

**Day 1 - Monday 10 December**

**8.30 REGISTRATION** Conference Foyer, MCEC, Melbourne

**PLENARY SESSION** Conference Room 105 & 106

*(Chairman Peter Witt)*

**9.00** Welcome from CSIRO Peter Witt, CSIRO  
Opening Dr Phil Schwarz, CSIRO

**9.20 Keynote Lecture** *CFD MODELLING IN THE DEVELOPMENT AND SCALE-UP OF THE HISMELT PROCESS*

**Mark Davis** and Dry, R.J.  
(Hismelt Corporation)

**SESSION 1**  
*(Conference Room 105 & 106)*  
**Pyrometallurgy**  
*(Chairman Mark Davis)*

**SESSION 2**  
*(Conference Room 104)*  
**Population Balance**  
*(Chairman Daniele Marchisio)*

**SESSION 3**  
*(Conference Room 103)*  
**Particle Collisions**  
*(Chairman Johan Padding)*

**SESSION 4**  
*(Conference Room 101 & 102)*  
**Subsea**  
*(Chairman Farid Christo)*

**10.20** **Goniva, C.G.**, Wierink, H.W., Heiskanen, K.H., Kloss, C.K. and Pirker, S.P. (JKU, Linz, AUSTRIA)  
MODELLING THREE-PHASE FLOW IN METALLURGICAL PROCESSES

**Krepper, E.** and Lucas, D. (Helmholtz-Zentrum Dresden-Rossendorf)  
POPULATION BALANCE MODEL FOR THE CFD SIMULATION OF ADIABATIC AND DIABATIC TWO PHASE GAS LIQUID FLOWS

**Pawar, S.K.**, Padding, J.T., Deen, N.G., Kuipers, J.A.M., Jongsma, A. and Innings, F. (Eindhoven University of Technology, The Netherlands)  
EULERIAN-LAGRANGIAN MODELLING WITH STOCHASTIC APPROACH FOR DROPLET-DROPLET COLLISIONS

**Leahy, M.J.**, Jagannatha, D., Chauvet, C. and Holbeach, J. (MSi Kenny)  
CFD MODELLING OF A SUBSEA COOLER FOR CALCULATION OF EXTERNAL HEAT TRANSFER COEFFICIENT

**10.40** Majeski, A.J., **Runstedtler, A.**, D'Alessio, J., MacFadyen, N. and Ferron, K. (Natural Resources Canada)  
THE EFFECTS OF LANCE POSITIONING AND DESIGN ON THE CO-INJECTION OF PULVERIZED COAL AND NATURAL GAS INTO BLAST FURNACES

**Li, Z.**, Kessel, J., Gruenewald, G. and Kind, M. (Karlsruhe Institute of Technology)  
COUPLED CFD-PBE SIMULATION FOR NUCLEATION AND PARTICLE GROWTH IN FLUIDIZED BED SPRAY GRANULATION

**Cummins, S.J.**, Thornton, C. and Cleary, P.W. (CSIRO CMIS)  
CONTACT FORCE MODELS IN INELASTIC COLLISIONS

**Mokaramian, A.**, Rasouli, V. and Cavanough, G. (Curtin University)  
CFD SIMULATIONS OF TURBODRILL PERFORMANCE WITH ASYMMETRIC STATOR AND ROTOR BLADES CONFIGURATION

