Seventh International Conference on Computational Fluid Dynamics in the Minerals and Process Industries

9-11 December 2009
Rydges, Melbourne, Victoria, Australia

OFFICIAL PROGRAM

Day 1 - Wednesday, 9 December			
8.30 **REGISTRATION**	Conference Foyer, Rydges Melbourne		
PLENARY SESSION *(Chairman Phil Schwarz)*	Conference Rooms 1,2,3		
9.00 Welcome from CSIRO	Phil Schwarz, CSIRO		
Opening	Dr Robin Batterham, Group Chief Scientist, Rio Tinto Limited		
9.20 **Keynote Lecture** **Larry Hackman** (Syncrude)	*THE USE OF CFD AT SYNCRUDE: SUCCESSES AND CHALLENGES*		
SESSION 1 **(Legends Room)**	**SESSION 2** **(Conference Room 1)**	**SESSION 3** **(Conference Room 2)**	**SESSION 4** **(Conference Room 3)**
High Temperature Processing - Symposium *(Chairman Andrew Campbell)*	**Industrial Applications** *(Chairman Larry Hackman)*	**Pipeline Flows** *(Chairman Jiyuan Tu)*	**Stirred Tanks** *(Chairman Tuan Nguyen)*
10.15 Session Lead Paper	**Toh, T.**, Takeuchi, E. and Yamamura, K. (Nippon Steel Corporation) MULTI-PHYSICS ANALYSIS FOR ELECTROMAGNETIC PROCESSING IN CONTINUOUS CASTING OF STEEL BY FINITE VOLUME METHOD APPROACH	**Haywood, R.J**., Taylor, W., Pliakas, T., Tedford, N. and Warnica, D. (Hatch) ENHANCED PROBLEM SOLVING; THE INTEGRATION OF CFD AND OTHER ENGINEERING APPLICATIONS	**Issa, R**. (Imperial College, UK) SIMULATION OF INTERMITTENT FLOW IN MULTIPHASE OIL AND GAS PIPELINES	**Derksen, J.** (University of Alberta) SIMULATIONS OF THIXOTROPIC LIQUIDS
10.40	**Kadkhodabeigi, M.,** Tveit, H. and Johansen, S.T. (Norwegian University of Science and Technology) MODELLING THE TAPPING OF SILICON MELT FROM THE SUBMERGED ARC FURNACES	**Naser, J.** (Swinburne University of Technology) INDUSTRIAL APPLICATION OF CFD – A REVIEW OF FEW EXAMPLES	**Dickenson, P.** (Cambridge University) THE FEASIBILITY OF SMOOTHED PARTICLE HYDRODYNAMICS FOR MULTIPHASE OILFIELD SYSTEMS	**Syrjänen, J**., Haavisto, S., Koponen, A. and Manninen, M. (VTT technical Research of Finland) PARTICLE VELOCITY AND CONCENTRATION PROFILES OF SAND - WATER SLURRY IN STIRRED TANK - MEASUREMENTS AND MODELLING
11.00 **MORNING TEA**	Conference Foyer & Broadway Room, Rydges Melbourne		

	SESSION 1 (Legends Room)	SESSION 2 (Conference Room 1)	SESSION 3 (Conference Room 2)	SESSION 4 (Conference Room 3)
	High Temperature Processing Mini-Symposium *(Chairman Mark Davis)*	**Industrial Process Flows** *(Chairman Ross Haywood)*	**Flow Past Objects** *(Chairman Kris Ryan)*	**Alumina Processing** *(Chairman David Fletcher)*
11.30	**Runstedtler, A.,** Boisvert, P., Tisdale, D., Greenfield, M., Chui, E. and Majeski, A. (Natural Resources Canada) COMPUTATIONAL FLUID DYNAMICS MODEL OF ELECTRIC FURNACE FOR SMELTING NICKEL CALCINE	**Tabib, M**., Lane, G., Yang, W. and Schwarz, M.P. (CSIRO) CFD SIMULATION OF A SOLVENT EXTRACTION PUMP MIXER UNIT: EVALUATING LARGE EDDY SIMULATION AND RANS BASED MODELS	**Hussam, W.K.,** Sheard, G.J. and Thompson, M.C. (Monash University) A QUASI-TWO-DIMENSIONAL INVESTIGATION OF UNSTEADY TRANSITION IN SHALLOW FLOW PAST A CIRCULAR CYLINDER IN A CHANNEL	**Kumaresan, T.,** Thakre, S.S., Basu, B., Kaple, K., Gupta, H.P., Bandi, A., Chaturvedi, P., Roy, N.N., Gararia, S.N., Sapra, V. and Shah, R.P. (Aditya Birla Science & Technology Co Ltd.) PERFORMANCE IMPROVEMENT OF ALUMINA DIGESTERS
11.50	**Alam, M.,** Naser, J. and Brooks, G.A. (Swinburne University of Technology) CFD SIMULATION OF SUPERSONIC OXYGEN JET BEHAVIOUR INSIDE A HIGH TEMPERATURE FIELD	**Icardi, M**., Gavi, E., Marchisio, D.L., Olsen, M.G., Fox, R.O. and Lakehal, D. (Politecnico di Torino) VALIDATION OF LES PREDICTIONS FOR TURBULENT FLOWS IN A CONFINED IMPINGING JET REACTOR	**Ali, M.S.M**., Doolan, C.J. and Wheatley, V. (The University of Adelaide) GRID CONVERGENCE STUDY FOR A TWO-DIMENSIONAL SIMULATION OF FLOW AROUND A SQUARE CYLINDER AT A LOW REYNOLDS NUMBER	**Bremhorst, K.** and Brennan, M.S. (JKMRC University of Queensland) CFD MODELING OF ALUMINA SLURRY HEAT EXCHANGER HEADERS: (i) COMPARISON OF CFD APPROACHES
12.10	**Prakash, M.,** Pereira, G.G., Cleary, P.W., Rohan, P. and Taylor, J.A. (CSIRO) VALIDATION OF SPH PREDICTIONS OF OXIDE GENERATED DURING Al MELT TRANSFER	**Feng, Y.Q**., Yang, W., Cooksey, M.A. and Schwarz, M.P. (CSIRO) DEVELOPMENT OF BUBBLE DRIVEN FLOW CFD MODEL APPLIED FOR ALUMINIUM SMELTING CELLS	Ariff, M., **Salim, S.M.** and Cheah, S.C. (Nottingham University, Malaysia) WALL Y^+ APPROACH FOR DEALING WITH TURBULENT FLOW OVER A SURFACE MOUNTED CUBE: PART 1 - LOW REYNOLDS NUMBER	**Marsh, C.** (CFD Design & Engineering) CFD MODELLING OF ALUMINA CALCINER FURNACES
12.30	**LUNCH** Conference Foyer & Broadway Room, Rydges Melbourne			

