Room
Recent Advances in Clean Energy Sources II
Down-Hole Combustion Method for Gas Production from Methane Hydrate
Evaluation of Process Variables Interaction by Biodiesel Production from Castor Oil Ethanolise
Selective Co Oxidation in the Presence of Excess Hydrogen over Promoted Pt Catalyst
Selective Catalytic Oxidation of Co in the Presence of Hydrogen over Au/MnO2-CeO2 Catalysts
Neural Modeling of a Continuous Alcoholic Fermentation Process and Its Optimization by Successive Quadratic Programming

Dolphin Hotel, Northern Hemisphere E - 3
Separations Research Programs
Recent Distillation Research at FRI
Modeling Reboilers with HTRI Technology
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Fluid/Particle Flow Measurements
Improved Resolution of Charge Distribution Around a Rising Bubble in a Two-Dimensional Fluidized Bed
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Dolphin Hotel, Northern Hemisphere E - 4

**IMPRESSING SAFETY CULTURE**

Safety Culture in the CCPS Risk-Based Process Safety Model • 1:55 PM
Safety Climate and Decision Making • 2:20 PM
Maintaining a Healthy Safety Culture • 2:45 PM
Impact of Engineering Ethics on Safety Culture • 4:00 PM

Dolphin Hotel, Southern Hemisphere 4 & 5

**MECHANICAL INTEGRITY**

Risk-Based Integrity Modeling of Process Equipment • 2:15 PM
Flexible Storage Phantom Plate Versus Film-Based Technology for Erosion/Corrosion Profiling • 2:45 PM
Managing on Stream Leak Repairs • 3:15 PM
Beyond Compliance - Taking Your Mechanical Integrity Program to the Next Level • 4:15 PM
Mechanical Integrity Best Practice for Sulfuric Acid Plants • 4:45 PM
An Analysis of the Gas Pipeline Explosion at Ghislenghien, Belgium • 5:15 PM

Dolphin Hotel, Northern Hemisphere A - 1

**ADVANCES IN DESALTING**

Parallel Comparison of Two Different Desalting Technologies—a Case Study • 2:00 PM
Bimodal Modulation for Enhanced Desalting • 2:35 PM
New Control Technology for Desalter Optimization • 3:10 PM
Desalter Interface Control and Diagnostics Utilizing Sonar Transducers • 3:45 PM
Removal of Calcium and Other Metal Species Form Crude Oil in the Desalting Process, Part 2 • 4:20 PM

Dolphin Hotel, Northern Hemisphere A - 2

**ADVANCES IN FCC**

Heat of Cracking for Napththa in Risers of Fcc Units • 2:00 PM
How FCCU Trickle Valves Affect Catalyst Losses • 2:25 PM
Heat Transfer and Heat Removal in Flowing Dense Phase Fluidized Beds • 2:50 PM
Molecular Based Kinetic Modeling of FCC Process • 3:15 PM
Evaluation of the PID Performance for Fcc Units • 3:40 PM
Optimizing FCC: LPG rate and Cat Gasoline Octane Constraints • 4:05 PM

Dolphin Hotel, Northern Hemisphere A - 3

**AROMATICS**

Investigation into a Novel, Green Technology for Aromatic Thiol Production, a Density Functional Theory (DFT) Study • 2:00 PM
Commercialization of a New Ultra High Purity/High Yield Phenol Process from Sunoco-UOP • 2:25 PM
Production of Metaxylene within the Aromatic Complex • 2:50 PM
Integrating Petrochemical Industry with a Fuel Oriented Refinery • 3:15 PM
Factors That Affect the Quality of the Essential Lemon Oil (Citrus Aurantifolia) During the Distillation • 3:40 PM

Dolphin Hotel, Northern Hemisphere E - 3

**DISTILLATION HONORS: JOHN FARONE**

On Trays, Packings, and a Life in Distillation • 2:00 PM

Different Strokes: A Review of the Various Unique Devices Tested at Fractionation Research, Inc • 2:30 PM
Evaluation of Structured Packing Hydraulic Performance Using X-Ray Computed Tomography • 3:00 PM
Pressure Drop of Packed Column Internals • 3:30 PM
Six Sigma Evolutionary Improvement Approach for Distillation Process Optimization • 4:00 PM
Extractive Distillation: A Process Improvement Project • 4:30 PM

Swan Hotel, Lark

**POLYMERIZATION IN MICRO-REACTORS**

Novel Tubing Microreactor for Monitoring Chemical Reactions • 2:02 PM
Amino Acid Polymerization in Micro- Reactor • 2:47 PM
Synthesis of Dendrimers Using Continuous Flow Microreactors • 3:10 PM
NMP Homopolymers and Two-Stages Copolymers Synthesis in Microtube Reactors: Improvement of the Macromolecular Architecture Control • 3:33 PM
A Micro-Reactor for Preparing Uniform Molecules Imprinted Polymer Beads • 3:56 PM
Synthesis of Monodisperse Polymer Particles by Photopolymerization in Flow Micro-Reactors • 4:19 PM
Synthesis of Polymer Beads Necklaces in a Microfluidic Device • 4:42 PM
Nanoparticle-Doped Polymer Minirods Made by Micro Segmented Flow • 5:05 PM
Swan Hotel, Heron

**MICROBIOTechnology AND PROCESS ANALYtics**

Applying Microreactor Technology in Chemical Product Research and Process Development • 2:00 PM
Characterization of Microchannel Microreactors as Tools for Laboratory Measurements of Reaction Kinetics • 2:40 PM
Analytical Sensors, Instrumentation, and Laboratory Applications of NESSI • 3:00 PM
Online Analysis in Microreaction Technology: Suitable Tools for Process Screening and Optimization • 3:20 PM
Determination of Temperature Profile within Continuous Micromixer-Tube Reactor Used for the Exothermic Additon of Dimethyl Amin to Acrylonitrile • 3:40 PM
On-Line Chemical Process Analytics Using Lab-on-Chip Systems • 4:00 PM
Use of Catalytic Micro-Reactor to Improve Selectivity of Gas Sensors • 4:20 PM

Dolphin Hotel, Southern Hemisphere 2

**PLANT SAFETY**

Quench Oil Fire in Cracking Furnace • 2:30 PM
Stainless Steel Drum Failure at Olefins Plant • 3:00 PM
The Safe Use of Copper –Containing Catalysts in Ethylene Plants • 3:45 PM
A Six Sigma Approach to Operational Safety Issues Related with Nitrogen Oxides in the Cold Separation Section of Ethylene Units • 4:20 PM

Dolphin Hotel, Southern Hemisphere 1

**SELF INFECTED CONTAMINANTS AND FOULING: ROUNDABLE DISCUSSION**

Fouling Mechanism and Performance Evaluation of a Gasoline Fractionator • 2:55 PM
Optimize Until It Hurts • 3:20 PM
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NUMERICAL SIMULATION OF FLUID/PARTICLE FLOW SYSTEMS - III

DEM Modeling of Hopper Flows: Comparison and Validation of Models and Parameters
- 8:00 AM

Fully-3D DEM Fluidization Simulation of a Shallow Fine Powder Bed • 8:20 AM

Convergence Control and Convergence Improvement in Lagrangian Predictions of Particulate Two-Phase Flows • 8:40 AM

Modeling of the Hydrodynamics of Gas-Solid Flows by Improved Finite Volume Based Finite Element Method • 9:00 AM

Issues concerning Simulation of Industrial Particulate Handling and Processing Operations Using the Discrete Element Method • 9:20 AM

NUMERICAL SIMULATION OF FLUID/PARTICLE FLOW SYSTEMS - IV

Understanding the Gas Residence Time in a Cyclones • 1:00 PM

Numerical Simulation on Particle Distribution in Cyclone Separators • 1:20 PM

Simulation of Pattern Formation in a Rotating Suspension of Non-Brownian Settling Particles • 1:40 PM

Population Balance Application in Rotating Fluidized Bed Polymerization Reactor • 2:00 PM

Validation of CFD Model for Fluidized Bed over Broad Ranges of Operating • 2:20 PM

Simulations of Spouted Bed Dynamics in the Context of Coating Nuclear Fuel Particles • 2:40 PM

Dolphin Hotel, Asia 5

NUMERICAL SIMULATION OF FLUID/PARTICLE FLOW SYSTEMS - V

The Influence of Binary Drag Laws on MP-PIC Simulations of Segregation • 4:30 PM

Study the Effect of Particle Collision on Turbulent Prandtl Number in Gas-Solid Flow Using Turbulent Thermo-Mechanical Modeling • 4:50 PM

Numerical Simulation of Complex Fluid-Solid Flows • 5:10 PM

CFD Modelling of Turbulent Fluidization in FCC Unit Strippers • 5:30 PM

The Interaction Between Small Clusters of Cohesive Particles and Laminar Flow: Coupled DEM/CFD Approach • 5:50 PM

Dolphin Hotel, Asia 5

OUTREACH ACTIVITIES IN PARTICLE TECHNOLOGY

Particle Science and Technology Education and Research at IIT Madras: A Synergistic Approach • 8:00 AM

ERPT - Web Tutorials in Particle Technology • 8:20 AM

Swedish Industrial Association for Multiphase Flows - Bringing Together Industry and Academia • 8:40 AM

Using Advances in Communication Tools for the Education of Users of Particle Characterization Instrumentation • 9:00 AM

Case Study of Particle Technology Application in Automotive Industry • 9:20 AM

Awareness of Particle Technology in Industries Through Consultancy and Short Course • 9:40 AM

Dolphin Hotel, Oceanic 3

PARTICLE DESIGN VIA SELF-ASSEMBLY - I

Nano-Structured Amphiphile Self-Assembly Phases and Particles: New Urea Surfactants as a Case Study (Invited Talk) • 8:00 AM

Exploiting Self Assembly and Phase Separation to Produce Multiscale Porous Architectures in Particles Made by Aerosol Routes • 8:40 AM

Production of Water-Rich Powder by Assembling Hydrophobic Silica Nanoparticles • 9:00 AM

Colloidal Particles with Directional Interactions • 9:20 AM

Dolphin Hotel, Australia 2

PARTICLE DESIGN VIA SELF-ASSEMBLY - II

Design, Control and Direct Visualization of Heterogeneous Structure in Colloidal Aggregates and Gels (Invited Talk) • 1:00 PM

Assembly of Binary Colloidal Particles with...
Tuesday, April 25

Dolphin Hotel, Oceanic 4

**SLOW-SHEARING MOVING/PACKED BED FLOWS II**

- Discrete Element Simulations of Floor Pressure in a Granular Material in a Cylindrical Vessel • 1:00 PM
- Conduction Heat Transfer and the Flow of Granular Materials due to Shear • 1:20 PM
- Measurement of Velocity and Density Profiles within Discharging Conical Hoppers by NMR Imaging • 1:40 PM
- Granular Flow through an Orifice - Effect of Granule Size and Shape Distributions • 2:00 PM
- Dynamic Mechanisms of a Vibration Bed Under Weakly Excitation • 2:20 PM
- Numerical Simulations of Flow Patterns in a Moving Granular Filter Bed with an Asymmetric Louvered-Wall and Obstacles • 2:40 PM