**11.00 MORNING TEA**

Conference Foyer, MCEC, Melbourne

	<b>SESSION 1</b> <i>(Conference Room 105 &amp; 106)</i> <b>Pyrometallurgy</b> <i>(Chairman Allan Runstedtler)</i>	<b>SESSION 2</b> <i>(Conference Room 104)</i> <b>Population Balance</b> <i>(Chairman Dirk Lucas)</i>	<b>SESSION 3</b> <i>(Conference Room 103)</i> <b>Drop Breakup/Coalescence</b> <i>(Chairman David Fletcher)</i>	<b>SESSION 4</b> <i>(Conference Room 101 &amp; 102)</i> <b>Subsea</b> <i>(Chairman Akio Tomiyama)</i>
<b>11.30</b>	Darmana, D., <b>Olsen, J.E.</b> , Tang, K. and Ringdalen, E. (SINTEF) MODELLING CONCEPT FOR SUBMERGED ARC FURNACES	<b>Schellander, D.</b> , Schneiderbauer, S. and Pirker, S. (CD-Laboratory on Particulate Flow Modelling) NUMERICAL STUDY OF AGGLOMERATION MODELING IN POLYDISPERSED GAS-SOLID FLOWS WITH RESPECT TO PARTICLE SEPARATION	Buffo, A., <b>Marchisio, D.L.</b> , Vanni, M. and Renze, P. (Politecnico di Torino, ITALY) SIMULATION OF COALESCENCE, BREAK UP AND MASS TRANSFER IN GAS-LIQUID SYSTEMS BY USING MONTE CARLO AND QUADRATURE-BASED MOMENT METHODS	<b>Kubicki, D.</b> and Lo, S. (CD-adapco) SLURRY TRANSPORT IN A PIPELINE - COMPARISON OF CFD AND DEM MODELS
<b>11.50</b>	<b>Gartner, L.E.</b> , Grabner, M. and Meyer, B. (Freiberg Uni., GERMANY) INFLUENCE OF COAL BLEND COMPONENT KINETICS ON ENTRAINED FLOW GASIFICATION PERFORMANCE	<b>Icardi, M.</b> , Marchisio, D.L. and Labois, M. (Politecnico di Torino) EFFICIENT SIMULATION OF A TWO-PHASE VERTICAL PIPE FLOW WITH POPULATION BALANCE METHOD	<b>Mason, L.R.</b> , Stevens, G.W. and Harvie, D.J.E. (The University of Melbourne) MULTI-SCALE VOLUME OF FLUID MODELLING OF DROPLET COALESCENCE	<b>Irikura, M.</b> , Maekawa, M., Hosokawa, S. and Tomiyama, A. (Graduate School of Engineering, Kobe University) ONSET OF SLUGGING OF STAGNANT LIQUID AT A V-SHAPED ELBOW IN A PIPELINE: EXPERIMENT AND NUMERICAL SIMULATION
<b>12.10</b>	<b>Kloss, C.</b> , Seil, P., Hauzenberger, F., Amberger, S., Feilmayr, C., Pirker, S. and Goniva, C. (JKU Linz, Austria) SIMULATION OF PARTICLE SEGREGATION IN METALLURGICAL FURNACES FOR IRON PRODUCTION	<b>Amokrane, A.A.</b> , Charton, S., Lamadie, F.H., Becker, J., Klien, J.P. and Puel, F. (French Nuclear Energy Commission) STUDY OF THE DISPERSED PHASE BEHAVIOR IN A PULSED COLUMN FOR OXALATE PRECIPITATION IN AN EMULSION	<b>Gumulya, M.</b> , Utikar, R.P., Pareek, V.K., Tade, M.O. and Evans, G.M. (Curtin University) NUMERICAL SIMULATION OF THE COLLISION OF A DROPLET WITH A HEATED SOLID SURFACE	<b>Mo, S.</b> , Ashraffian, A., Barbier, J-C and Johansen, S.T. (SINTEF Materials and Chemistry) QUASI-3D MODELLING OF TWO-PHASE SLUG FLOW IN PIPES

**12.30 LUNCH**

Conference Foyer, MCEC, Melbourne

**PLENARY SESSION***(Chairman Petar Liovic)*

Conference Room 105 &amp; 106

**1.30 Keynote Lecture****Djamel Lakehal***(ASCOMP GmbH, SWITZERLAND)**LARGE-SCALE SIMULATION OF BUBBLE PLUMES AND SUBSEA HYDROCARBON BLOWOUT JETS***SESSION 1***(Conference Room 105 & 106)***Turbulence and Multi-Material Flows***(Chairman Djamel Lakehal)***SESSION 2***(Conference Room 104)***CFD-DEM****Numerical Methods***(Chairman Paul Cleary)***SESSION 3***(Conference Room 103)***Porous Media Flows***(Chairman Martin Leahy)***SESSION 4***(Conference Room 101 & 102)***Fluidised Beds***(Chairman Junwu Wang)***2.25**

**Andersson, R.** and Helmi, A. (Chalmers University of Technology)  
COMPUTATIONAL AND EXPERIMENTAL INVESTIGATION OF THE BREAKUP MECHANISM OF BUBBLES AND DROPS IN TURBULENT FLOWS

**Braun, M.**, Srinivasa, M. and Gohel, S. (ANSYS, GERMANY)  
VALIDATION OF AN EFFICIENT CFD-DEM MODEL FOR LARGE SCALE FLUIDIZED BEDS

**Barker, D.J.**, Parameswaran, G. and Neethling, S.J. (Imperial College London)  
SPH SIMULATION OF PACKED-BEDS AND COLUMNS APPLIED TO HEAP-LEACHING

**Sharma, A.**, Pareek, V.K., Utikar, R.P., Wang, S., Yang, H. and Zhang, D. (Curtin University)  
A CFD MODELLING STUDY OF MULTI-PHASE FLOW BEHAVIOUR OF BIOMASS AND BIOCHAR PARTICLES IN A BUBBLING FLUIDIZED BED

**2.45**

**Hayashi, K.** and Tomiyama, A. (Kobe University)  
EFFECTS OF NUMERICAL TREATMENT OF VISCOUS AND SURFACE TENSION FORCES ON PREDICTED INTERFACE MOTION

**Hager, A.**, Kloss, C.K., Pirker, S.P. and Goniva, C.G. (Johannes Kepler University Linz)  
PARALLEL OPEN SOURCE CFD-DEM FOR RESOLVED PARTICLE-FLUID INTERACTION

**Ahmed, S.A.** and Iglauer, S.I. (CSIRO CESRE)  
BRINE PERMEABILITY PREDICTIONS FOR SAND PACKS AND SANDSTONES USING NAVIER-STOKES EQUATIONS AND THREE-DIMENSIONAL MICRO-TOMOGRAPHY IMAGES OF PORE SPACES

**Chu, K.** and Yu, A.B. (UNSW)  
A NOVEL CIRCULATING FLUIDIZED BED TO IMPROVE FLUID-SOLIDS CONTACTING

**3.05**

**Ghasempour, F.**, Andersson, R. and Andersson, B. (Chalmers University of Technology)  
MULTIDIMENSIONAL TURBULENCE SPECTRA - STATISTICAL ANALYSIS OF TURBULENT VORTICES