PLENARY SESSION *(Chairman Malcolm Davidson)*	Conference Rooms 1,2,3
1.30	**Keynote Lecture** A. Passalacqua, and **Rodney O. Fox**, (Iowa State University)	*MULTIPHASE CFD FOR GAS-PARTICLE FLOWS: BEYOND THE TWO-FLUID MODEL*

	SESSION 1 (Legends Room)	SESSION 2 (Conference Room 1)	SESSION 3 (Conference Room 2)	SESSION 4 (Conference Room 3)
	High Temperature Processing Mini-Symposium *(Chairman Allan Runstedtler)*	**Heat Transfer** *(Chairman Jamal Naser)*	**Fluid Dynamics** *(Chairman Malcolm Davidson)*	**Hydrocyclones** *(Chairman Rodney Fox)*
2.25	**Pan, Y**., Witt, P.J. and Xie, D. (CSIRO) CFD SIMULATION OF FREE SURFACE FLOW AND HEAT TRANSFER OF LIQUID SLAG ON A SPINNING DISC FOR A NOVEL DRY SLAG GRANULATION PROCESS	**Campbell, A.P**., Abdel-Jawad, M., Appleby, S. and Servant, G. (Worley Parsons) CFD MODELLING OF A SUBTERRANEAN BUSBAR FOR THERMAL PERFORMANCE	**Poon, K.W.,** Iaccarino, G., Ooi, A. and Giacobello, M. (The University of Melbourne) NUMERICAL STUDIES OF HIGH REYNOLDS NUMBER FLOW PAST A STATIONARY AND ROTATING SPHERE	**Chu, K.W.**, Wang, B., Yu, A.B. and Vince, A. (The University of New South Wales) MODELLING THE MULTIPHASE FLOW IN DENSE MEDIUM CYCLONES
2.45	Bhatelia, T.J., Utikar, R.P., **Pareek, V.K.** and Tadé, M.O. (Curtin University of Technology) CHARACTERIZING LIQUID FILM THICKNESS IN SPINNING DISC REACTORS	Sun, W.H., Huang, C.J., **Wu, C.Y.** and Miao, J.M. (National Defense University, Taiwan) NUMERICAL STUDY ON THE EFFUSION COOLING PERFORMANCE OVER THE WALLS OF AN ANNULAR BURNER	**Dhopade, P.** and Sheard, G.J. (Monash University) SHEAR LAYER REATTACHMENT ON A SQUARE CYLINDER WITH INCIDENCE ANGLE VARIATION	**Stephens, D.W.** and Mohanarangam, K. (CSIRO) TURBULENCE MODEL ANALYSIS OF FLOW INSIDE A HYDROCYCLONE
3.05	**White, R.B**. and King, D. (CSIRO) COMBINED EXPERIMENTAL AND SIMULATION (CFD) ANALYSIS ON PERFORMANCE OF A HORIZONTAL TUBE REACTOR USED TO PRODUCE CARBON NANOTUBES	**Knoerzer, K.** and Versteeg, C. (CSIRO) A CFD MODEL FOR SIMULATING HIGH PRESSURE THERMAL (HPT) PROCESSING - IMPACT OF MATERIAL PROPERTIES AND PROCESSING CONDITIONS ON PREDICTION ACCURACY	So, J., **Ryan, K.** and Sheard, G.J. (Monash University) SHORT-WAVE INSTABILITIES ON A VORTEX PAIR OF UNEQUAL STRENGTH CIRCULATION RATIO	**Brennan, M.S**., Holtham, P.N. and Narasimha, M. (JKMRC University of Queensland) CFD MODELLING OF HYDROCYCLONES: VALIDATION AGAINST PLANT HYDRODYNAMIC PERFORMANCE
3.25	**AFTERNOON TEA** Conference Foyer & Broadway Room, Rydges Melbourne			