Dolphin Hotel, Northern Hemisphere E - 3

**ADVANCES IN DISTILLATION**

- Equipment & Applications I
  - Dividing Wall Column Revamp Optimizes Xylene Production • 8:00 AM
  - Investigation on a Novel Double-Effective Packing Element • 8:30 AM
  - Measurement of Packed Column Gas-Liquid Contact Areas for CO₂ Absorption • 9:00 AM
  - Debottlenecking an Acm Heads & Dry Column with Vg Af (V-Grid Anti-Fouling) Trays • 9:30 AM
  - Modeling the Minimum Entrainment on Sieve Trays • 10:00 AM

Dolphin Hotel, Northern Hemisphere E - 3

**ADVANCES IN DISTILLATION**

- Equipment & Applications II
  - Testing of Mellapak M452.Y at Fractionation Research, Inc • 1:00 PM
  - Foaming Effect on Random Packing Performance • 1:30 PM
  - New Random Packing Development, Superblend • 2:00 PM
  - How to Surpass Conventional and High Capacity Structured Packings with Raschig Super-Pak • 3:30 PM
  - Radioisotope Technology - Benefits & Limitations in Packed Bed Tower Diagnostics • 4:00 PM

Dolphin Hotel, Northern Hemisphere A - 1

**ADVANCES IN HYDROPROCESSING I**

- Impact of Future Fuel and Cruoe Demand on Refinery Hydrotreating • 8:00 AM
- Limiting Factors in Deep Hydrodesulfurization of Diesel • 8:20 AM
- Effect of Promoters on Structural and Chemical Properties of Hydrotreating Catalysts • 8:40 AM
- Effect of the Oxide Precursors on the Sulphurisation of Hydrotreating Comop() Catalysts • 9:00 AM
- Study About Formation Al₂O₃-TiO₂ Nanofibers as Catalysts for Hydrodrotreating • 9:20 AM
- Unsupported Sulfide and Nitride Catalysts for Hydrodrotreating: New Preparation Approaches • 9:40 AM

Dolphin Hotel, Oceanic 4

**SLOW-SHEARING MOVING/PACKED BED FLOWS I**

- Flow of Dry, Fine, Non-aerated Powders: A Continuum-Mechanics Approach • 8:00 AM
- Plane Shear Flow of Cohesive Granular Materials • 8:25 AM
- Granular Fluid Dynamics • 8:50 AM
- On the Numerical Calibration of Discrete Element Models for the Simulation of Bulk Solids • 9:15 AM
- Influence of Interface Energy of Primary Particles on the Shear Deformation Behaviour of Agglomerate Embedded in a Powder Bed • 9:40 AM

Dolphin Hotel, Northern Hemisphere A - 1

**ADVANCES IN HYDROPROCESSING II**

- Catalyst Selection for Ultra Low Sulfur Diesel Operations: Activity and H₂ Consumption Considerations • 2:00 PM
- Comparative Study of Vapor-Liquid Equilibrium during Hydroprocessing of Different Petroleum Feedstocks • 2:30 PM
- Value Driven Catalyst Developments in FCC Pre-treatment Service • 3:00 PM
- Hydrotreating for Clean Fuels Production • 3:30 PM
- Low Emission Diesel Production by Upgrading LCO • 4:00 PM
- Thermodynamics of Coking in Hydroprocessing Units: Modeling Competitive Naphthalene Saturation and Condensation Reactions • 4:30 PM

Dolphin Hotel, Northern Hemisphere A - 3

**ADVANCES IN LIGHT HYDROCARBON PROCESSING**

- Comparison of Existing and Emerging Alkylation Technology • 8:00 AM
- AlkyleneTM - Improved Solid Catalyst Alkylation Technology for Clean Fuels • 8:35 AM
- Alkylean® - A Demonstrated New Standard for Alkylation Technology • 9:10 AM
- Welded Plate Exchangers: More Than Ever Needed in Catalytic Reforming • 9:45 AM
- Platinum Level Effects in C₆H₆ Isomerization • 10:20 AM

Dolphin Hotel, Europe 2

**ENHANCING LEADERSHIP IMPACT**

- Leadership—What’s It All about? Can You Do It? • 8:00 AM
- You’re Only a Leader If Someone Is Following • 8:30 AM
- Assessing Leadership • 9:00 AM
- Using a Management System Maturity Model to Drive Continual Improvement • 9:30 AM
- Enhancing Leadership Impact When Problem Solving • 10:00 AM
- Understanding Leadership Challenges in an Aging Organization • 10:30 AM

Dolphin Hotel, Europe 8

**HYDROGEN AS AN ENERGY CARRIER: HIGH VOLUME PRODUCTION ISSUES I**

- Pre-Conceptual Design and Cost Estimate for a Nuclear Hydrogen Production Plant • 8:04 AM
- Experimental Studies of the Iodine-Water System for the Sulfur-Iodine Thermochemical Cycle • 8:26 AM
- Sulfuric Acid Decomposition Catalysts and Reaction Considerations for Sulfur-Based Thermochemical Water Splitting Cycles • 8:48 AM
- Improvement of the Thermal Efficiency of Hydrogen Iodine Concentration in I-S Process by Using Radiation-Induced Polymerized Membrane in Electrodialysis System • 9:10 AM
- Development of Separation Processes Based on Membrane Technology for the S-I Thermochemical Cycle • 9:32 AM
- Technical Barriers and Opportunities in Nuclear Plant/Hydrogen Plant Connection Technologies • 9:54 AM
- Hybrid Sulfur Cycle Flowsheets for Hydrogen Production from Nuclear Energy • 10:16 AM
- Solar Production of Hydrogen Using a Cadmium Based Thermochemical Cycle • 10:38 AM

Dolphin Hotel, Europe 8

**HYDROGEN AS AN ENERGY CARRIER: HIGH VOLUME PRODUCTION ISSUES II**

- A Low-Greenhouse-Impact Hydrogen-Based Liquid-Fuels Future • 2:00 PM
- Nuclear Hydrogen Initiative Calcium-Bromine Cycle: Determine the Feasibility of Using Cold Plasma Dissociation for H₂ Generation, and Molten-Spray Contactor for CaBr₂ Regeneration • 2:20 PM
- Testing of the Palladium Membrane Reactor and Potential Applications for Hydrogen Production • 2:40 PM
Preliminary Call for Abstracts
2nd International Conference on Bioengineering and Nanotechnology
September 5 - 7, 2006 • Santa Barbara, California

The Society for Biological Engineering (SBE) invites you to submit your abstract for the 2nd International Conference on Bioengineering and Nanotechnology (ICBN). Be a part of the conference that brings together leading researchers working at the interface of bioengineering and nanotechnology. This is your opportunity to hear the latest advances and explore the enormous potential of these emerging areas which unite engineering, science and medicine.

CONFERENCE TOPICS

- Drug delivery systems and devices
- Small animal imaging and the microtomography
- Medicinal chemistry
- Protein and gene delivery systems
- Nano imaging tags (quantum dots, magnetic nanoparticles)
- Synthesis and separation of chiral pharmaceuticals
- Cell and tissue engineering
- Bio-MEMS and microreactors
- Biomimetic and self-assembled materials
- Artificial organs and implants
- Medical devices and microtools
- Nanoparticles, nanocomposites
- Biological and biomedical imaging
- Biomarkers, biosensors and molecular diagnostics
- Nanoporous materials for bio-applications

ABSTRACTS

Delegates are invited to submit abstracts for consideration for oral and poster presentations. Abstracts should be submitted as a Word file attachment via email to ICBN@aiche.org and should be no longer than 300 words. All abstracts should clearly state the title, author's name, affiliation and address.

WHEN: September 5 - 7, 2006
WHERE: The University of California in Santa Barbara

ABSTRACT REGISTRATION:
- Abstract deadline: April 30, 2006
- Abstract acceptance: May 31, 2006
- Early registration deadline: June 15, 2006

FOR FURTHER INFORMATION:
June Wispelwey, Executive Director, Society for Biological Engineering
3 Park Avenue New York, NY 10016
junew@aiche.org
http://bio.aiche.org/icbn

Co-sponsors: Society of Biological Engineering; the University of California, Santa Barbara; The Bindley Bio-Science Center, Purdue University; and the Nanoscale Science and Engineering Forum of the American Institute of Chemical Engineers
## Tuesday, April 25

### Logistics Fuel Catalytic Cracking for Hydrogen Generation  •  3:00 PM
Dynamic Simulation of Reforming and Regeneration Processes for Fixed-Bed Adsorption  •  3:20 PM
Hydrogen Generation Using Fixed-Bed Adsorption-Enhanced Natural Gas Reformer  •  3:40 PM
Analysis of a Novel Process with Integrated CO₂ Capture Using Thermal Energy from a High-Temperature Nuclear Reactor and Coal for the Production of Hydrogen and Electric Power  •  4:00 PM
Preliminary Economic Analysis of a Nuclear-Powered Ammonia Plant  •  4:20 PM
Aspen Plus Plant Design for the Liquid Hydrogen Production by Steam Reforming of Renewable Lubricating Oil  •  4:40 PM

**Dolphin Hotel, Europe 6**

### Innovation in Sustainable Processes I

**Sustainable Design Conditions in Controlling Wastes  •  8:00 AM**
L3 Propanolino: Innovation Leading to a More Sustainable Polymer  •  8:25 AM
Development of Arnold M. Leas Fluidized Catalytic Gasification Process  •  8:50 AM
A New Fischer-Tropsch Technology for China  •  9:15 AM
The Effects of Supercritical Carbon Dioxide on the Zeolite-Based Heterogeneous Friedel-Crafts Acylation of Anisole  •  9:40 AM
Sulfide Refinery Waste Treatment  •  10:05 AM

**Dolphin Hotel, Europe 6**

### Innovation in Sustainable Processes II

**CFD Modeling of Particulate Transport to Design Invert Trap for Sewer Solids Management  •  2:00 PM**
Simultaneous Multijobtective Chemical Model Fitting of Online Measurements: Calorimetry, Spectroscopy and Gas Uptake  •  2:25 PM
Development of Fuzzy Dynamic Models: Application to Polymerization Systems  •  2:50 PM
Development of a Dynamic Model for the Production of Impact Modified Styrene/Maleic Anhydride Copolymers  •  3:15 PM
Continuous Copolymerization of Vinylidene Fluoride with Hexafluoropropylene in Supercritical Carbon Dioxide  •  3:40 PM
Micromerocellular Foam for Blends of PP and PES with Different Viscosity and Elasticity  •  4:05 PM