**Delaney, G.W.**, Hilton, J.E., Cleary, P.W. and Miller, C. (CSIRO CMIS)  
COUPLED DEM-CFD APPROACH TO MODELLING NON-SPHERICAL PARTICLE SEDIMENTATION IN 3D

**Mostaghimi, P.**, Tollit, B.S., Neethling, S.J., Gorman, G.J. and Pain, C.C. (Imperial College London)  
A CONTROL VOLUME FINITE ELEMENT SCHEME FOR ANALYSIS OF HEAP LEACHING

**3.25****AFTERNOON TEA**

Conference Foyer, MCEC, Melbourne

	<b>SESSION 2</b> <i>(Conference Room 104)</i> <b>Liquid-Particle Flows</b> <i>(Chairman Graeme Lane)</i>	<b>SESSION 3</b> <i>(Conference Room 103)</i> <b>Combined Modelling Approaches</b> <i>(Chairman Gary Delaney)</i>	<b>SESSION 4</b> <i>(Conference Room 101 &amp; 102)</i> <b>Industrial Applications</b> <i>(Chairman David Whyte)</i>
<b>3.55</b>	<b>Kriebitzsch, S.H.L.</b> , van der Hoef, M.A. and Kuipers, J.A.M. (Eindhoven University of technology ) FULLY RESOLVED SIMULATION OF FLOWS WITH NON-SPHERICAL PARTICLES USING AN IMMERSSED BOUNDARY METHOD	<b>Lemiate, V.L.</b> , Mead, S.R. and Cleary, P.W. (CSIRO CMIS) NUMERICAL MODELLING OF LANDSLIDE EVENTS USING A COMBINATION OF CONTINUUM AND DISCRETE METHODS	<b>Allen, P.</b> , White, M., Haywood, R., Anderson, B., O'Farrell, R. and Hobson, R. (Hatch) CFD APPLICATIONS AT PALMER NICKEL AND COBALT REFINERY
<b>4.15</b>	<b>Derksen, J.J.</b> (Uni. Alberta) HIGHLY RESOLVED SIMULATIONS OF SOLIDS SUSPENSION IN A MIXING TANK	<b>Cosentino, F.</b> , Gebelin, J.C., Warnken, N. and Reed, R.C. (University of Birmingham) MULTI-SCALE MODELLING OF HIGH PRESSURE GAS FAN QUENCHING FOR GAS TURBINE APPLICATIONS	<b>Hasan, N.</b> (Don Computing) VALIDATION OF CFD MODELS USING FLOW3D FOR A SUBMERGED LIQUID JET

**4:35**      **Vendors Forum**  
*(Chairman Peter Witt)*

*CONFERENCE ROOM 105 & 106*

Dell,  
AMD,  
LEAP Australia,  
Computer Transition Systems,  
CD-adapco,  
Kenelec Scientific,  
Furnace Engineering,  
CEI Software  
Don Computing,  
CPFD

**Guo, B.Y.**, Ye, X.L., Liu, D.D. and Yu, A.B. (UNSW)  
APPLICATION OF MULTI-SCALE APPROACH IN THE GAS FLOW SIMULATION THROUGH ELECTROSTATIC PRECIPITATORS

**Kubicki, D.** and Lo, S. (CD-Adapco)  
CFD PREDICTIONS OF SOLIDS DISTRIBUTION IN STIRRED VESSEL

**Stephens, D.W.** and Fawell, P.D. (Applied CCM)  
OPTIMISATION OF PROCESS EQUIPMENT USING GLOBAL SURROGATE MODELS

**Karimi, M.K.**, Akdogan, G.A., Dellimore, K.H. and Bradshaw, S.M. (Stellenbosch University)  
QUANTIFICATION OF NUMERICAL AND MODEL UNCERTAINTIES IN THE CFD SIMULATION OF THE GAS HOLDUP AND FLOW DYNAMICS IN A LABORATORY SCALE RUSHTON-TURBINE FLOTATION TANK

**Karimi, M.K.**, Akdogan, G.A., Bradshaw, S.M. and Mainza, A. (Stellenbosch University)  
NUMERICAL MODELLING OF AIR CORE IN HYDROCYCLONES

**Pereira, G.G.** and Dhondi, S. (CSIRO CMIS)  
EFFECT OF MOLECULAR WEIGHT ON CAPILLARY ABSORPTION OF POLYMER DROPLETS

**Chu, K.**, Kuang, S.B., Yu, A.B. and Vince, A. (UNSW)  
CFD-DEM STUDY OF THE MULTIPHASE FLOW IN A DENSE MEDIUM CYCLONE: PREDICTION OF WEAR

**Saito, Y.**, Soma, T., Sagawa, R., Matsushita, Y., Aoki, H., Daikoku, M., Shirota, M.P. and Inamura, T. (Tohoku University)  
COMPARISON OF SOLUTION ALGORITHM FOR FLOW AROUND A SQUARE CYLINDER

**Guo, B.Y.**, Yu, A.B., Li, L.F. and Ye, X.L. (UNSW)  
GAS-POWDER FLOW SIMULATION IN AN ESP UNIT WITHOUT ELECTRIC FIELD

**Hilton, J.E.** (CSIRO CMIS)  
A MULTIPHASE FLUID-SOLID MODEL BASED ON THE LEVEL SET METHOD

Mandich, K.M. and **Cattolica, R.J.** (UCSD MAE)  
STABILITY OF GAS-FLUIDIZED BEDS