	SESSION 1 (Legends Room)	SESSION 2 (Conference Room 1)	SESSION 3 (Conference Room 2)	SESSION 4 (Conference Room 3)
	High Temperature Processing Mini-Symposium *(Chairman Takehiko Toh)*	**Wall Effects** *(Chairman Wei Ge)*		**Bubbly Flows** *(Chairman Raad Issa)*
3.55	Zhang, S.J., **Li, R.B.,** Wei, J.J. and Guo, L.J. (Xi'an Jiaotong University) NUMERICAL SIMULATION OF MAGNESIUM PRODUCTION BY THE PIDGEON PROCESS PART II: COUPLING OF THE MAGNESIUM REDUCTION IN THE RETORTS WITH THE SURROUNDING THERMAL-FLOW FIELDS IN A COAL-FIRED FURNACE	**Johnsen, S.G**. and Johansen, S.T. (SINTEF Materials and Chemistry) DEVELOPMENT OF A BOUNDARY CONDITION WALL FUNCTION FOR PARTICULATE FOULING CFD MODELING		Cheung, S.C.P., Yeoh, G.H. and **Tu, J.Y.** (RMIT University) DIRECT QUADRATURE METHOD OF MOMENTS FOR ISOTHERMAL BUBBLY FLOWS
4.15	**Solnordal, C.B.,** Jorgensen, F.R.A. and Russell, R. (CSIRO) THE EFFECT OF PARTICLE SIZE AND COMPOSITION ON THE PERFORMANCE OF THE COMPOSITE PARTICLE MODEL IN PREDICTING COMBUSTION BEHAVIOUR IN A FLASH FURNACE REACTION SHAFT	**Jafar, F.A.,** Thorpe, G.R. and Turan, O.F. (Victoria University) FLOW MODE CHARACTERISATION OF LIQUID FILMS FALLING ON HORIZONTAL PLAIN CYLINDERS		**Duan, X.,** Cheung, S.C.P., Yeoh, G.H., Tu, J.Y., Krepper, E. and Lucas, D. (RMIT University) AN OVERALL ASSESSMENT OF ABND MODEL FOR LARGE-SCALE BUBBLY FLOWS
4.35	**Higgins, D**., Gray, N. and Davidson, M.R. (The University of Melbourne) SIMULATING AGGLOMERATION OF MOLTEN PARTICLES IN THE FLASH SMELTING REACTION SHAFT	**Sharma, S**. and Gupta, A.V. (Birla Institute of Technology & Science Pilani) NUMERICAL SIMULATION OF HEAT TRANSFER OF NANOFLUIDS IN AN ENCLOSURE		
4.55	**BREAK**			

5.00	**Panel Discussion – Future Challenges and Opportunities for CFD** *(Chairman Phil Schwarz)*	*CONFERENCE ROOMS 1,2,3*
5.30	**POSTER SESSION**	Broadway Room, Rydges Melbourne

	Choi, H.S., Choi, Y.S. and Kim, S.J. (Korea Institute of Machinery and Materials) NUMERICAL SIMULATION FOR FAST PYROLYSIS OF WOODY BIOMASS IN A BUBBLING FLUIDISED BED REACTOR	Sheard, G.J. and King, M.P. (Monash University) THE INFLUENCE OF HEIGHT RATIO ON RAYLEIGH-NUMBER SCALING AND STABILITY OF HORIZONTAL CONVECTION	Ariff, M., Salim, S.M. and Cheah, S.C. (Nottingham University, Malaysia) WALL Y^+ APPROACH FOR DEALING WITH TURBULENT FLOW OVER A SURFACE MOUNTED CUBE: PART 2 - HIGH REYNOLDS NUMBER	Hou, Q.F., Guo, B.Y., Li, L.F. and Yu, A.B. (The University of New South Wales) NUMERICAL SIMULATION OF GAS FLOW IN AN ELECTROSTATIC PRECIPITATOR
	Sonavane,Y. and Specht, E. (Otto von Guericke University) NUMERICAL ANALYSIS OF THE HEAT TRANSFER IN THE WALL OF ROTARY KILN USING FINITE ELEMENT METHOD ANSYS	Pereira, G.G., Pucilowski, S., Liffman, K. and Cleary, P.W. (CSIRO) STREAK PATTERNS IN BINARY GRANULAR MEDIA IN A ROTARY CLASSIFIER	Mossad, R., Yang, W. and Schwarz, M.P. (University of Southern Queensland) NUMERICAL PREDICTION OF AIR FLOW IN SHARP 90° ELBOW	Mohanarangam, K., Stephens, D.W. and Nguyen, T.V. (CSIRO) EVALUATION OF TWO-EQUATION TURBULENCE MODELS IN A LABORATORY-SCALE THICKENER FEEDWELL