**Dolphin Hotel, Northern Hemisphere E  -  2**

### LNG III - Environment & Energy

Compressed Natural Gas Engines Exhaust Gas Treatment  •  8:00 AM
Versatility of Vacuum Jacketed Pipe in LNG Facilities  •  8:20 AM
Processes for High C₂ Recovery from LNG - Part III: Similar Applied to Gas Processing  •  8:40 AM
NGL Recovery Process Synergies with the LNG Value Chain  •  9:00 AM
Advanced Design of Submerged Combustion Vaporizer for Low Emission Operation  •  9:20 AM
Overview of Open Rack Vaporizer and Intermediate Fluid Type Vaporizer, and Possible Impact of the Warming Water to Environment  •  9:40 AM
Low Emissions with Advanced Pipeline Gas Heater  •  10:00 AM

**Dolphin Hotel, Northern Hemisphere E  -  2**

### LNG IV - Control & Simulation

CFD Study on Natural Gas Fluidized Bed Combustors  •  2:00 PM
Rasgas Makes Extensive Use of Process Operator Training Simulators in LNG Operations  •  2:20 PM
Performance Characteristics of LNG Tandem Expanders  •  2:40 PM
Pressure Induced Non-Linear Oscillations in Two-Phase LNG Pipe Flow  •  3:00 PM
How Big Is the Area Required for LNG Base Load Plant and Their Design Considerations  •  3:20 PM
LNG Rollover: Converting a Safety Problem to Tank Loading Operational Asset  •  3:40 PM
A Step Change in LNG Operations through Advanced Process Control  •  4:00 PM

**Swan Hotel, Macau I**

### Mixing and Heat Exchange in Micro-Reactors

Single and Multiphase Mixing and Contacting in Microreactors  •  8:00 AM
Experimental Investigation of Flow Boiling Heat Transfer in a Microchannel by Using Infrared Thermography  •  8:40 AM
Numerical and Experimental Study of Mixing Enhancement in Micromixers Using Residence Time Distribution (RTD)  •  9:00 AM
Shape Design of a Tubular Microreactor with Desired Product Distribution  •  9:20 AM
Behavior of an Instantaneous Liquid-Phase Reaction in a Rectangular Microchannel  •  9:40 AM
Optimization of Metallic Microchannel Array Evaporators  •  10:00 AM
Understanding Critical Heat Transfer Issues in Thermal Integration of Planar Microreactor Components of a Fuel Processor  •  10:20 AM

**Swan Hotel, Parrott**

### Particles, Emulsions and Dispersions I

New Synthetic Method of Organic Pigment Nano Particle by Micro Reactor System  •  8:00 AM
Micro-Fluidic Strategies for Synthesis of Nanoparticles  •  8:40 AM
Formation of Au/Ag Nanoparticles in a Two Step Micro Flow through Process  •  9:00 AM
Preparation of BaSO₄ Nanoparticles in a Microchannel Reactor  •  9:20 AM
Production Scale Use of Microstructured Devices in Solids Technology  •  9:40 AM
Microfluidics and Reactors in Porous Materials  •  10:20 AM
Assembling of Nanoparticles Using Ice Crystals  •  10:40 AM

**Swan Hotel, Parrott**

### Particles, Emulsions and Dispersions II

Superior Emulsion Formation in Microchannel Architecture  •  2:00 PM
Droplet Formation by Collision of Two Aqueous Solutions in an Organic Phase and Application to Ag Particle Formation  •  2:40 PM

Direct Nucleation Studies of Colloidal Systems inside Microfluidic Droplets  •  3:00 PM
Study of the Phase Transition Behavior of Self-Oscillating Pumps Nanoparticles  •  3:20 PM
Miniaturization of Metallic MicroSeparator/Classifier and Its Application to Emulsion  •  3:40 PM
Mixing Enhancement by Internal Circulation Flow Using Liquid-Liquid Slug Flow in Microreactors  •  4:00 PM
Microfluidic Networks for Complex Emulsions: From Single Active Elements to Highly Parallelized Systems  •  4:20 PM

**Dolphin Hotel, Northern Hemisphere A - 4**

### Petrochemicals from Heavy Oils

Transformation of Heavy Gas Oils Derived from Oil Sands to Petrochemical Feedstock  •  8:00 AM
Selective Ring Opening of Diesel Fuels  •  8:40 AM
Advanced Technology for Aromatics Saturation  •  9:20 AM
Effect of Chlorine, Fluorine and Titania on Surface Structure, Morphology and Hydroprocessing Activity of Ni-Mo Catalysts Supported on Alumina  •  10:00 AM

**Dolphin Hotel, Europe 1**

### Pilot Plant Success Stories

Approaches to Pilot Plant Development at DuPont  •  8:00 AM
Arizona American Water C/F Process Evaluation - The Significance of Scheduling and Process Variable Selection during Pilot Testing  •  8:30 AM
An Industrial Slurry Oxidation Pilot Plant Program  •  9:00 AM
A Scale-up Success Story: How a Continuous Stirred Tank Reactor Was Scaled down successfully  •  9:30 AM
Scale-up and Evaluation of a Pilot-Scale Electrothermal-Swing Adsorption System for the Capture and Recovery of Organic Vapors from a Painting Facility  •  10:00 AM
Control of an Exothermic Reaction under Cryogenic Conditions by Direct Liquid Nitrogen Injection to a Glass on Stainless Steel Vessel  •  10:30 AM

**Dolphin Hotel, Europe 3**

### Thermodynamics and Phase Equilibria I

Engineering Diversity through Thermodynamics - the Role of Water Activity in Solid-Liquid Equilibria in a Polymeric Pharmaceutical System  •  8:00 AM
Thermodynamic Modeling and Prediction of Solubility of Organic Molecules and Pharmaceuticals  •  8:22 AM
Infinite Dilution Partition Coefficients of Naphthalene and Benzene in the [Bmim][PF₆]-CO₂ System  •  8:44 AM
Equilibrium Adsorption of Carbon Dioxide, Methane, and Nitrogen Gases on Argonne Premilled Coal and an Activated Carbon at Various Moisture Contents  •  9:06 AM
Numerical Aspects of the Saff Equation of State  •  9:28 AM

**Dolphin Hotel, Europe 3**

### Thermodynamics and Phase Equilibria II

Determining Parameters of the Lennard-Jones Potential Energy Function for Methane Using the Second Virial Coefficient  •  2:00 PM
Using the Solution Model to Predict the Salt Effect on Vapor-Liquid Equilibria  •  2:22 PM
Stability and Composition of Ceria Nanoparticles from Density Functional Theory Simulations  •  2:44 PM
Study • 4:10 PM
In-Line Flame Arrester Application Limits and Matrix Concept for Process Plant Safety from Flash Back of Thermal Combustion Units • 4:40 PM
Using LOPA to Verify the Design of a Burner Management System • 5:10 PM

Dolphin Hotel, Northern Hemisphere E-1

ADVANCED GAS CONVERSION AND GASIFICATION PROCESSES

ITM Syngas: Ceramic Membrane Technology for Lower Cost Conversion of Natural Gas • 2:00 PM
Metal Premixed Binary Oxides of Ceria and Zirconia for Low Temperature Water-Gas Shift • 2:25 PM
Efficiencies in Small Scale Hydrogen Production by Methane Steam Reforming at High Temperature Catalytic and Low Temperature Plasma Processes • 2:50 PM
Oxidative Coupling of Methane Enhanced by Thermally Optimized Reactors and Intermediate Separation • 3:15 PM
Development and Evaluation of the Gasification Technology as Alternative Power Generation • 3:40 PM
Optimization of Amines Mixture’s Formulation by Neural Networks in Gas Sweetening • 4:05 PM

Dolphin Hotel, American Seminar Room

COMBUSTION - NOx AND SOx CONTROL AND MODELING

Long-Term Sulfation Behavior of Limestone Sorbents • 2:00 PM
Novel Sorbents for Mercury Capture from Fuel Gas • 2:30 PM
The PCO Process for Photochemical Removal of Mercury from Fine Gas • 3:00 PM
Performance Optimization and Emission Reduction of a Baled Biomass Combustor • 3:30 PM
Modeling and Simulation of Diesel Particulate Filters • 4:00 PM

Dolphin Hotel, Northern Hemisphere A-3

ENERGY CONSERVATION

Energy Conservation and Innovation of Basic Chemical Processes • 2:00 PM
Energy Savings for Refinery and Petrochemical Industries • 2:25 PM
Energy Integration - a Fresh Look for a Changed Energy World • 2:50 PM
Combined Energy and Water Analysis for the Oil Sands Industry • 3:15 PM
Enhanced Heat Transfer Technology Application in Crude Units for Saving Energy • 3:40 PM
Extraction of Benzene from Wastewater Using Refinery Liquids by L-L Extraction Instead of Distillation • 4:05 PM
Debottlenecking of Heat Exchanger Networks Using Optimum Pressure Drops • 4:30 PM
Systematic in-Process Modification Approach for Enhanced Waste Energy Recovery in Gas Plants • 4:55 PM

Dolphin Hotel, Southern Hemisphere 2

ENVIRONMENTAL

Business Value from Sustainable Development and the Petrochemical Industry • 2:05 PM
Ethylene MACT • 2:25 PM
Latest Efforts in Using Infrared Technology to Detect VOC Emissions • 2:45 PM
Huntsman VOC Fenceline Monitoring System • 3:20 PM
European Ethylene Producers’ Committee Furnace Emissions Survey • 3:40 PM

Cracking Furnace Emissions Survey of North American Ethylene Producers • 4:00 PM
Dolphin Hotel, Southern Hemisphere 1

ETHYLENE PLANT OPERATIONS

Ethylene Quench System Fouling • 2:00 PM
Upgrade to a Tail-End Acetylene Converter at BASF Fina Petrochemicals Naphtha Cracker • 2:20 PM
Flare Reduction Strategy at Lyondell Chemical Company’s Clinton Plant • 2:40 PM
Smart Pigs Aren’t Geniuses • 3:15 PM
Increased Run Length and Furnace Performance with Kubota Metal and Nova Chemicals ANK 400 Anticoke Technology. Data from Current Installations as Well as Technology Improvements for Higher Thermal Stability and Decoking Robustness • 3:35 PM
Furnace Incident during Decoking Operation • 3:55 PM

Dolphin Hotel, Europe 2

PARTNERSHIPS AND STRATEGIC ALLIANCES IN INNOVATION

Open Innovation: Existing Models and Analysis • 2:00 PM
The Pleasure, Pain and Pitfalls of Starting a New Business • 2:30 PM
Integrated Product and Process Design at the University of Florida • 3:00 PM
Increasing the Probability of Success in Collaborative Research: A Procedural Justice Theory Based Approach • 3:30 PM
Protecting Your Intellectual Property in Collaborative Ventures • 4:00 PM
Technical & Operational Excellence Via Partnerships and Alliances While Maintaining Control of Intellectual Property • 4:30 PM