**Verrelli, D.I.** (CSIRO CPSE)  
LOCALISED INDUCEMENT OF BUBBLE SURFACE MOBILITY DUE TO MOTION OF A NEARBY PARTICLE

**Yu, J.**, Cao, Y., Tian, Z.F., Xue, Y. and Nathan, G.J. (The University of Adelaide)  
CFD MODELLING OF THE AERODYNAMICS IN A SOLAR - ENHANCED VORTEX GASIFIER (SVG) - PART II. A PRELIMINARY STUDY OF THE LOCATIONS OF SEAL GAS INLETS

**Zou, Y.**, Tingting, M.A., Wang, Y., Sun, J. and Fei, W. (Tsinghua University, China)  
COMPUTATIONAL FLUID DYNAMIC (CFD) SIMULATION OF FLUID FLOW IN A MIXER-SETTLER EXTRACTOR FOR RARE EARTH METAL SEPARATION

**Lau, P.**, Li, Z., Potthoff, M. and Kind, M. (Institute of Thermal Process Engineering, Karlsruhe Institute of Technology)  
CFD-PBE SIMULATION FOR AN INDUSTRIAL GRANULATION PROCESS WITH SCREENING-CRUSHING

Shah, M.T., **Utikar, R.P.**, Tade, M.O., Evans, G.M. and Pareek, V.K. (Curtin University)  
EFFECT OF A CLUSTER ON GAS-SOLID DRAG FROM LATTICE BOLTZMANN SIMULATIONS

**Shi, H.**, Tian, Z.F., Lanspeary, P. and Kelso, R.M. (The University of Adelaide)  
NUMERICAL STUDY OF EFFECTS OF CENTRE BODY ON PERFORMANCE OF A FAN-DISCHARGE DIFFUSER

**Xing, M.**, Guo, B.Y. and Yu, A.B. (UNSW)  
EFFECT OF ELECTROHYDRODYNAMIC SECONDARY FLOW ON THE PARTICLE COLLECTION IN A WIRE-PLATE ELECTROSTATIC PRECIPITATOR

## Day 2 - Tuesday, 11 December

8.30 REGISTRATION Conference Foyer, MCEC, Melbourne

### PLENARY SESSION

(Chairman Jiyuan Tu)

Conference Room 105 & 106

#### 9.00 Keynote Lecture

**Martin Sommerfeld** and Lain, S.  
(Martin-Luther University, Halle-  
Wittenberg, GERMANY)

*ANALYSIS OF DILUTE PHASE PNEUMATIC CONVEYING THROUGH PIPE SYSTEMS BY THE EULER/LAGRANGE APPROACH*

#### SESSION 1

(Conference Room 105 & 106)

**Bio-Engineering Mini-Symposium**  
(Chairman Petar Liovic)

#### SESSION 2

(Conference Room 104)

**Gas-Solid Flows Mini-Symposium**  
(Chairman Jos Derksen)

#### SESSION 3

(Conference Room 103)

**High Temperature Processing**  
(Chairman Ross Haywood)

#### SESSION 4

(Conference Room 101 & 102)

**Hydrometallurgy**  
(Chairman Jakub Bujalski)

9.55

**Fung, M.C.**, Inthavong, K., Yang, W. and Tu, J.Y. (RMIT University)  
EXPERIMENTAL AND NUMERICAL MODELLING OF NASAL SPRAY ATOMISATION

**Hilton, J.E.** and Cleary, P.W. (CSIRO CMIS)  
COMPARISON OF RESOLVED AND COARSE GRAIN DEM MODELS FOR GAS FLOW THROUGH PARTICLE BEDS

**Nastac, L.** and Marsden, K. (The University of Alabama)  
CFD MODELLING OF MACRO-SEGREGATION AND SHRINKAGE IN LARGE DIAMETER STEEL ROLL CASTINGS: A COMPARISON OF SEN AND DLP TECHNIQUES

**Lane, G.L.**, Mohanarangam, K. and Yang, W. (CSIRO CMIS)  
ASSESSMENT OF THE FLOW PATTERN IN A SOLVENT EXTRACTION SETTLER

10.15

**Karunanithi, K.** (Macquarie Uni.)  
RISK STRATIFICATION OF CEREBROVASCULAR ANEURYSMS USING CFD-A REVIEW

**Wahyudi, H.**, Chu, K.W. and Yu, A.B. (UNSW)  
CFD-DEM STUDY OF THE GAS-SOLIDS FLOWS IN A FLUIDIZED BED WITH AN IMMERSSED CYLINDER: COMPARISON OF PSEUDO-2D AND 3D MODELS

**Pan, Y.**, Witt, P.J., Kuan, B. and Xie, D. (CSIRO CPSE)  
EFFECT OF FLOW AND OPERATING PARAMETERS ON THE SPREADING OF A VISCOUS LIQUID ON A SPINNING DISC

**Karimi, M.K.**, Akdogan, G.A., Dellimore, K.H. and Bradshaw, S.M. (Stellenbosch University)  
COMPARISON OF DIFFERENT DRAG COEFFICIENT CORRELATIONS IN THE CFD MODELLING OF A LABORATORY-SCALE RUSHTON-TURBINE FLOTATION TANK