Butler, C.J., Sheard, G.J. and Ryan, K. (Monash University) MODELLING VARIATIONS IN SHEAR-RATE AROUND A GEOMETRICALLY SIMILAR THROMBUS IN-VITRO	Rudman, M. and Cleary, P.W. (CSIRO) MODELLING SLOSHING IN LNG TANKS	Pan, Y. and Langberg, D. (CSIRO) PHYSICAL AND MATHEMATICAL MODELLING INVESTIGATIONS OF THE MECHANISMS OF SPLASH GENERATION IN BATH SMELTING FURNACES	Fahmy, M., Sun, Z. and Molteno, T. (University of Otago, New Zealan) RESTRICTED REGIONS OF RAYLEIGH-BÉNARD-MARANGONI CONVECTION IN SOLUTE TRANSFER BETWEEN GAS-LIQUID PHASES
Trujillo, F.J. and Knoerzer, K. (CSIRO) CFD MODELLING OF THE ACOUSTIC STREAMING INDUCED BY AN ULTRASONIC HORN REACTOR	Pereira, G.G., Prakash, M. and Cleary, P.W. (CSIRO) SPH MODELLING OF FLUID FLOW AT THE GRAIN LEVEL IN A POROUS MEDIUM	Stephens, D.W., Gorissen, D. and Dhaene, T. (CSIRO) SURROGATE BASED SENSITIVITY ANALYSIS OF PROCESS EQUIPMENT	Abbaszadeh, A. and Hosseini, S.H. (Islamic Azad University, Ilam Branch) CFD SIMULATION OF GAS-SOLID FLOW IN A SPOUTED BED WITH A NON-POROUS DRAFT TUBE
Burström, P.E.C., Lundström, T.S., Marjavaara, B.D. and Töyrä, S. (Lulea University of Technology) CFD-MODELLING OF SELECTIVE NON-CATALYTIC REDUCTION OF NOx IN GRATE-KILN PLANTS	Brennan, M.S. and Bremhorst, K. (JKMRC University of Queensland) CFD MODELING OF ALUMINA SLURRY HEAT EXCHANGER HEADERS: (ii) PARAMETRIC STUDIES	Li, S., Muddle, B., Jahedi, M. and Soria, J. (Monash University) NUMERICAL INVESTIGATION OF THE COLD SPRAY PROCESS	Seyedinezhad, H. and Hormozi, F. (Semnan University, Iran) PREDICTION OF WAX DEPOSITION IN PIPELINE BY CFD TECHNIQUES
Granström, B.R., Lundström, T.S., Marjavaara, B.D. and Töyrä, S. (Lulea University of Technology) CFD MODELLING OF THE FLOW THROUGH A GRATE-KILN	Gunjal, P. and Ramchandran, P. (Washington University in St Louis) TAILORING OXYGEN DISTRIBUTION IN 300MM CZOCHRALSKI CRYSTAL OF PURE SILICON USING CUSP MAGENETIC FIELD	Solnordal, C.B., Hughes, T., Gray, S. and Schwarz, M.P. (CSIRO) CFD MODELLLING OF A NOVEL GRAVITY SEPARATION DEVICE	Khaleghi, H. and Nabifar, M.R. (Tarbiat Modares University) NUMERICAL MODELING OF IN-CYLINDER FLUID FLOW IN INTERNAL COMBUSTION ENGINES USING REYNOLDS STRESS TURBULENCE MODEL
Kolaitis, D.I. and Founti, M.A. (National Technical University of Athens) A 3D CFD MODELLING STUDY OF A DIESEL OIL EVAPORATION DEVICE OPERATING IN THE "STABILIZED COOL FLAME" REGIME	Prakash, M., Korman, B. and Cleary, P.W. (CSIRO) VISCOUS LIQUID AIR-MIXING: INFLUENCE OF LIQUID DENSITY RATIO	Mohanarangam, K., Yang, W., Zhang, H.J. and Tu, J.Y. (RMIT University) EFFECT OF PARTICLES IN A TURBULENT GAS-PARTICLE FLOW WITHIN A 90°BEND	Shanbghazani, M., Heidarpour, V. and Mirzaee, I. (Islamic Azad University, Iran) COMPUTER-AIDED ANALYSIS OF FLOW IN A ROTATING SINGLE DISK
Li, R.B., Wei, J.J., Guo, L.J. and Zhang, S.J. (Xi'an Jiaotong University) NUMERICAL SIMULATION OF MAGNESIUM PRODUCTION BY THE PIDGEON PROCESS PART I: A NEW MODE FOR MAGNESIUM REDUCTION PROCESS IN A HORIZONTAL RETORT	Cummins, S. and Cleary, P.W. (CSIRO) USING DISTRIBUTED CONTACTS IN DEM TO MODEL GRANULAR SHEAR FLOWS	Guo, B.Y., Dong, K.J. and Yu, A.B. (The University of New South Wales) SIMULATION OF LIQUID-SOLID FLOW IN A COAL DISTRIBUTOR: INHOMOGENEOUS MODEL VS HOMOGENEOUS MODEL	
5.30	**Happy Hour - Drinks**	Conference Foyer & Broadway Room, Rydges Melbourne	
7.00	**FINISH**		

Day 2 - Thursday, 10 December

8.30	**REGISTRATION**	Conference Foyer, Rydges Melbourne		

PLENARY SESSION
(Chairman Hans Kuipers) — Conference Rooms 1,2,3

9.00	**Keynote Lecture** GRK Reddy and **JB Joshi** (Institute of Chemical Technology, India)	*CFD SIMULATION OF FLUID-PARTICLE AND PARTICLE-PARTICLE INTERACTION IN PACKED AND FLUIDISED BEDS*		
	SESSION 1 (Legends Room)	**SESSION 2 (Conference Room 1)**	**SESSION 3 (Conference Room 2)**	**SESSION 4 (Conference Room 3)**
	Gas-Solid Flows Mini-Symposium *(Chairman Hans Kuipers)*	**Non-Newtonian Flows** *(Chairman Klaus Bremhorst)*	**Stirred tanks** *(Chairman Jos Derkson)*	**Welding** *(Chairman Christian Heschl)*
9.55 Session Lead Paper	Godlieb, W., Gorter, S., **Deen, N.G**. and Kuipers, J.A.M. (University of Twente) DEM AND TFM SIMULATIONS OF SOLIDS MIXING IN A GAS-SOLID FLUIDIZED BED	**Grecov, D.** and Liu, K. (University of British Columbia) RHEOLOGICAL AND FLOW MODELLING OF VISCOELASTIC FLUIDS BETWEEN ECCENTRIC CYLINDERS	**Olson, J.A**., Delfel, S., Ollivier-Gooch, C. and Gooding, R.W. (University of British Columbia) COMPUTATIONAL FLUID DYNAMICS IN THE PULP AND PAPER INDUSTRY - THE DESIGN OF A HIGH PERFORMANCE PULP SCREEN ROTOR	**Murphy, A.B.,** Tanaka, M., Yamamoto, K., Tashiro, S. and Lowke, J.J. (CSIRO) CFD MODELLING OF ARC WELDING - THE IMPORTANCE OF THE ARC PLASMA
10.20	Zhou, Z.Y., Pinson, D., Zou, R.P. and **Yu, A.B**. (The University of New South Wales) CFD-DEM SIMULATION OF GAS FLUIDIZATION OF ELLIPSOIDAL PARTICLES	**Guang, R.Y.,** Rudman, M., Chryss, A. and Bhattacharya, S. (RMIT University) DNS OF TURBULENT NON-NEWTONIAN FLOW IN AN OPEN CHANNEL	**Kandakure, M**., Vitankar, V., Basu, B., Srivatsan, R. and Nagaraj, H. (Aditya Birla Science & Technology Co Ltd.) CFD STUDY OF SLURRY HOMOGENIZER	**Das, R**. and Cleary, P.W. (CSIRO) INVESTIGATION OF FLOW DYNAMICS AND PLASTIC DEFORMATION IN ARC WELDING USING SPH
10.40	**MORNING TEA**	Conference Foyer & Broadway Room, Rydges Melbourne		