Dolphin Hotel, Europe 1

SUCCESSFUL DEBRITTLENIPPING AND IMPROVEMENT

Introduction • 2:00 PM
Downscaling for Process Support and Upscaling for Process Development • 2:05 PM
We’ll Do a Plant Test, They’re Easy — Wrong • 2:25 PM
Agglomeration of Pharmaceutical Microparticles, the Origin and Implications • 2:45 PM
Development of a New Gas/Liquid Distributing Tray for Catalytic Reactors Operated in Upward Gas/Liquid Flow • 3:10 PM
Studies on Ionic Mass Transfer with Coaxially Placed String of Spheres as Turbulence Promoter in Fluidized Beds • 3:35 PM
Continuous Polymerization Process : Some Scale-up Issues • 4:00 PM

Dolphin Hotel, Southern Hemisphere 3

INTERNATIONAL TRENDS IN PROCESS SAFETY

Differences in European States’ Application of the Seveso 2 Directive on Major Accident Hazards • 4:00 PM
Process Safety Management in India - Current Trends and Issues • 5:00 PM

Dolphin Hotel, Oceanic 4

PARTICLE TRACKING IN HANDLING & PROCESSING

Particle Tracking Techniques and Their Applications • 4:30 PM
Tracking Pellet Motion in a Wurster Coater Using Positron Emission • 5:00 PM
Experimental Characterization of the Chaotic Dynamics of Cohesioneless Particles in a V-Blender Using Radioactive Particle Tracking • 5:20 PM
Dry and Cohesive Powders in Vertical Axis High Shear Mixers Using Positron Emission Particle Tracking (PEPT) • 5:40 PM

Preliminary Tests on Fluid-Dynamic Features and Plastic Separation Feasibility of a Hydraulic Static Charge on a Particle with Atomic Force Microscope • 4:50 PM
Particle Cleaning in the Martian Environment • 5:10 PM
Evaluating the Use of Tribocharging in Electrostatic Beneficiation of Lunar Simulant • 5:30 PM
Electrostatic Screen for Transport of Martian and Lunar Regolith • 5:50 PM

Dolphin Hotel, Asia 5

DENSE-PHASE FLOW COMPONENTS IN DRY PARTICLE SYSTEMS

Relationship Between the Hausner Ratio and Frictional Pressure Losses in Fluidized Dense Phase Pneumatic Conveying • 4:30 PM
Modeling of Dense Particle Flow in the Annulus of Spouted Beds with Draft Tube • 4:50 PM
Investigation of Flow Regimes in a Spout-Fluid Bed with a Draft Tube Using Pressure Fluctuation • 5:10 PM
Calculation of Fundamental Dense Granular Flow • 5:30 PM
Effect of Fine Particles on the Flow of Narrow-Sized Coarse Slurry through 90° Bend • 5:50 PM

Dolphin Hotel, Oceanic 6

FLUID/PARTICLE REACTIONS IN ENERGY AND ENVIRONMENTAL SYSTEMS

Mechanisms of Limestone Attrition in Fluidized Bed Combustion • 4:30 PM
Research on Biomass Gasification in Circulating Fluidized Bed • 4:50 PM
Comparison of Different Hydrocyclone Arrangements for the Cleaning of Contaminated Soil • 5:10 PM
Silica Gel and Hydroxyapatite Composites with Osmoloids for Heavy Metal Removal from Water • 5:30 PM
Heavy Metal Removal from Gas Phase with Hydroxyapatite Sorbent • 5:50 PM

Dolphin Hotel, Asia 4

NANO-PARTICLE & ULTRA-FINE POWDER IMAGING IN PROCESS FLOWS

Probing of Microstructural Evolution of Nanopowder Compacts Using High Resolution X-ray Microtomography • 4:30 PM
Microstructural Investigations of Nano Particle Fluidization in Model 2-D and 3-D Beds Using High Speed X-Ray Imaging and Microtomography • 4:50 PM
Water Resistance of Nano-Particles Water Repellent • 5:10 PM
Determination of Colloid Deposition at Particle-Particle Contacts Using X-Ray Microtomography • 5:30 PM
Real-Time Particle Size and Shape Characterization Using in-Process Video Imaging Process Analytical Technology (PAT) • 5:50 PM

Dolphin Hotel, Oceanic 4

Dolphin Hotel, Asia 4
Dolphin Hotel, Australia 3

**PROCESSING AND DISPERSION OF PARTICLES INTO CONCENTRATED SUSPENSIONS**

Preparation of Stable Nano-Dispersions | 4:30 PM
Changes in the Wettability of Calcium Pyrophosphate Induced by Glow-Discharge Radio Frequency Plasma and Muffle Furnace Heating | 4:50 PM
Aggregation of Concentrated Colloidal Silica Dispersions in a Stirred Tank | 5:10 PM
Effect of Inorganic Surface Treatment on the Dispersibility of TiO₂ Pigment | 5:30 PM
The Effect of Glow-Discharge Plasma and Muffle Furnace Heating on the Surface Chemistry of Kaolinite | 5:50 PM

Dolphin Hotel, Asia 2

**CHARACTERIZATION OF PARTICLES MADE BY FLAME SYNTHESIS**

Quantitative Single Particle Mass Spectrometry for Characterization of Nanoparticle Composition and Reactivity | 4:30 PM
Non-Intrusive Dynamics During Spray Flame Synthesis of ZrO₂ | 4:50 PM
The Granulometric Properties of Pyrogenic Silica Suspensions | 5:10 PM
On-the-Fly Length Classification of Carbon Nanotube Aerosols and the Kinetics of Growth | 5:30 PM
In-Situ SAXS Measurement of SiO₂ Nanoparticle Growth in Diffusion Flames | 5:50 PM

Dolphin Hotel, Oceanic 2

**MEASURING AND MODELING THE RESPONSE OF PARTICLE SYSTEMS - I**

Stick-Slip Mechanism in Powder Flow | 8:00 AM
Penetration and Rebound of Steel Projectile from Aggregated Particles in Random Packing | 8:20 AM
Numerical Modeling of Filling and Discharge Processes in Hoppers of Different Shapes | 8:40 AM
Mechanic Waves in Sand, 3D Simulations | 9:00 AM
Effect of Moisture Induced Capillary Forces on Flow Properties of Thermal Power Station Coal | 9:20 AM
Energy Distribution in the Squeezing of Particles in Concentrated Suspension | 9:40 AM

Dolphin Hotel, Oceanic 2

**MEASURING AND MODELING THE RESPONSE OF PARTICLE SYSTEMS - II**

Contact Algorithm for Tablet-Shaped Particles and Its Application in DEM Simulation | 1:00 PM
Study on Frictional Property of Powder for Cosmetics | 1:20 PM
The Flow Field in the Mill - A Key Factor for the Prediction of the Communion Result | 1:40 PM
Three-Dimensional Shape Descriptors and Tomographic Reconstruction Techniques for Granular Materials | 2:00 PM
Imaging Based Size, Gradation and Shape Characteristics of Aggregate Particles Used in Road Pavements | 2:20 PM
Visualization of Shear Motions of Powders in the True Biaxial Shear Tester | 2:40 PM

**Dolphin Hotel, Oceanic 1**

**CAKING PHENOMENA - I**

A New Measurement System for Evaluation of Powder Flowability Based on Vibrating Capillary Method | 4:30 PM
Sticky Point Determination in Dairy Powders Using the Particle Gun Technique | 4:45 PM
Development of Novel Stickiness Measurement Devices (Thermal Mechanical Compression and Cyclone Stickiness Tests) for Food Powders | 5:00 PM
Round Robin Tests with the Uniaxial Tester to Predict Caking | 5:15 PM
Caking: Predicting the Bulk Strength of Granular Materials | 5:30 PM

**Dolphin Hotel, Oceanic 2**

**ADVANCES IN THE MECHANICAL TESTING AND SIZE MEASUREMENT OF POWDERS**

Mechanical Testing on Small Quantity of Loosely Compactable C ohesive Powders | 4:30 PM
Powder Compaction and Particle Shape | 4:50 PM
Tensile Strength of Cohesive Powders | 5:10 PM
Shape Descriptors for Particle Characterization and Classification Using Imaging and Image Analysis | 5:30 PM
Methods for the Adjustment of an Experimental PSD to a Reference Model and Its Verification | 5:50 PM

**Dolphin Hotel, Oceanic 1**

**CHARACTERIZATION OF SINGLE PARTICLE AND BULK MECHANICAL PROPERTIES FOR GRANULAR FLOW SIMULATIONS - I**

Micromechanics of Particle Adhesion | 8:00 AM
Analysing the Compaction of High-Porosity Microscopic Agglomerates Formed by Random Ballistic Deposition | 8:20 AM
Particle - Structure Interactions for Wall Friction Studies Using Discrete Element Models | 8:40 AM
Qualitative Assessment of the Influence of Coordination Number on Crushing Strength Using DEM | 9:00 AM
A General Approach for the Characterization of Fragmentation Problems | 9:20 AM
Understanding Intra-Mixture Interactions in the Breakage of Dense Particulate Mixtures | 9:40 AM

**Dolphin Hotel, Oceanic 1**

**CHARACTERIZATION OF SINGLE PARTICLE AND BULK MECHANICAL PROPERTIES FOR GRANULAR FLOW SIMULATIONS - II**

Comparison of Ring Shear Cell Simulations in 2D and 3D with Experiments | 1:00 PM
Flow Behavior of Ultrafine Cohesive Powder: A 3D “View” from Inside | 1:20 PM
Steady State Flow for Cohesive Powders | 1:40 PM
Finite Element Analysis for Incipient Flow of Bulk Solid in a Diamondback Hopper | 2:00 PM
Influence of Single Particle Parameters on Bulk Behavior of Dense Granular Assembly | 2:20 PM
Development of Micromechanical Models for Particulate Media: the Projection Problem in the Transition from Particle to Bulk Mechanical Properties | 2:40 PM

**Dolphin Hotel, Asia 2**

**BRIAN SCARLET MEMORIAL SESSIONS - III**

Transition from Dilute to Concentrated Conditions | 8:00 AM
Air Current Segregation of Alumina Powder | 8:20 AM
The Effect of Ultrasound on Crystallisation-Precipitation Processes | 8:40 AM
Coal Fly Ash: from Waste to Industrial Product | 9:00 AM