10.35 MORNING TEA

Conference Foyer, MCEC, Melbourne

	<b>SESSION 1</b> <i>(Conference Room 105 &amp; 106)</i> <b>Thickeners</b> <i>(Chairman Daniel Lester)</i>	<b>SESSION 2</b> <i>(Conference Room 104)</i> <b>Gas-Solid Flows Mini-Symposium</b> <i>(Chairman Gerald Pereira)</i>	<b>SESSION 3</b> <i>(Conference Room 103)</i> <b>Numerical Methods</b> <i>(Chairman Petar Liovic)</i>	<b>SESSION 4</b> <i>(Conference Room 101 &amp; 102)</i> <b>Hydrometallurgy</b> <i>(Chairman Jan Erik Olsen)</i>
<b>11.10</b>	<b>Tanguay, M.T.</b> , Fawell, P.D. and Adkins, S.J. (CSIRO CMIS) MODELLING THE IMPACT OF TWO DIFFERENT FLOCCULANTS ON THE PERFORMANCE OF A THICKENER FEEDWELL	Schneiderbauer, S., <b>Schellander, D.</b> and Pirker, S.P. (Johannes Kepler University, Austria) A FILTERED FRICTIONAL-KINETIC MODEL FOR GAS-SOLID FLUIDIZED AND MOVING BEDS	<b>Mead, S.R.</b> , Cleary, P.W. and Robinson, G.K. (CSIRO CMIS) CHARACTERISING THE FAILURE AND REPOSE ANGLES OF IRREGULARLY SHAPED THREE-DIMENSIONAL PARTICLES USING DEM	<b>Ghodrat, M.</b> , Kuang, S.B., Yu, A.B., Vince, A., Barnett, G.D. and Barnett, P.J. (UNSW) CFD STUDY OF THE MULTIPHASE FLOW IN CLASSIFYING HYDROCYCLONE: EFFECT OF CONE GEOMETRY
<b>11.30</b>	<b>Derksen, J.J.</b> (Uni. Alberta) DIRECT SIMULATIONS OF FLOCCULATION IN SEDIMENTING SOLID-LIQUID SUSPENSIONS	<b>Viduka, S.</b> , Feng, Y.Q., Hapgood, K. and Schwarz, M.P. (Monash University) CFD-DEM INVESTIGATION OF PARTICLE SEPARATIONS USING A TRAPEZOIDAL JIGGING PROFILE	<b>Nebauer, J.R.A.</b> and Blackburn, H.M. (Monash University) FLOQUET STABILITY OF TIME PERIODIC PIPE FLOW	<b>Song, T.</b> , Feng, Y.Q., Zhou, J. and Jiang, k. (CSIRO CMIS) NUMERICAL SIMULATION OF GAS-LIQUID FLOW IN GAS-AGITATED TANKS
<b>11.50</b>	<b>Heath, A.R.</b> (Outotec) VALIDATION OF TURBODIL FLOW PREDICTIONS	<b>Love, A.</b> , Giddings, D. and Power, H. (University of Nottingham) NUMERICAL ANALYSIS OF THE INTERACTION OF PARTICLE FLOWS WITH THE VORTEX DYNAMICS IN A DOUBLE EXPANSION	Jemcov, A. and <b>Stephens, D.W.</b> (University of Notre Dame) TOPOLOGICAL DERIVATIVE FORMULATION FOR SHAPE SENSITIVITY IN INCOMPRESSIBLE TURBULENT FLOWS	<b>Wadnerkar, D.</b> , Utikar, R.P., Tade, M.O. and Pareek, V.K. (Curtin University) SIMULATION OF SOLID-LIQUID FLOW IN STIRRED TANKS AT HIGH SOLID LOADING
<b>12.10</b>	<b>Shelke, N.M.</b> , Mali, K.V. and Joshi, S.V. (University of Pune, INDIA.) CFD ANALYSIS OF SHORT RETENTION TIME CLARIFIER	<b>Sanchez, R.A.</b> and Jakobsen, H.A. (Norwegian University of Science and Technology) SIMULATION OF SORPTION ENHANCED STEAM METHANE REFORMING AND CHEMICAL LOOPING REFORMING IN A CIRCULATING FLUIDIZED BED REACTOR	<b>Vo, T.</b> , Montabone, L. and Sheard, G.J. (Monash University) LINEAR INSTABILITIES ON MODEL POLAR VORTICES GENERATED IN A DIFFERENTIAL-DISK ROTATION CONFIGURATION	

**12.30 LUNCH** Conference Foyer, MCEC, Melbourne

**PLENARY SESSION**

Conference Room 105 &amp; 106

*(Chairman Greg Sheard)***1.30 Keynote Lecture***CARDIAC FLUID DYNAMICS: FROM COMPUTATIONAL MODELS AND FLOW PHYSICS TO DIAGNOSIS AND SURGICAL INTERVENTION***Rajat Mittal,**

(Johns Hopkins Uni., USA)