	SESSION 1 (Legends Room)	SESSION 2 (Conference Room 1)	SESSION 3 (Conference Room 2)	SESSION 4 (Conference Room 3)
	Gas-Solid Flows Mini-Symposium *(Chairman JB Joshi)*	**Micro-Fluidics** *(Chairman Dana Grecov)*	**Slurry Flows** *(Chairman James Olson)*	**Coal Processing** *(Chairman Matthew Brennan)*
11.10	Lu, B., **Wang, W.** and Li, J. (Chinese Academy of Sciences) CHOOSING THE MESH-INDEPENDENT SUB-GRID DRAG COEFFICIENT MODEL	**Biscombe, C.J.C.,** Davidson, M.R. and Harvie, D.J.E. (The University of Melbourne) ELECTRO-OSMOTIC EFFECTS IN LOW REYNOLDS NUMBER FLOW THROUGH A PLANAR MICROFLUIDIC CONTRACTION-EXPANSION	**Sinnott, M.D**., Cleary, P.W. and Morrison, R.D. (CSIRO) SLURRY FLOW IN A TOWER MILL	Humphreys, D., **Collecutt, G**. and Proud, D. (BMT WBM Pty Ltd) CFD SIMULATION OF UNDERGROUND COAL DUST EXPLOSIONS AND ACTIVE EXPLOSION BARRIERS
11.30	**Rokkam, R.G**., Fox, R.O. and Muhle, M.E. (Iowa State University) CFD MODELLING OF ELECTROSTATIC FORCES IN GAS-SOLID FLUIDIZED BEDS AND THE ROLE OF PROCESS UPSETS	Dhondi, S. and **Pereira, G.G**. (CSIRO) COMPLEX FLUID MIXING IN MICRO-FLUIDIC DEVICES: THEORY AND SIMULATIONS	**Mohanarangam, K**. and Stephens, D.W. (CSIRO) CFD MODELLING OF FLOATING AND SETTLING PHASES IN SETTLING TANKS	**Luo, Y**., Coertzen, M. and Dumble, S. (Linc Energy) COMPARISON OF UCG CAVITY GROWTH WITH CFD MODEL PREDICTIONS
11.50	**Didwania, A.K.** and Cattolica, R.J. (University of California) CFD SIMULATION SCALE-UP OF A DUAL-FLUIDIZED BED GASIFIER FOR BIOMASS	**Shimasaki, S.** and Taniguchi, S. (Tokoku University) FORMATION OF UNIFORMLY-SIZED DROPLETS FROM CAPILLARY JET BY ELECTROMAGNETIC FORCE	**Graham, L.J**. W., Lester, D. and Wu, J. (CSIRO) SLURRY EROSION IN COMPLEX FLOWS: EXPERIMENT AND CFD	**Mossad, R.,** Valla, A. and Ballusu, R. (University of Southern Queensland) INERTISATION OF HIGHWALL MINING TO CONTROL METHANE CONCENTRATIONS AT THE MOURA MINE
12.10	**Li, Z.**, Kind, M. and Gruenewald, G. (University of Karlsruhe) MODELLING THE FLUID DYNAMICS AND THE GROWTH KINETICS OF FLUIDIZED BED SPRAY GRANULATION	**Wei, Z.,** Cao, M., Tang, Y. and Lu, B. (Xi'an Jiaotong University) TWO-PHASE FLOW ANALYSIS AND EXPERIMENTAL INVESTIGATION OF MICRO-PIV FOR EMITTER MICRO-CHANNELS		**Ejlali, A**., Aminossadati, S.M. and Ejlali, A. (University of Qld) NUMERICAL ANALYSIS OF FLUID FLOW AND HEAT TRANSFER THROUGH REACTIVE COAL STOCKPILE
12.30	**LUNCH**　　　　Conference Foyer & Broadway Room, Rydges Melbourne			

PLENARY SESSION *(Chairman Darrin Stephens)*	Conference Rooms 1,2,3
1.30　**Keynote Lecture** **Hrvoje Jasak** (Wikki Ltd.)	*OpenFOAM: OPEN SOURCE IN COMMERCIAL AND ACADEMIC CFD USE*