**Dolphin Hotel, Asia 2**

**BRIAN SCARLET MEMORIAL SESSIONS - IV**

The Electrostatic Force between a Partially Charged Dielectric Particle and a Conducting Plane | 1:00 PM
Electrostatic Charge Transfer Due to Single Impact of Pharmaceutical Powders | 1:20 PM
Application of Observation Techniques in a Model Predictive Control Framework of Fed-Batch Crystallization of Ammonium Sulfate | 1:40 PM
Experimental Study and Modelling of the Effect of Wetting Properties on the Growth Rate and the Efficiency in Fluidized-Bed Coating Process | 2:00 PM
On the Consequences of Non-First-Order Breakage Kinetics in Commination Processes: Absence of Self-Similar Size Spectra | 2:20 PM
Gas Dispersion of Ultrafine Powders | 2:40 PM

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**Wednesday, April 26**

**Dolphin Hotel, Southern Hemisphere 3**

**GLOBAL APPROACHES TO INHERENTLY SAFER TECHNOLOGY AND HUMAN FACTORS**

Incorporation of Inherent Safety Principles in Process Safety Management | 8:00 AM
Human Factor Considerations for Process Safety in a Global Economy | 8:30 AM
A Multi-Criteria and Fuzzy Logic Based Approach for the Relative Assessment of Chemical Substances Hazards | 9:00 AM

**Dolphin Hotel, Asia 4**

**DEWATERING AND DRYING**

Powder Production for Sterile Injectable by a Fluidized Bed Granulator | 8:00 AM

**Dolphin Hotel, Oceanic 6**

**FLOW/PARTICLE SYSTEMS IN PHARMACEUTICAL INDUSTRY**

Simulation of the Performance of a Dry Powder Inhaler Using Computational Fluid Dynamics | 8:00 AM
Batch Crystallisation of L-Isoleucine Using on-Line Monitoring System | 8:20 AM
The Use of CFD and Population Balance for Anti-Solvent Crystallization Scale-up | 8:40 AM
Control of the Particle Properties of a Drug Substance by Crystallization Engineering and the Effect on Drug Product Formulation | 9:00 AM
Synthesis of Calcium Alginate Gel Beads by Electrodispersion in Vegetable Oil | 9:20 AM
Novel Micro and Nano Fabrication Technology Based on Self-Organization for Biomaterials and Nano-Particles | 9:40 AM
Wednesday, April 26

Dolphin Hotel, Asia 1

**FUNDAMENTALS OF FLUIDIZATION AND FLUID PARTICLE SYSTEMS - I**

Modification and Re-Interpretation of Geldart’s Classification of Powders • 8:00 AM
Jet Hydrodynamics around Fluidized Bed Spargers • 8:20 AM
An Energy-Based Model of Gas-Solids Transport in a Riser • 8:40 AM
Stress History - A Concept for the Description of the Age-Dependent Attirion of Catalysts in Fluidized Bed Systems • 9:00 AM
Predicting the Particle Mass Flowrate in the Draft Tube of a Draft Tube Spout-Fluid Bed • 9:20 AM
Fine Particle Classification Using Fluidized Beds in Series • 9:40 AM

Dolphin Hotel, Asia 1

**FUNDAMENTALS OF FLUIDIZATION AND FLUID PARTICLE SYSTEMS - II**

Fluidization of Coated Cohesive Powders • 1:00 PM
Experimental Observations of Wet Bed Fluidization Hydrodynamics • 1:20 PM
Effect of Fluidizing Gas Humidity on Bubble Behaviors in a Gas-Solid Fluidized Bed under Vibrated Conditions • 1:40 PM
Strange Phenomenon and Resonance in Vibrationally Fluidized Beds • 2:00 PM
Vibration Attenuation in a Gas Fluidized Bed of Fine Aeratable FCC Powder • 2:20 PM
Injection of a Liquid Spray into a Gas-Solid Fluidized Bed: Measurement and Modeling of Solids Entrainment into the Spray • 2:40 PM

Dolphin Hotel, Oceania 3

**MIXING AND SEGREGATION - II**

Simulation of Vibration-Induced Segregation of Equal-Sized Bronze and Glass Spheres • 8:00 AM
Drag Force Model for Fluidized Bed of Binary Mixture of Particles • 8:20 AM
Experimental Verification of Drag Laws for Binary, Gas-Fluidized Systems • 8:40 AM
The Influence of Cohesion on Segregation Mechanisms • 9:00 AM
Continuous Classification of Dissimilar Solids • 9:20 AM
The Fluidization Pattern of Density-Segregating Binary Mixtures • 9:40 AM

Dolphin Hotel, Asia 3

**MODELING OF COMMINUTION PROCESSES**

Interpretation of Breakage Data via Moment Models • 8:00 AM
Modelling and Measurement of Granule Friability • 8:20 AM
Analysis of Single Ball Mill by Distinct Element Method • 8:40 AM
DEM Prediction of Particle Flows and Breakage in Comminution Processes • 9:00 AM
Prediction of Optimum Milling Condition and Power Consumption • 9:20 AM
Application of the Theory of Markov Chains to Model Non-Linear Phenomena in Comminution • 9:40 AM

Dolphin Hotel, Australia 2

**PARTICLE FORMATION AND MODIFICATION IN TWO-PHASE SYSTEMS**

Application of Seeding as a Process Actuator in a Model Predictive Control Framework for Fed-Batch Crystallization of Ammonium Sulfate • 8:00 AM
Precipitation of Tailored Crystals in an Ultra-sound Levitator • 8:20 AM
Process Function of Stirred Media Milling • 8:40 AM
Process Development of a Media Milling Process for a Nanoparticle Drug Formulation • 9:00 AM
The Effect of Supercooling on Supercritical Fluid Antisolvent Precipitation of Particles • 9:20 AM
Preparation of Emulsion-Suspension Composite Polymer Particle Via Seed-Coagulation Process • 9:40 AM

Dolphin Hotel, Oceania 4

**RAPID GRANULAR FLOWS IN CHUTES, CHANNELS AND FEEDERS**

Mixing of Cohesive Particles in a Shear Cell • 8:00 AM
The Unsteady Drag Force on a Cylinder Immersed in a Dilute, Decelerating Granular Flow • 8:20 AM
Drag Correlations for 3-D, Dilute Granular Flow • 8:40 AM
Numerical Simulations of Granular Materials Flow around Obstacles: the Role of the Interstitial Gas • 9:00 AM
Experimental Investigation and Kinetic Based Model of an Annular Granular Shear Flow • 9:20 AM
Time-Dependent and Steady-State Characteristics of Rapid Granular Shear Flows • 9:40 AM

Dolphin Hotel, Northern Hemisphere E - 3

**ADVANCES IN DISTILLATION**

Tray Design Techniques at Low Liquid Load Conditions • 8:00 AM
Distillation Column Flooding Predictor • 8:30 AM
Computer-Aided Graphical Tool for Complex Column Design • 9:00 AM
Heat-Integrated Distillation Sequence Synthesis • 9:30 AM
Synthesis and Design of Energy Efficient Distillation • 10:00 AM
How to Decide When and How Much to Use Reactive Distillation: A Case Study on MTBE System • 10:30 AM

Dolphin Hotel, Northern Hemisphere A - 1

**ADVANCES IN HYDROPROCESSING**

Meeting the Challenge of Delayed Coker Naphtha Hydrop processing • 8:00 AM
Developing Knowledge from Spent Hydroprocessing Catalyst Chemical Analysis • 8:30 AM
Recombination: A Complicating Issue in FCC

Dolphin Hotel, Northern Hemisphere A - 2

**CONTROL AND OPTIMIZATION IN REFINING I**

Apriori Alarm Management during Project Feed Stage Using the Results from the HAZOP • 8:00 AM
User Approval of Safety Instrumented System Devices • 8:30 AM
Advances in Abnormal Situation Prevention in Refineries and Petrochemical Plants • 9:00 AM
Optimization of the Benzine and Diesel Fuels Blending • 9:30 AM
Energy Management • 10:00 AM
Development and Implementation of Process Analytical Toolbox • 10:30 AM
Fault Identification in Black-Box Simulink Models Using Optimisation Methods • 11:00 AM

Dolphin Hotel, Northern Hemisphere A - 2

**CONTROL AND OPTIMIZATION IN REFINING II**

New Techniques for Meeting New Product Spec and Products Demand Under Catastrophic Failure through Multi Objective Multi Refinery Optimization • 8:00 AM
Optimization of the Benzine and Diesel Fuels Blending • 8:30 AM
Energy Management • 9:00 AM
Development and Implementation of Process Analytical Toolbox • 9:30 AM
Fault Identification in Black-Box Simulink Models Using Optimisation Methods • 10:00 AM

Dolphin Hotel, Northern Hemisphere A - 2

**CONTROL AND OPTIMIZATION IN REFINING III**

A Self-Tuning Regulator for Fluid Catalytic Cracking Units • 2:00 PM
Robust Dynamic Principal Component Analysis for Process Performance Monitoring • 2:30 PM
Wireless Instrumentation Enables New Best Practices in Monitoring and Automation • 3:00 PM
Using Industrial Wireless Sensors to Monitor Safety Showers and Eye-Wash Stations • 3:30 PM
Advanced Control Strategy to a Fermentation Process to Obtain Ethanol • 4:00 PM

Dolphin Hotel, Oceania 8

**ENVIRONMENTAL MANAGEMENT SHORT COURSE PART I**

Performance Based Management Concepts and Implementation • 8:00 AM
Intergovernmental Data Quality Framework, MIR, UFp • 10:00 AM

Dolphin Hotel, Europe 6

**BUSINESS CASE & SUSTAINABLE FEEDSTOCKS**

New Views on Climate Change and Societal Implications Thereof • 8:00 AM
Modeling the Combined Effects of Forests and Agriculture on Future Water Availability • 8:40 AM
Pyrolysis Kinetics of Bagasse Fibers • 9:05 AM
Catalytic Conversion of Biomass in Organic Solvents • 9:30 AM
Use of Molecular Sieves to Remove H2S and CO2 from Landfill Gas, Producing a High-Energy Content Methane Stream • 9:55 AM
Physical-Mechanical Properties of Panels Manufactured from the Blend of Residues of the Wood, Asparagus and Bagasse of Sugar Cane • 10:20 AM

Dolphin Hotel, Europe 6
Wednesday, April 26

Dolphin Hotel, Southern Hemisphere 2

**ROTATING EQUIPMENT**

Torque Measurement Devices on Large Turbomachinery • 8:30 AM
Equipment Protection & Performance Monitoring Using Bently Nevada System • 9:00 AM
Guidelines for Specifying and Evaluating New and Returled Multistage Centrifugal Compressors • 9:30 AM
Upgrading Steam Turbines to Improve Efficiency, Output and/or Reliability • 10:20 AM
Ethylene Plant Process Gas Compressor Fouling and Fouling Control • 10:50 AM
Mitigation of Fouling in Charge Gas Compressor - an Experimental Study • 11:20 AM