	<b>SESSION 1</b> <i>(Conference Room 105 &amp; 106)</i> <b>Bio-Engineering Mini-Symposium</b> (Chairman Rajat Mittal)	<b>SESSION 2</b> <i>(Conference Room 104)</i> <b>Gas-Solid Flows Mini-Symposium</b> (Chairman Christoph Goniva)	<b>SESSION 3</b> <i>(Conference Room 103)</i> <b>Aluminium and Alumina</b> (Chairman Laurentiu Nastac)	<b>SESSION 4</b> <i>(Conference Room 101 &amp; 102)</i> <b>Emerging Science</b> (Chairman Ray Cohen)
<b>2.25</b>	<b><u>Liovic, P.</u></b> , Sutalo, I.D., Stewart, R.L., Glattauer, V. and Meagher, L. (CSIRO CMIS) FLUID FLOW AND STRESSES ON MICROCARRIERS IN SPINNER FLASK BIOREACTORS	<b><u>Smuts, E.M.</u></b> , Deglon, D.A. and Meyer, C.J. (University of Cape Town) METHODOLOGY FOR CFD-DEM MODELLING OF PARTICULATE SUSPENSION RHEOLOGY	<b><u>Witt, P.J.</u></b> , Feng, Y.Q., Eick, I. and Schwarz, M.P. (CSIRO CMIS) MODELLING BUBBLE FLOW WITH CFX AND FLUENT FOR ALUMINIUM REDUCTION CELLS	<b><u>Saunders, K.</u></b> , Prakash, M., Cleary, P.W. and Cordell, M. (CSIRO CMIS) SPH MODELLING OF WEIR FLOW THROUGH A FOUR BAY, RADIAL GATED, SUBMERGED SPILLWAY
<b>2.45</b>	<b><u>Assemat, P.</u></b> , Hough, J., Siu, K.K., Armitage, J.A., Contreras, K.G., Aprico, A., Andrews, K., Dart, A., Chin-Dusting, J. and Hourigan, K. (Monash University) THREE- DIMENSIONAL NUMERICAL SIMULATION OF BLOOD FLOW IN MOUSE AORTIC ARCH AROUND ATHEROSCLEROTIC PLAQUES	Zhou, Q. and <b><u>Wang, J.</u></b> (Institute of Process Engineering, Chinese Academy of Sciences) EFFECTS OF MICROSCOPIC DRAG CORRELATIONS AND RESTITUTION COEFFICIENT ON THE CHARACTERISTICS OF MESO-SCALE CLUSTERING STRUCTURES IN RISER FLOWS	<b><u>Brown, G.J.</u></b> , Whyte, D.S. and Fletcher, D.F. (Alcoa World Alumina) DYNAMIC FLOW MODELLING IN PRECIPITATOR VESSELS - A COMPARATIVE STUDY OF TURBULENCE MODELLING APPROACHES	<b><u>Lester, D.R.</u></b> , Smith, L.D., Metcalfe, G. and Rudman, M. (CSIRO CMIS) BEYOND HAMILTONIAN: CHAOTIC ADVECTION IN A THREE-DIMENSIONAL VOLUME PRESERVING FLOW
<b>3.05</b>	<b><u>Sinnott, M.D.</u></b> , Harrison, S.M., Phan, T., Beare, R., Srikanth, V. and Cleary, P.W. (CSIRO CMIS) INVESTIGATING ARTERIAL GEOMETRY RISK FACTORS FOR CAROTID ARTEROSCLEROTIC DISEASE	<b><u>Afshar, S.</u></b> and Sheehan, M. (James Cook University) USING CFD TO SIMULATE HEAT TRANSFER IN PARTICLE CURTAINS	Zhang, K.Y., <b><u>Feng, Y.Q.</u></b> , Witt, P.J., Yang, W., Cooksey, M., Wang, Z. and Schwarz, M.P. (CSIRO CMIS) NUMERICAL INVESTIGATION OF BUBBLE INDUCED ELECTRICAL RESISTANCE IN ALUMINIUM REDUCTION CELLS	

**3.25 AFTERNOON TEA** Conference Foyer, MCEC, Melbourne



	<b>SESSION 1</b> (Conference Room 105 & 106) <b>Bio-Engineering Mini-Symposium</b> (Chairman Matt Sinnott)	<b>SESSION 2</b> (Conference Room 104) <b>Granular Flow</b> (Chairman Rob Morrison)	<b>SESSION 3</b> (Conference Room 103) <b>Heat Transfer</b> (Chairman Joan Boulanger)	<b>SESSION 4</b> (Conference Room 101 & 102) <b>Lattice-Boltzmann</b> (Chairman Martin Sommerfeld)
<b>3.55</b>	<b>Prakash, M.</b> , Nikolof, T., Cleary, P.W. and Bertolini, J. (CSIRO CMIS) SIMULATION OF FLOW IN A HELICAL DEVICE USED FOR IRRADIATING BIOLOGICAL FLUIDS	<b>Shirsath, S.S.</b> , Padding, J.T., Clercx, H.J.H. and Kuipers, J.A.M. (Eindhoven University of Technology) MODELLING OF GRANULAR FLOWS THROUGH INCLINED ROTATING CHUTES USING A DISCRETE PARTICLE MODEL	<b>Heschl, H.C.</b> , Inthavong, K. and Tu, J.Y. (Uni. Applied Science Burgenland, AUSTRIA) EVALUATION OF EDDY VISCOSITY TURBULENCE MODELS TO PREDICT CONVECTIVE HEAT TRANSFER	<b>Kroll-Rabotin, J.S.</b> , Sungkorn, R., Hashemi, S.A., Derksen, J.J. and Sanders, R.S. (University of Alberta) LARGE EDDY SIMULATION OF A SOLID-LIQUID FLUIDIZED BED USING THE LATTICE-BOLTZMANN METHOD AND A SOFT-SPHERE COLLISION MODEL
<b>4.15</b>	<b>Li, X.D.</b> , Ge, Q.J. and Tu, J.Y. (RMIT University) NUMERICAL INVESTIGATION OF PARTICLE INHALATION FROM AMBIENT ENVIRONMENT AND DEPOSITION IN HUMAN NASAL CAVITY USING AN INTEGRATED MANIKIN MODEL	<b>Pereira, G.G.</b> and Cleary, P.W. (CSIRO CMIS) SEGREGATION OF A MULTI-COMPONENT GRANULAR MIXTURE IN A ROTARY CLASSIFIER	<b>Erakovic, L.E.</b> and Evans, B.E. (GHD) USE OF PMV CONTROL TO IMPROVE ENERGY EFFICIENCY IN COMFORT COOLING APPLICATIONS	<b>Rojas, R.</b> , Seta, T., Hayashi, K. and Tomiyama, A.T. (Kobe University) IMMERSED BOUNDARY-FINITE DIFFERENCE LATTICE BOLTZMANN METHOD USING TWO RELAXATION TIMES