	SESSION 1 (Legends Room)	SESSION 2 (Conference Room 1)	SESSION 3 (Conference Room 2)	SESSION 4 (Conference Room 3)
	Gas-Solid Flows Mini-Symposium *(Chairman Jinghai Li)*	**Novel Applications** *(Chairman Hrvoje Jasak)*	**Aerodynamics** *(Chairman Darrin Stephens)*	**Combustion** *(Chairman Dionysios Kolaitis)*
2.25	**Hou, Q.F.,** Zhou, Z.Y. and Yu, A.B. (The University of New South Wales) COMPUTATIONAL STUDY OF HEAT TRANSFER IN BUBBLING FLUIDIZED BEDS WITH GELDART A POWDER	**Schroeder, S.,** Buckow, R. and Knoerzer, K. (CSIRO) NUMERICAL SIMULATION OF PULSED ELECTRIC FIELDS (PEF) PROCESSING FOR CHAMBER DESIGN AND OPTIMISATION	**Ellis, C.L.,** Ryan, K. and Sheard, G.J. (Monash University) TWO-DIMENSIONAL COMPUTATIONAL ANALYSIS OF "HIGH TAIL" CONFIGURATION AIRCRAFT WAKE VORTEX PAIRS	Shahamiri, S.A. and **Wierzba, I**. (University of Calgary) MODELING THE REACTIVE PROCESSES WITHIN A CATALYTIC POROUS MEDIUM
2.45	**Fernandez, J.W.,** Cleary, P.W. and McBride, B. (CSIRO) EFFECT OF SCREW DESIGN AND PARTICLE SHAPE ON HOPPER DRAW DOWN BY A HORIZONTAL SCREW FEEDER	**Hillier, D.R.,** Ryan, K. and Sheard, G.J. (Monash University) IMPLEMENTATION OF MOVING BOUNDARIES IN SPECTRAL-ELEMENT SOFTWARE	**Antiohos, A.A.,** Semercigil, S.E. and Turan, O.F. (Victoria University) CFD DESIGN OF A GENERIC CONTROLLER FOR VORTEX-INDUCED RESONANCE	Xia, F., Liu, C. and **Karim, G**. (University of Calgary) THE 3-D SIMULATION WITH DETAILED CHEMICAL KINETICS OF THE TURBULENT COMBUSTION IN A PRE-CHAMBER INDIRECT INJECTION DIESEL ENGINE
3.05		Hain, K., Wels, H. and **Muhr, M**. (University of Applied Science) SIMULATION OF THE FILLING OF POLYETHYLENE- TEREPHTHALATE-BOTTLES (PET) WITH A VOLUMETIC SWIRL CHAMBER VALVE (VODM 40355) ON THE BASIS OF CALCULATION MODELS AND EXPERIMENTS	**Boustead, N**., Ryan, K. and Sheard, G.J. (Monash University) SHORT-WAVE INSTABILITY GROWTH IN CLOSELY SPACED VORTEX PAIRS	**Mishra, K.B.,** Wehrstedt, K.D. and Schönbucher, A. (BAM Federal Institute for Materials Research and Testing) PREDICTION OF BURNING RATE OF AN ACCIDENTALLY RELEASED FLAMMABLE FUEL BY MEANS OF CFD SIMULATION
3.25	**AFTERNOON TEA** Conference Foyer & Broadway Room, Rydges Melbourne			

	SESSION 1 (Legends Room)	SESSION 2 (Conference Room 1)	SESSION 3 (Conference Room 2)	SESSION 4 (Conference Room 3)
	Gas-Solid Flows Mini-Symposium *(Chairman Madhava Syamlal)*	**Kilns** *(Chairman Jan Eric Olsen)*		**Combustion** *(Chairman Ghazi Karim)*
3.55	**Feng, Y.Q.** and Yu, A.B. (CSIRO) CFD-DEM MODELLING OF GAS FLUIDIZATION OF PARTICLE MIXTURES WITH SIZE AND DENSITY DIFFERENCES	**Macphee, J.E**., Sellier, M., Jermy, M. and Tadulan, E. (Canterbury University) CFD MODELLING OF PULVERIZED COAL COMBUSTION IN A ROTARY LIME KILN		**Tierney, C.,** Wood, S., Harris, A.T. and Fletcher, D.F (University of Sydney) COMPUTATIONAL FLUID DYNAMICS MODELLING OF POROUS BURNERS
4.15	**de Jong, J.F.,** van Gerner, J.H., van Sint Annaland, M. and Kuipers, J.A.M. (University of Twente) DEVELOPMENT OF A NOVEL HYBRID DISCRETE PARTICLE - IMMERSED BOUNDARY MODEL FOR FLUIDIZED BED MEMBRANE REACTORS	**Dragomir, S**., Sinnott, M.D., Semercigil, S.E. and Turan, O.F. (CSIRO) PREDICTING ENERGY DISSIPATION CHARACTERISTICS OF A TUMBLING GRANULAR-FLOW DAMPER USING DEM		**Tian, Z.F**., Witt, P.J., Schwarz, M.P. and Yang, W. (CSIRO) NUMERICAL MODELLING OF BROWN COAL COMBUSTION IN A TANGENTIALLY-FIRED FURNACE
4.35	**Hilton, J.E.,** Mason, L.R. and Cleary, P.W. (CSIRO) THE EFFECT OF GAS DYNAMICS ON HOPPER DISCHARGE RATES	**Larsson, I.A.S**., Lindmark, E.M., Lundström, T.S., Marjavaara, D. and Töyrä, S. (Lulea University of Technology) KILN AERODYNAMICS VISUALISATION OF MERGING FLOW BY USAGE OF PIV AND CFD		Kolaitis, D.I., **Katsourinis, D.I**. and Founti, M.A. (National Technical University of Athens) DROPLET EVAPORATION ASSISTED BY "STABILIZED COOL FLAMES": SCRUTINIZING ALTERNATIVE CFD MODELLING APPROACHES
4.55	**FINISH**			
6:30	**PRE-DINNER DRINKS**	Bobby McGee's, Roxy Bar, Rydges Melbourne		
7:00	**CONFERENCE DINNER**	Bobby McGee's Entertainment Lounge, Rydges Melbourne		