Dolphin Hotel, Southern Hemisphere 3

**RISK ASSESSMENT II**

Layer of Protection Analysis: Selecting Cost Effective Safety Measures • 10:15 AM
Assessing the Inherent Safety of Substances: Precursors or Hazardous Products in the Loss of Control of Chemical Systems • 10:45 AM
Development of Hazardous Material Compatibility Storage Guidelines and Tool • 11:15 AM
Impact of Failure Data Specialization in Quantitative Risk Assessment of Process Plants • 11:45 AM

Dolphin Hotel, Asia 4

**COMPACTING AND SINTERING**

Compaction Properties of Preagglutinated Starch (Starch 1500): Self-Lubrication • 1:00 PM
A Novel Experimental Study of Temperature Enhanced Cohesive Interparticle Forces • 1:20 PM
Simulation of Liquid Phase Maldistribution During the Extrusion of Highly Filled Particulate Pastes • 1:40 PM
Instrumented Uniaxial Compaction Experiments on Silicon Nitride Granulates Under Varied Climatic Conditions • 2:00 PM
DEM Simulation of the Compaction of Fine Powders • 2:20 PM
Capping Mechanisms during Pharmaceutical Powder Compaction • 2:40 PM

Dolphin Hotel, Oceanic 3

**DEVELOPMENT/APPLICATION OF COURSE MATERIAL IN PARTICLE TECHNOLOGY**

Teaching Particle and Powder Technology in Chemical Engineering at University College Cork • 1:00 PM
Development and Assessment of a Web-Based Interactive Aerosol Program for Undergraduate Education • 1:20 PM
Determination of the Kinetic Parameters of the Limestone Size Reduction in a Laboratory Ball Mill, Application to the Design of an Industrial Mill • 1:40 PM
Using Aspen Plus-Solids-Handling Blocks in Particle Technology Education • 2:00 PM
SolidSim - Teaching the Complexity of Solid Processes • 2:20 PM
Teaching Bulk Solids Handling - Development of Course Material • 2:40 PM

Dolphin Hotel, Australia 2

**EXTRAPOLATORY SCALING IN PARTICLE PROCESSING**

Scaling Effect in Dem Simulations of Direct Shear Test • 1:00 PM
The Flowability of Fine Powders in Reduced Gravity Conditions • 1:20 PM
On the Particle Size Scaling and the Behavior of Geomaterials: Experimental and Numerical Findings • 1:40 PM
Engineering Properties of Granular Materials Under Very Low Effective Stresses • 2:00 PM
Properties of Lunar and Other Regoliths, from Comparisons Between Light Scattering Observations and Numerical or Experimental Simulations • 2:20 PM
Modeling, Simulation, and Experiments of Elastic-Quasi-Static Granular Flow in a Compressing Slot • 2:40 PM

Dolphin Hotel, Australia 3

**FUNCTIONAL NANOPARTICLES AND NANOCONCERNTH IN PARTICLES**

Carbon-Embedded or Supported Pt Nanoparticles Made in Flames • 1:00 PM
Plasma Coating of Submicron Particles and the Fabrication of Core-Shell Nanostructures for Low-K Electrotechis • 1:20 PM
Individual Nanocoating of Ceramic Nanoparticles Via Atomic Layer Deposition • 1:40 PM
Flame Made Fe-Doped TiO2 as Visible-Light Activated Photocatalyst • 2:00 PM
Tailoring the Properties of Micro-Particles for Industrial Applications Using Dry Powder Coating • 2:20 PM
Investigation of Chemical Hydrophobization Treatment of Solid Particles Surfaces in Organic Phase and Fluidized Bed • 2:40 PM

Dolphin Hotel, Asia 3

**GAS-PHASE NANOPARTICLE SYNTHESIS - I**

Theoretical and Experimental Investigations on Sintering Kinetics of Silica Nanoparticles • 1:00 PM
Developing Particle Capabilities for New Applications • 1:20 PM
Thermal and Crystalline Stability of Silica-Tungsten/Titania Particles Made by Flame Spray Pyrolysis • 1:40 PM
Design of a Laser-Assisted Aerosol Reactor for Production of Ceramics on Semi-Industrial Scale • 2:00 PM
Gas-Phase Nanoparticle Production, Handling and Separation by Aerodynamic Effects in Supersonic Expansion • 2:20 PM
Nano-Structured Silica Produced by Evaporation-Induced Self Assembly of Aerosols • 2:40 PM

Dolphin Hotel, Asia 3

**GAS-PHASE NANOPARTICLE SYNTHESIS - II**

Nanoparticle Production in Cold Atmospheric Pressure Plasmas • 4:30 PM
Preparation of Ceramic Nanoparticles Using Hf Plasma and Their Applications • 4:50 PM
Influence of the Quenching Process on Thermal Plasma Synthesis of Engineered Nanoparticles • 5:10 PM
Carbon Nanotubes Production by Means of Thermal Treatment of Polymers in Fluidized Bed Reactors • 5:30 PM
Experimental Research on Flame Synthesis of Carbon Nanotubes and Its Growth Mechanism Analysis • 5:50 PM

Dolphin Hotel, Asia 2

**MILLING AND BLENDING**

The Effect of High Shear Blending on Lactose Alpha-Monohydrate • 1:00 PM
Modeling of Pharmaceutical Milling Operations • 1:25 PM
Understanding Critical Parameters in Roller
Compaction Process and Development of a Novel Scaling Method • 1:50 PM
Minimization of Roller Compacted Ribbon Density Gradients through Modified Roll Design • 2:15 PM
Cascading Granular Flow in a Quasi-Two-Dimensional Rotating Drum • 2:40 PM

Dolphin Hotel, Oceanic 4

POLY-DISPERSED GRANULAR SYSTEMS I: MIXING, BLENDING, SEGREGATION
Particle Size Segregation in Flexible Intermediate Bulk Containers During Filling, Transport, and Discharge • 1:00 PM
Segregation Model for Percolation Mechanism • 1:20 PM
Couette Flows with a Bimodal Particle Mixture • 1:40 PM
Controlling Mixing and Segregation in Fine Particle Systems • 2:00 PM
Mixing of Spherical and Non Spherical Particles in a Nauta Mixer • 2:20 PM
Brazil Nut’s Effect beyond Spherical Grains: Elongation Matters! • 2:40 PM

Dolphin Hotel, Oceanic 4

POLY-DISPERSED GRANULAR SYSTEMS II: MIXING, BLENDING AND SEGREGATION
Transversal Dispersion of Granular Material on Vibrating Conveyor • 4:30 PM
Modeling and Scale-up of Tumble Blenders for Highly Segregating Materials • 4:50 PM
Flow Behavior inside a High Shear Mixer • 5:10 PM
Using Unconventional Rattles to Reduce Segregation within Rotating Drums • 5:30 PM
Modeling Granular Segregation during Hopper Discharge Via Discrete Element Methods • 5:50 PM

Dolphin Hotel, Asia 5

SEPARATION PROCESS - I
Structural Analysis and Dewatering Characteristics of Waste Sludge from WWTP MBR • 1:00 PM
Design and Optimization Process of Solvent Extraction in E.W unit of Sarcheshmeh Copper Refinery • 1:20 PM
Sedimentation of Activated Sludge in Secondary Clarifiers • 1:40 PM
Applications of Rice Hull Ash Filter Aids in Bio-Sludge and Oil Sludge Deliquoring • 2:00 PM
Modelling Capillary Pressure Curves by Means of a Distribution Function • 2:20 PM
Traveling Wave Particle Separation in Fluidic Cell • 2:40 PM

Dolphin Hotel, Asia 5

SEPARATION PROCESS - II
Fine Particle Classification with Revised Cyclone • 4:30 PM
Investigations on Agglomeration in Gas Cyclones • 4:50 PM
Preparation and Characterization of Ceramic Gas Filters from Waste Fly Ash • 5:10 PM
Optimization Strategies in Purifying Particulate Solids • 5:30 PM
Prediction of Compression-Permeability Characteristics of Solid-Liquid Systems Using Artificial Neural Networks • 5:50 PM

Dolphin Hotel, Oceanic 6

SOLID LIQUID SEPARATION - I
Support Particles for Magnetic Field Enhanced Separations • 1:00 PM
Size-Selective Magnetophoretic Trapping of Sub-micrometer, Nonmagnetic Particles Immersed in a Magnetic Nanofluid • 1:20 PM
Magnetic Field Enhanced Press-Filtration • 1:40 PM
Sedimentation Acceleration of Remanent Iron Oxide by Magnetic Flocculation • 2:00 PM
Use of Multisample Analytical Centrifugation for Evaluation of Separation of Fine Particle Slurries in the Centrifugal Field • 2:20 PM
Effects of Filter Aids on Filter Cake Compactibility • 2:40 PM

Dolphin Hotel, Southern Hemisphere 3

CCPS PANEL: LESSONS LEARNED FROM NATURAL DISASTERS
A Case Study of a TFE Explosion in a PTFE Manufacturing Facility • 1:55 PM
Flammable Liquid Process Tank Fire • 2:25 PM
Fired Heater Damage Following Outage Due to Management of Change Problems • 2:55 PM
BP Texas City: March 23rd 2005 • 4:10 PM
BP Amoco Texas City Incident • 4:40 PM
The Accident in Bhopal: Observations 20 Years Later • 5:10 PM

Dolphin Hotel, Southern Hemisphere 1

ETHYLENE PLANT ROTATING EQUIPMENT ROUNDABLE
Feedstock
Improve Steam Cracking Furnace Productivity and Emissions Control through Filtration and Coalescence • 2:00 PM
Neutralizer Selection for Control of Acid Corrosion in Ethylene Plants • 2:30 PM
Solving Ammonia Problems in Ethylene Plants • 3:20 PM
Primary Fractionator Feedstock Contamination Case History • 3:50 PM

Dolphin Hotel, Southern Hemisphere 2

FEEDSTOCK
Invited Speaker: Sustainability Challenges and Opportunities at 3M • 3:20 PM
Sustainability Challenges and Opportunities at BASF • 3:40 PM
Sustainability Challenges and Opportunities at GSK • 3:50 PM

Dolphin Hotel, Europe 9

BUSINESS CASE FOR SUSTAINABILITY
Invited Speaker: Sustainability Challenges and Opportunities at 3M: • 2:00 PM
Sustainability Challenges and Opportunities at Shell • 2:20 PM
Sustainability Challenges and Opportunities at BASF • 2:40 PM
Sustainability Challenges and Opportunities at GSK • 3:00 PM

Dolphin Hotel, Europe 3

PREDICTION AND CORRELATION OF TRANSPORT PROPERTIES II
Mass Transport at an Electrode during Electrodeposition Process • 2:00 PM
Survival Probability in the Transition and Knudsen Diffusion Regimes in Random Fiber Structures • 2:22 PM
Heat and Mass Transfer in Fluidized Bed Granulation • 2:44 PM
Time Series Modeling Based on Modified Genetic Algorithm for Vapor-Liquid and Vapor-Liquid-Soled Flow Boiling System • 3:06 PM
Manifestation of Acceleration of Heat Flow in Transient Transport Phenomena • 3:28 PM