**4.35 FINISH**

<b>6:00</b>	<b>PRE-DINNER DRINKS</b>	Showtime Events, 61 South Wharf promenade, South Wharf, Melbourne
<b>6:30 to 10.00</b>	<b>CONFERENCE DINNER</b>	Showtime Events, 61 South Wharf promenade, South Wharf, Melbourne

## Day 3 - Wednesday, 12 December

**8.30 REGISTRATION** Conference Foyer, MCEC, Melbourne

### PLENARY SESSION

(Chairman Chris Solnordal)

Conference Room 105 & 106

**9.00 Keynote Lecture**

Ken Williams and **Scott Thibault**  
(CPFD Software, USA)

*PREDICTING UNEXPECTED BEHAVIOUR IN INDUSTRIAL DEEP-BED FLUIDIZATION REACTORS AND DEVELOPING ENGINEERED SOLUTIONS WITH CFD*

**SESSION 1**  
**(Conference Room 105 & 106)**  
**Micro-fluidics, Bubble & Drops**  
(Chairman Dalton Harvie)

**SESSION 2**  
**(Conference Room 104)**  
**Gas-Solid Flows Mini-Symposium**  
(Chairman Chris Solnordal)

**SESSION 3**  
**(Conference Room 103)**  
**Combustion: Coal Seams**  
(Chairman Jamal Naser)

**SESSION 4**  
**(Conference Room 101 & 102)**  
**Gas Flows**  
(Chairman Zhao Tian)

**9.55** **Berry, J.D.**, Davidson, M.R. and Harvie, D.J.E. (The University of Melbourne)  
ELECTROVISCOUS FLOW THROUGH A MICROFLUIDIC T-JUNCTION

**Cao, Y.**, Tian, Z.F. and Nathan, G.J. (The University of Adelaide)  
CFD MODELLING OF THE AERODYNAMICS IN A SOLAR-ENHANCED VORTEX GASIFIER (SVG) - PART1. VALIDATION CASE

Guo, H., **Qin, J.** and Qu, Q. (CSIRO ESRE)  
CFD INVESTIGATION OF GOAF FLOW OF METHANE RELEASED FROM UNMINED ADJACENT COAL SEAMS

**Awadalla, M.A.**, Lu, T.F., Tian, Z.F. and Dally, B. (The University of Adelaide)  
CFD MODELING OF 3D INDOOR GAS CONTAMINANT PLUMES FOR TESTING SEARCH ALGORITHMS FOR MOBILE ROBOT

**10.15** **Manica, R.M.**, Klaseboer, E., Gupta, R.P., Hendrix, M.H.W., Ohl, C. and Chan, D.Y.C. (Institute of High Performance Computing, SINGAPORE)  
MODELLING FILM DRAINAGE OF A BUBBLE HITTING AND BOUNCING OFF A SURFACE

**Mitra, S.**, Sathe, M.J., Doroodchi, E. and Evans, G.M. (University of Newcastle)  
INVESTIGATION OF DROPLET EVAPORATION IN A BUBBLING FLUIDIZED BED

**Tanguturi, K.**, Balusu, R., Morla, R. and Khanal, M. (CSIRO CESRE)  
EFFECT OF BUOYANCY ON METHANE GAS DISTRIBUTION AND GAS CONTROL STRATEGIES AT TAILGATE REGION IN A GASSY COAL MINE

**Wen, C.**, Feng, Y.Q., Witt, P.J., Yang, Y. and Cao, X. (China University of Petroleum)  
CFD SIMULATION OF SUPERSONIC SWIRLING SEPARATION OF NATURAL GAS USING A DELTA WING