Day 3 - Friday, 11 December

8.30	**REGISTRATION**	Conference Foyer, Rydges Melbourne
PLENARY SESSION *(Chairman Greg Sheard)*		Conference Rooms 1,2,3
9.00	**Keynote Lecture** **Timothy Wick** and Farooque, T. (University of Alabama at Birmingham)	*BIOREACTOR DEVELOPMENT FOR CARTILAGE TISSUE ENGINEERING: COMPUTATIONAL MODELLING AND EXPERIMENTAL RESULTS*

	SESSION 1 **(Legends Room)**	**SESSION 2** **(Conference Room 1)**	**SESSION 3** **(Conference Room 2)**	**SESSION 4** **(Conference Room 3)**
	Bio-Engineering Mini-Symposium *(Chairman Greg Sheard)*	**DEM** *(Chairman Niels Deen)*	**Multiphase Flows** *(Chairman Mahesh Prakash)*	**2 Phase Pipe Flow** *(Chairman Ozden Turan)*
9.55 Session Lead Paper	**Secomb, T.W.,** Barber, J.O. and Restrepo, J.M. (University of Arizona) COMPUTATIONAL SIMULATION OF RED BLOOD CELL MOTION IN MICROVESSEL BIFURCATIONS	Singh, V. and **Lo, S.** (CD-Adapco) PREDICTING PRESSURE DROP IN PNEUMATIC CONVEYING USING THE DISCRETE ELEMENT MODELING APPROACH	**Zhou, L.X**. (Tsinghua University) DEVELOPING MULTIPHASE AND REACTING TURBULENCE MODELS	**Höhne, T.** (Forschungszentrum Dresden-Rossendorf e.V.,) EXPERIMENTS AND NUMERICAL SIMULATIONS OF HORIZONTAL TWO PHASE FLOW REGIMES
10.20	**Liu, J.L.,** Qian, Y., Umezu, M., Itatani, K. and Miyaji, K. (Waseda University) HEMODYNAMIC SIMULATION FOR CONGENITAL HEART DISEASE	**Hilton, J.E**. and Cleary, P.W. (CSIRO) THE ROLE OF PARTICLE SHAPE IN PNEUMATIC CONVEYING	**Yang, N.,** Chen, J., Ge, W. and Li, J. (Chinese Academy of Sciences) A CONCEPTUAL MODEL FOR GAS-LIQUID INTERACTION AND ITS INTEGRATION INTO CFD SIMULATION OF BUBBLE COLUMNS	**de Boer, K.** and Bahri, P.A. (Murdoch University) INVESTIGATION OF LIQUID-LIQUID TWO PHASE FLOW IN BIODIESEL PRODUCTION
10.40	**MORNING TEA**	Conference Foyer & Broadway Room, Rydges Melbourne		

	SESSION 1 (Legends Room)	SESSION 2 (Conference Room 1)	SESSION 3 (Conference Room 2)	SESSION 4 (Conference Room 3)
	Bio-Engineering Mini-Symposium *(Chairman Timothy Wick)*	**DEM** *(Chairman Simon Lo)*	**Bubbly Flows** *(Chairman Thomas Höhne)*	**Fluid Structure Interaction** *(Chairman Greg Walker)*
11.10	**Inthavong, K**., Zhang, K. and Tu, J.Y. (RMIT University) MODELLING SUBMICRON AND MICRON PARTICLE DEPOSITION IN A HUMAN NASAL CAVITY	**Kloss, C.,** Goniva, C., Aichinger, G. and Pirker, S. (Christian Doppler Laboratory on Particulate Flow Modelling) COMPREHENSIVE DEM-DPM-CFD SIMULATIONS - MODEL SYNTHESIS, EXPERIMENTAL VALIDATION AND SCALABILITY	**Li, C.,** Cheung, S.C.P., Yeoh, G.H. and Tu, J.Y. (RMIT University) INFLUENCE OF DRAG FORCES OF A SWARM OF BUBBLES IN ISOTHERMAL BUBBLY FLOW CONDITIONS	**Rudman, M**. and Cleary, P.W. (CSIRO) USING SMOOTHED PARTICLE HYDRODYNAMICS TO STUDY WAVE IMPACT ON FLOATING OFFSHORE PLATFORMS: THE EFFECT OF MOORING SYSTEM
11.30	**Sinnott, M.D**. and Cleary, P.W. (CSIRO) EFFECT OF ROTOR BLADE ANGLE AND CLEARANCE ON BLOOD FLOW THROUGH A NON-PULSATILE, AXIAL, HEART PUMP	**Owen, P.J**. and Cleary, P.W. (CSIRO) SCREW CONVEYOR PERFORMANCE: COMPARISON OF DISCRETE ELEMENT MODELLLING WITH LABORATORY EXPERIMENTS	**Olsen, J.E.** and Cloete, S. (SINTEF Materials and Chemistry) COUPLED DPM AND VOF MODEL FOR ANALYSES OF GAS STIRRED LADLES AT HIGHER GAS RATES	**Gradinscak, M.,** Semercigil, S.E. and Turan, O.F. (Victoria University) A FINITE ELEMENT BASED PREDICTION MODEL TO CONTROL LIQUID SLOSHING WITH CONTAINER FLEXIBILITY
11.50	**Cogan, S.J**., Sheard, G.J. and Ryan, K. (Monash University) THE EFFECTS OF VORTEX BREAKDOWN BUBBLES ON THE MIXING ENVIRONMENT INSIDE A BASE DRIVEN BIOREACTOR	**Adema, A.,** Yang, Y. and Boom, R. (Delft University of Technology) COUPLED DEM - CFD MODELLING OF THE IRONMAKING BLAST FURNACE	**Roghair, I**., van Sint Annaland, M. and Kuipers, J.A.M. (University of Twente) DRAG FORCE ON BUBBLES IN BUBBLE SWARMS	**Cohen, R**., Cleary, P.W. and Mason, B. (CSIRO) SIMULATIONS OF HUMAN SWIMMING USING SMOOTHED PARTICLE HYDRODYNAMICS
12.10	**Fung, M.C.,** Inthavong, K., Yang, W. and Tu, J.Y. (RMIT University) EXTERNAL CHARACTERISTICS OF SPRAY ATOMISATION FROM A NASAL SPRAY DEVICE	**Delaney, G.W.,** Cleary, P.W., Hilden, M. and Morrison, R.D. (CSIRO) VALIDATION OF DEM PREDICTIONS OF GRANULAR FLOW AND SEPARATION EFFICIENCY FOR A HORIZONTAL LABORATORY SCALE WIRE MESH SCREEN		Marsh, A.P., **Prakash, M**., Semercigil, S.E. and Turan, O.F. (Victoria University) PREDICTING THE DYNAMIC STRUCTURAL RESPONSE CONTROLLED BY A SLOSHING ABSORBER USING SPH
12.30	**LUNCH** Conference Foyer & Broadway Room, Rydges Melbourne			