Dolphin Hotel, American Seminar Room

SIMULATION OF HEAT AND MASS TRANSFER EQUIPMENT IN PROCESS PLANTS
Performance of a Nonlinear Catalytic Tubular Reactor • 2:00 PM
Development of Different Strategies of Refrigeration for Fixed Bed Catalytic Reactor: Mixed Coolant Flow as Optimal Factor • 2:40 PM
A Thermal Kinetic Model for the Study of Stereolithography Process • 3:20 PM
Melted Heat Transfer in Energy Storage • 4:00 PM

Dolphin Hotel, Europe 6

SUSTAINABLE ENVIRONMENTAL STEWARDSHIP
Life Cycle Assessment of Water Usage in Post-Plating Rinse in Electroplating • 2:00 PM
Combined Filtration and Catalytic Combustion of Diesel Particulate: Secondary Nanoparticle Emissions during Trap Regeneration • 2:25 PM
Continuous Cloud Point Extraction for Removal of Aromatic Contaminants from Wastewater in a Multi-Stage Rotating Disc Contactor • 2:50 PM
Vacuum Stripping for Toluene Removal from Nonionic Coacervate Phase Solution • 3:15 PM

Risk Comparison of off Shore Vs. Onshore LNG Terminals • 2:40 PM
Details of 35 M Diameter LNG Fire Tests Conducted in Montoir, France in 1987 - Analysis of Fire Spectral and Other Data • 3:00 PM
CFD Modeling Issues regarding LNG Dispersion • 3:20 PM
Uncertainties in Modelling the Physical Behaviour of Large LNG Releases upon Sea-Water • 3:40 PM
Experience with FEM3A • 4:00 PM

Dolphin Hotel, Europe 8

HYDROGEN PURIFICATION AND FUEL CELL APPLICATIONS
Nanoscale Investigation of Morphologies in Polymer Electrolyte/PvdF Blend Membranes • 2:05 PM
Membrane Desulfurization of Logistic Fuels for Hydrogen Production for Fuel Cells • 2:30 PM
Hydrocarbon Membranes Composed of Poly(Vinyl Alcohol) Derivatives for the Application of Fuel Cell • 2:55 PM
Development of Dense Cermet Membranes for Hydrogen Separation • 3:20 PM
Performance of Pd-Alloy Membranes for Hydrogen Separation from Mixed Feed Streams Containing 1000 ppm H2S • 3:45 PM
Hydrogen Purification with Palladium Alloy Membranes • 4:10 PM
Cyanate Ester/Trisilanolphenyl-Pos, Cyanate Ester/Octaaminophenyl-Pos, 1, and Cyanate Ester/Cyano-propyleneclayentyl-Pos, 2 Nanocomposites • 4:35 PM
Wednesday, April 26

Dolphin Hotel, Oceanic 2

**Particle Adhesion to Surfaces**

- On the Adhesion of Nanocontacts: an Atomic Force Microscopy Study • 1:00 PM
- Evaluation of the Particle-Particle Interactions of the Toner by Colloid Probe AFM • 1:20 PM
- Adhesion Force of Glass Particle on Silica Surface with Periodic Roughness Structure in Humid Atmosphere • 1:40 PM
- Experimental and Numerical Estimation on a Dynamic Liquid Bridge Force Adhered to Three Spheres • 2:00 PM
- Sticky Behavior Development of Whey Protein Isolate and Lactose Droplets during Convective Drying • 2:20 PM
- Comparative Adhesion Force Measurements on Conventional and Novel Nanostructured and Highly Porous Filtration Membranes • 2:40 PM

Dolphin Hotel, Oceanic 1

**Soft Particle Characterization in Pharmaceutical and Bio-Material Science**

- Characterizing the Particle Specificity of Drug Delivery Systems to Melanoma Cells by the Atomic Force Microscope • 8:00 AM
- Characterization of Mechanical Properties of Soft Micro- and Nanoparticles by Analytical Centrifugation • 8:20 AM
- Process Control and Characterization of Porous Structure of Pharmaceutical Microparticles Prepared by the W/O/W Double Emulsion Technique • 8:40 AM
- Fundamental Insights into Breakage of Organic Molecular Crystals • 9:00 AM
- A Novel Method for Measuring Elasticity of Submicron-Sized Liposomes with AFM • 9:20 AM
- Interaction between Artificial Mucin Layer and Stimuli- Responsive Nano-Gel Particles for the Oral Peptide Delivery Observed in Simulated Intestinal Solutions by Using Confocal Probe AFM Method • 9:40 AM

Dolphin Hotel, Oceanic 1

**Caking Phenomena - II**

- Influence of Supra-Molecular Structure and Storage Conditions on the Caking of Powders • 4:30 PM
- Systems Approach to Solution of Caking Problems • 4:45 PM
- Experimental and Theoretical Description of a Solid Bridge Between Double Particle Systems • 5:00 PM
- Influence of Formulation upon the Storage Stabilty of Detergent Powders: Prediction of Sorption Isotherms • 5:15 PM
- Temperature Gradient Induced Caking of Pharmaceutical Grade Salt • 5:30 PM

Dolphin Hotel, Asia 2

**Recent Developments in Particle Technology: A Global Perspective**

- Particle Technology in Europe • 8:00 AM
- Developments in Particle Technology in Middle East and Africa in Past 10 Years • 8:40 AM
- Recent Developments in Particle Technology - a View from the Americas • 9:20 AM
CONTROL OF PARTICULATE PROCESSES

Challenges and Benefits in Controlling Energetic Material Particle Size • 8:00 AM
Rational Design of Pharmaceutical Formulations Prepared by High Shear Wet Granulation: Introduction & Evaluation of the Solid-Liquid-Interaction Classification • 8:20 AM
Experimental and Numerical Analysis of Fe₂O₃-Particle Formation in Spray Roasting Reactors • 8:40 AM
Size Control and Parameter Estimation for Fluidized Bed Reaction • 9:00 AM
Numerical Bifurcation Analysis of the Nonlinear Dynamics in Continuous Fluidized Bed Spray Granulation Systems • 9:20 AM
Optimal Control of Crystal Size and Shape for Batch Cooling Crystallization • 9:40 AM

ENGINEERED NANOPARTICULATE SYSTEMS FOR BIO APPLICATIONS

Nanoencapsulation of Hydrophilic Droplets by the Rapid Expansion of Water-in-Supercritical CO₂ Microemulsion • 8:00 AM
The Effect of Insulin Loaded PLGA Nano-Composites on the Glycaemia of Beagle Dogs • 8:20 AM
Synthesis of Functional Nano-Composite Particles for Bio-separation • 8:40 AM
Gadolinium-Loaded Chitosan Nanoparticles for Cancer Neutron-Capture Therapy: Pharmaceutical Characteristics and in Vitro Antitumor Effect • 9:00 AM

FUNDAMENTALS OF FLUIDIZATION AND FLUID PARTICLE SYSTEMS - III

The Rise of Bubbles and Slugs in Gas-Fluidized Beds Using Ultra-Fast Magnetic Resonance Imaging • 8:00 AM
Multiresolution Analysis of Pressure Fluctuations and Tomography Images in a Gas-Solids Fluidized Bed • 8:20 AM
Granular Temperature in a Gas Fluidised Bed • 8:40 AM
Shape of a Particle Curtain Falling in Stagnant Air • 9:00 AM
The Onset of Bubbling in High Temperature Fluidized Beds • 9:20 AM
Laser Diagnostics of Hydrodynamics and Gas-Mixing Induced by Bubble Bursting • 9:40 AM

FUNDAMENTALS OF FLUIDIZATION AND FLUID PARTICLE SYSTEMS - IV

Comparison of Fibre Optical Measurements and Discrete Element Simulations for the Study of Granulation in a Spout Fluidized Bed • 1:00 PM
Theoretical Analysis of Fluidization and Mixing Behaviors in a Rotating Fluidized Bed • 1:20 PM
Dependence of Particle Fluctuation Velocity on Gas Flow, Particle Diameter, and Density in Gas Fluidized Beds for Polymer, Glass and Metal Spheres in the Geldart B Fluidization Regime • 2:00 PM
Particle Velocity Fluctuations of Cork Particles in the Riser of a CFB • 2:20 PM
Bubble Size Reduction in Electric Field Optimised Fluidized Beds: Simulations and Experiments • 2:40 PM

 Handbook of Ultra-Fine Powders and Prevention of Dust Explosions

Development and Design of Handling Technology for Highly Explosible Powders • 8:00 AM
Reducing Dust Emission from Grain Handling • 8:40 AM

Quest Consultants Inc.

Process Safety & Risk Management Services

Norman, Oklahoma

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Explosion Overpressure

Source Term Models  
Multi-component Thermodynamics  
Aerosol Formation  
Multi-phase, Time Varying Release Rate  
Liquid Pool Spreading & Vaporization
Thursday, April 27

Ship Loaders • 8:20 AM
Theory and Practice of Dust Collector Protection • 8:40 AM
Prevention of Dryer Fires: Problem Analysis & Application of Results • 9:00 AM
Surfactants: Do They Work for Suppression of Dust in Iron Ore Plants? • 9:20 AM

Dolphin Hotel, Asia 3
NANODERGONERGIC MATERIALS PROCESSING
Combustion Synthesis of Porous Materials from Nanocomposite Reactants • 8:00 AM
Comparison of Nanoparticle Thermite Mixtures Formed by Conventional and Supercritical Fluid Processes • 8:20 AM
The Effects of Aluminum Particle Size on the Thermal Degradation of Aluminum/Polytetrafluoroethylene Mixtures • 8:40 AM
Tuning the Reactivity of Nanoparticles and Nanoparticle Mixtures • 9:00 AM
Challenges in Processing of Aluminum and Metal Oxide Nanopowders in Water • 9:20 AM

Dolphin Hotel, Asia 5
NANOPARTICLE TRANSPORT AND FLUIDIZATION
Fluidization and Study of the Nanometric Powders Behavior: Numerical Approach to Estimate the Agglomerates Sizes • 8:00 AM
Fluidization of Nano-Sized Particles - Design and Operation Issues • 8:20 AM
Effect of Multi-Stage Agglomerate Structure on the Fluidization Characteristics of Nanoparticles Agglomerates • 8:40 AM
Evaluation of Assisting Methods on the Fluidization of Agglomerates of Nanoparticles by Studying the Adsorption/Desorption Rate of Moisture • 9:00 AM
The Effect of Gas Viscosity on the Agglomerate Particulate Fluidization State of Fine and Ultrafine Particles • 9:20 AM