**10.35 MORNING TEA** Conference Foyer, MCEC, Melbourne

	<b>SESSION 1</b> <b>(Conference Room 105 &amp; 106)</b> <b>Micro-fluidics, Bubbles &amp; Drops</b> <i>(Chairman Ronnie Andersson)</i>	<b>SESSION 2</b> <b>(Conference Room 104)</b> <b>Gas-Solid Flows Mini-Symposium</b> <i>(Chairman Christoph Kloss)</i>	<b>SESSION 3</b> <b>(Conference Room 103)</b> <b>Combustion</b> <i>(Chairman Joan Boulanger)</i>	<b>SESSION 4</b> <b>(Conference Room 101 &amp; 102)</b> <b>Optimisation &amp; Performance</b> <i>(Chairman Mahesh Prakash)</i>
<b>11.10</b>	<b>Verrelli, D.I.</b> , Lee, A., Schwarz, M.P. and Koh, P.T.L. (CSIRO CPSE) FORCES ARISING DURING BUBBLE-PARTICLE INTERACTION	<b>Plais, C.</b> (IFPEN) UPWARD JET PENETRATION IN FLUIDIZED BEDS : CFD PREDICTIONS COMPARED TO EXPERIMENTAL RESULTS	<b>Zhang, J.Z.</b> , Prationo, W.P., Zhang, L.Z. and Zhang, Z.Z. (Monash University) CFD MODELING OF THE OXY-FUEL COMBUSTION OF VICTORIAN BROWN COAL IN DROP TUBE FURNACE AND 3MW PILOT SCALE BOILER	Horgan, M. and <b>Brown, G.J.</b> (Alcoa World Alumina) APPLICATION OF DESIGN OPTIMISATION TO ESP PARTICLE CAPTURE
<b>11.30</b>	Klaseboer, E., <b>Manica, R.M.</b> and Chan, D. (Institute of High Performance Computing, SINGAPORE) RISING AND BOUNCING BUBBLES AGAINST A BOUNDARY WITH BEM; THE EFFECT OF VISCOUS STRESSES	<b>Tan, L.</b> and van Sint Annaland, M. (Eindhoven University of technology ) SIMULATION STUDY ON THE HYDRODYNAMIC CHARACTERISTICS OF MEMBRANE-ASSISTED MICRO-FLUIDIZED BEDS	Al-Abbas, A.H., <b>Naser, J.</b> and Blicblau, A. (Swinburne University) COMPUTATIONAL FLUID DYNAMICS MODELLING OF CHEMISTRY REACTION SCHEMES IN A LAB-SCALE OXY-FUEL FURNACE	<b>Harrison, S.M.</b> , Gunn, D.F. and Cleary, P.W. (CSIRO CMIS) KAYAK PERFORMANCE MODELLING USING SPH
<b>11.50</b>	<b>van Eijkeren, D.F.</b> and Hoeijmakers, H.W.M. (University of Twente) HISTORY FORCE AND INERTIA EFFECTS APPLIED TO SWIRLING FLOW PRODUCED WATER TREATMENT	<b>Solnordal, C.B.</b> and Wong, C.Y. (CSIRO CMIS) PREDICTING SURFACE PROFILE EVOLUTION CAUSED BY SOLID PARTICLE EROSION	<b>Christo, F.C.</b> , Nathan, G.J. and Kelso, R.M. (University of South Australia) EFFECT OF AN EXTERNAL FLOW ON COMBUSTION IN A TRAPPED-VORTEX BURNER	<b>Pvs, Kiran Kumar</b> , Papadakis, K. and Gu, S. (Xi'an Jiao tong-Liverpool University, CHINA) HYDRODYNAMIC MODELLING OF A DIRECT CONTACT HEAT EXCHANGER USED FOR BIO OIL CONDENSATION
<b>12.10</b>	<b>Olsen, J.E.</b> and Popescu, M. (SINTEF) ON THE EFFECT OF LIFT FORCES IN BUBBLE COLUMNS	<b>Deju, L.</b> , Cheung, S.C.P., Yeoh, G.H. and Tu, J.Y. (RMIT University) AN ASSESSMENT OF MECHANISTIC BREAKAGE AND COALESCENCE KERNELS IN POLY-DISPERSED MULTIPHASE FLOW		Harrison, S.M., <b>Cohen, R.C.Z.</b> , Cleary, P.W., Barris, S. and Rose, G. (CSIRO CMIS) FORCES ON THE BODY DURING ELITE COMPETITIVE PLATFORM DIVING
<b>12.30</b>	<b>LUNCH</b>	Conference Foyer, MCEC, Melbourne		

## PLENARY SESSION

Conference Room 105 & 106

*(Chairman David Fletcher)*

### 1.30 **Keynote Lecture**

*FROM SINGLE PARTICLE TRACKING TO MASSIVELY PARALLEL MULTIPHASE FLOW SIMULATION*

**Markus Braun**

(ANSYS Germany GmbH)

### 2.25 **Panel Discussion – Emerging and Future Trends in CFD**

*CONFERENCE ROOM 105 & 106*

*(Chairman Petar Liovic)*

Panel 1 - Industrial perspectives of current CFD : Gary Brown, Jan-Erik Olsen, Mark Davis

Panel 2 - Latest trends in turbulence, mixing and complex systems science to advanced applications : Members: Jos Derksen, Djamel Lakehal, Daniel Lester

Panel 3 - Latest trends in multiphase flow for applications-oriented CFD : Markus Braun, Martin Sommerfeld, Jiyuan Tu

Panel 4 - Consequences of advanced computing for CFD : Rajat Mittal, Darrin Stephens, Christoph Kloss, Christoph Goniva

### 3.30 **Closing Ceremony (Conference Room 105 & 106)** **Presentation of Student Prizes –by Dr Marcus Zipper CSIRO CPSE**

### 3:40 **AFTERNOON TEA**

Conference Foyer, MCEC, Melbourne