	PLENARY SESSION *(Chairman Geoffrey Evans)*	Conference Rooms 1,2,3		
1.30	**Keynote Lecture** **Thomas Frank** (ANSYS)	*RECENT ADVANCES IN ANSYS CFD MULTIPHASE FLOW MODEL DEVELOPMENT, VALIDATION AND APPLICATION*		
	SESSION 1 (Legends Room)	**SESSION 2 (Conference Room 1)**	**SESSION 3 (Conference Room 2)**	**SESSION 4 (Conference Room 3)**
	Bio-Engineering Mini-Symposium *(Chairman Timothy Secomb)*	**Drag Forces** *(Chairman Thomas Frank)*	**Flotation** *(Chairman Geoffrey Evans)*	**Environmental Flows** *(Chairman Pat Jordan)*
2.25	**Nebauer, J.R.A**. and Blackburn, H.M. (Monash University) STABILITY OF OSCILLATORY AND PULSATILE PIPE FLOW	**Zhu, S.J.,** Ooi, A., Blackburn, H. and Anderson, B. (The University of Melbourne) NUMERICAL SIMULATIONS OF BUBBLE DISPERSION OVER A HYDROFOIL	**Koh, P.T.L**. and Schwarz, M.P. (CSIRO) CFD MODELS OF MICROCEL AND JAMESON FLOTATION CELLS	Asimakopoulou, E., **Kolaitis, D.I.** and Founti, M.A. (National Technical University of Athens) CO DISPERSION IN A CAR-REPAIR SHOP: AN EXPERIMENTAL AND CFD MODELLING STUDY
2.45	**Bui, A.,** Manasseh, R., Šutalo, I.D. and Liffman, K. (CSIRO) MULTISCALE MODELLING OF CEREBRAL BLOOD FLOW	**Bäumler, K.,** Wegener, M., Bänsch, E. and Paschedag, A. (FAU Erlangen Nürnberg) 2D SIMULATIONS OF INTERFACIAL INSTABILITIES AT DEFORMABLE SINGLE DROPLETS	**Wierink, G**., Tiitinen, J. and Heiskanen, K. (Helsinki University of Technology) MAPPING OF COLLISION REGIMES IN FLOTATION MODELLING	**Heschl, C**., Sanz, W. and Lindmeier, I. (Fachhochschulstudiengänge Burgenland GmbH – University of Applied Science) DEMANDS ON TURBULENCE MODELLING FOR VENTILATED ROOM AIRFLOWS
3.05	Se, C.M.K., **Inthavong, K.** and Tu, J.Y. (RMIT University) UNSTEADY PARTICLE DEPOSITION IN A HUMAN NASAL CAVITY	**Liovic, P.** and Lakehal, D. (CSIRO) INTERFACE-TURBULENCE INTERACTIONS AND BUBBLE DYNAMICS	**Song, T**., Zhou, J.W. and Shen, Z.C. (Beijing General Research Institute of Mining and Metallurgy) CFD SIMULATION OF GAS-LIQUID FLOW IN A LARGE SCALE FLOTATION CELL	**Goniva, C**., Tukovic, Ž., Feilmayr, C., Bürgler, T. and Pirker, S. (Christian Doppler Laboratory on Particulate Flow Modelling) SIMULATION OF OFFGAS SCRUBBING BY A COMBINED EULERIAN-LANGRANGIAN MODEL
3.25		**Kuan, B.** (CSIRO) CFD MODELLLING OF LIQUID JET BREAKUP IN CROSSFLOWS	**Hasan, N.** (The University of Newcastle) COMPARISON OF A COMPUTATIONAL MODEL OF SINGLE BUBBLE COLLECTION EFFICIENCY IN A HALLIMOND TUBE	**Vun, S**., Campbell, A.P. and Horrocks, J. (Worley Parsons) INVESTIGATION OF ELECTROSTATIC PRECIPITATOR CHAR COLLECTOR DESIGNS USING COMPUTATIONAL FLUID DYNAMICS
3.50	**Closing Ceremony (Conference Rooms 1,2,3)** **Presentation of Student Prizes – by, Dr Stephen Rogers, CEO Parker CRC for Integrated Hydrometallurgy Solutions**			
4:00	**AFTERNOON TEA**	Conference Foyer & Broadway Room, Rydges Melbourne		