Dolphin Hotel, Oceanic 3
SELECTED PAPERS IN GRAINIAL FLOW AND SOLIDS PROCESSING
Stress Distribution underneath Granular Piles Made from Monosized Particles • 8:00 AM
Breakage and Attrition of Sintered Agglomerates • 8:20 AM
Honking and Vibrations during the Discharge of Silos • 8:40 AM
Dust Explosion Scenario Identification for Layer of Protection Analysis (LOPA) • 9:00 AM

Dolphin Hotel, Oceanic 6
SOLID/LIQUID SEPARATION - II
Fractionation of Bsa and Lysozyme by Two-Sided Dead-End Electrodialysis • 8:00 AM
Permeation of Packed Beds Excited by Electric and Hydraulic Gradients • 8:20 AM
Filtration Characteristics of Mega-Porous and Micro-Porous Colloids • 8:40 AM
Influence of Leaks in Surface Filters on Particulate Emissions • 9:00 AM
Filtration Characteristics of Insoluble and Soluble Colloids • 9:20 AM
Effect of Humidity on Pressure-Drop and Penetration of a Membrane Filter During Loading with Charged and Neutralized Particles • 9:40 AM

Dolphin Hotel, Oceanic 8
ENVIRONMENTAL MANAGEMENT
SHORT COURSES PART IV
Rapid Site Characterization • 1:00 PM

Dolphin Hotel, Europe 9
GREEN ENGINEERING
Sustainability Analysis Applied to Active Pharmaceutical Ingredient Manufacturer • 8:00 AM
Development and Testing of a Robust Method for Destruction of Perfluorinated Compounds in Semiconductor Manufacturing • 8:20 AM
Opportunities for Biorenewables in Petroleum Refineries • 8:40 AM
Bioethanol: Synthesis from Biomass and Catalytic Reforming for Hydrogen Production • 9:00 AM

Dolphin Hotel, American Seminar Room
LOW GRADE HEAT UTILIZATION
Hestia Distributed Hydrogen Generator • 8:00 AM
Spiral Flow Heat Exchanger for Heat Recovery from Gases • 8:20 AM
Use of Simulation in Evaluating Energy Saving Opportunities in Process Plants • 8:40 AM
Enhanced Waste Energy Recovery Targeting in Pulp & Paper Plant Using • 9:00 AM
Technology Assessment of Rejecting Process Heat • 9:20 AM

Dolphin Hotel, Europe 8
PAST, PRESENT AND FUTURE USES OF ABSORPTION AND MEMBRANE PROCESSES IN HYDROGEN PRODUCTION II
Adsorption and Membrane Processes in Hydrogen Production • 8:00 AM
Chemically Crosslinked Polymer Nanocomposite Membranes for Hydrogen Separation • 8:25 AM
Sorption-Enhanced Reaction Processes: Steam Methane Reforming Combined with in-Situ CO2 Removal for Increased Hydrogen Production • 8:50 AM
Methanol Steam Reforming and Ethanol Steam Reforming in Membrane Reactors: Experimental Study • 9:15 AM
Use of Room Temperature Ionic Liquids for Carbon Dioxide Separations • 9:40 AM
Gas Separation in Coal Gasification • 10:05 AM

Dolphin Hotel, Europe 7
PROCESS INTENSIFICATION III
Studies on Ionic Mass and Momentum Transfer with Coxially Placed Twisted Tape - Disc Assembly as Turbulence Promoter in Circular Conduits • 8:00 AM
Studies on Ionic Mass and Momentum Transfer with Coxially Placed Twisted Tape - Disc Assembly as a Turbulence Promoters in Circular Conduits • 8:20 AM
Surface Modification of ZnS/SiO2/MnO2 Phosphors for Enhancing the Discharging Efficiency in Pdp Cell • 8:40 AM
Microchannel Fouling Mitigation: Flow Distribution and Wall Shear Effects • 9:00 AM
Optimization of a Dynamic Model of Fixed Bed Catalytic Reactor Utilizing Genetic Algorithms Technique • 9:20 AM
Selectivity Maximization of Maleic Anhydride Production through Genetic Algorithm Technique • 9:40 AM

Dolphin Hotel, Australia 3
NANOSEPARATION
Nanoseparation - from Centrifuges to Filters • 1:00 PM
One-Dimensional and Two-Dimensional Particle Separation. Experiments and Theoretical Models • 1:20 PM
Interface Transport of Nanoparticles - Synthesis of Oil-Based Magnetic Fluids • 1:40 PM
Designing Magnetic Nanoparticles for Biocompatibilities • 2:00 PM
Cleaning Different Kinds of Filter Media for Applications in the Solid-Liquid Separation • 2:20 PM

Dolphin Hotel, Asia 4
SELECTED TOPICS IN PARTICULATE HANDLING, PROCESSING AND GRANULAR SYSTEMS
The Importance of Clearance and Bulk Solids Flow Properties in Predicting the Throughput of a Screw Feeder • 1:00 PM
Continuous Operation of Zig-Zag Blender for Pharmaceutical Applications • 1:20 PM
Particle-in-Cell (Pic) Simulations of Two-Dimensional Granular Flow in Bins • 1:40 PM
The Effect of Particle Shape on Simple Shear Flows • 2:00 PM
The Effect of Particle Shape on Granular Stress • 2:20 PM
Measurement of Gas Velocities in Gas/Solids Flows Using Time-of-Flight Ultrasound • 2:40 PM

Dolphin Hotel, Oceanic 4
IN-SITU PARTICLE CONCENTRATION, SHAPE, AND SIZE MEASUREMENTS
The Conductivity • 1:00 PM
Theoretical and Experimental Studies of the Dynamics of Bubbling and Shuffling Fluidised Beds • 1:20 PM
Tomographic Approach to Granular Gravitational Flow Dynamics Analysis • 1:40 PM
Velocity Measurements in Opaque Flowing Surfaces Using Electrical Impedance Tomography • 2:00 PM
On-Line Particle Size Distribution Analysis • 2:20 PM

Dolphin Hotel, Oceanic 2
MEASUREMENTS AND ANALYSIS OF SLIGHTLY CONSOLIDATED AND FLUIDIZED POWDERS
A Study of the Effect of Fines Size Distribution on the Fluidization and Rheological Behaviour of Alumina Powders • 1:00 PM
Characterization of Fluidization Behavior of Glimmer-Added Geldart C Glass Powders • 1:20 PM
The Flowability of Powders and the Effect of Flow Additives • 1:40 PM
Evaluation of Particle Interaction for a Gas-Solid Suspending System • 2:00 PM
Agglomeration and Rheological Properties of Different Wheat Millings • 2:20 PM

Dolphin Hotel, Australia 3
NANOSEPARATION
Nanoseparation - from Centrifuges to Filters • 1:00 PM
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Dolphin Hotel, Asia 3
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Measurement of Gas Velocities in Gas/Solids Flows Using Time-of-Flight Ultrasound • 2:40 PM
sure Changes in Oscillated Particle-Fluid Systems
• 1:20 PM
Micro- and Macro-Dynamic Analysis of Unsteady State Granular Flow in a Cylindrical Hopper • 1:40 PM
Modelling of Continuous Rotating Drum Mixers for Surface Renewal • 2:00 PM
Impact of Solid Flow on a Granular Bed • 2:20 PM

Dolphin Hotel, Europe 8
PAST, PRESENT AND FUTURE USES OF ADSORPTION AND MEMBRANE PROCESSES IN HYDROGEN PRODUCTION
Chemical Industry Vision 2020 Overview • 2:00 PM
Overview of Hydrogen Production Technologies • 2:15 PM
Purifying Hydrogen with Inorganic Silica Membranes at High Temperatures • 2:40 PM
Fast Cycle Rotary Adsorption Bulk Separator at Low Pressure • 3:05 PM
Hydrogen Production Via Pd-Ag Permeators: Membrane Reactor Design and Process Study • 3:30 PM
High-Pressure CO2/CH4 Separation Using Sapo-34 Membranes • 3:55 PM
Novel Thermal Swing Sorption Enhanced Reaction (Tser) Process Concept for Hydrogen Production • 4:20 PM

Dolphin Hotel, American Seminar Room
WATER REUSE TECHNOLOGIES IN INDUSTRIAL PROCESSES - OPPORTUNITIES AND CHALLENGES TUTORIAL

Dolphin Hotel, Oceanic 2
MEASUREMENT AND MODELING OF SLURRY RHEOLOGY
Squeeze Flow Rheometry of Paste and Slurry • 8:00 AM
Development of Slurry Characterization Method for Tape Casting • 8:20 AM
Bridging the Gap: Slurry Behaviour from Coarse to Colloid • 8:40 AM
Flow Behavior of Non-Drained Ultrafine Limestone Particle Packings • 9:00 AM
A Model to Determine the Packing Density of Fly Ash slurries • 9:20 AM
Rheological Properties of Concentrated Suspensions • 9:40 AM

Dolphin Hotel, Oceanic 1
MEASUREMENT METHODS IN PARTICLE TECHNOLOGY - THREE-DIMENSIONAL TECHNIQUES
On the ECT Sensor Based Dual Imaging Modality System for Electrical Permittivity and Conductivity Measurements • 8:00 AM
Multiple-Particle Tracking Using the Birmingham Positron Camera • 8:20 AM
Development of an in-Line Stereoscopic Piv System to 3-Component Velocity Measurements with a Single Camera • 8:40 AM
Characterization of Powders • 9:00 AM
Influence of Compaction on the Surface Properties of Alumina (Al2O3) Determined by Inverse Gas Chromatography (IGC) • 9:20 AM
Modification of a Button Pressing Machine as an Axial-Loaded Shear Test Apparatus for Shear Strength Measurement of Mineral Filter Cakes • 9:40 AM

Dolphin Hotel, Asia 2
SELECTED TOPICS IN PARTICLE AND POWDER CHARACTERIZATION
Particle Size Measurement in Aggregating Colloidal Dispersions: Comparison of Turbidity Spectra and Light Scattering • 1:00 PM
Laser Diffraction Particle Size Measurement and the Influence of Structural Iron Reduction in a Ferruginous Smectite (Swa-1) • 1:20 PM
Particle Shape Characterizing Descriptors Defined in a First Iso Standard • 1:40 PM
A New Microtriaxial Tester for the Characterization of Fine Particulate Systems • 2:00 PM
Effect of Particle Characteristics on Frictional and Compression Properties of Cement Kiln Dust • 2:20 PM

Dolphin Hotel, Asia 2
RECENT DEVELOPMENTS IN PARTICLE TECHNOLOGY: A GLOBAL PERSPECTIVE
Recent Advances in Particle Technology: Australia and New Zealand • 8:00 AM
Recent Development of Powder Technology in Japan • 8:40 AM
Recent Developments in Particle Technology - Asian Perspective • 9:20 AM

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