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

7 – 9 December 2015

Melbourne Convention and Exhibition Centre, Victoria, Australia

OFFICIAL PROGRAM

Day 1 - Monday 7 December

8.00	**REGISTRATION**	Conference Foyer, MCEC, Melbourne
PLENARY SESSION *(Chairman Peter Witt)*		Conference Room 210 & 211
9.00	Welcome from CSIRO Opening	Peter Witt, CSIRO Jonathan Law, CSIRO
9.20	**Keynote Lecture** **Ingo Eick**, Bai, W., Einarsrud, K.E., Feng, Y.Q., Hua, J. and Witt, P.J. (Hydro Aluminium, GERMANY)	*COUPLED MULTI-SCALE, MULTI-PHYSICS SIMULATION FRAMEWORK FOR ALUMINIUM ELECTROLYSIS*

	SESSION 1 *(Conference Room 210 & 211)* **Fluidised Beds** *(Session Chair Yuqing Feng)*	**SESSION 2** *(Conference Room 209)* **Erosion** *(Session Chair Gary Brown)*	**SESSION 3** *(Conference Room 208)* **Mass Transfer Processes** *(Session Chair Graeme Lane)*
10.20	Khan, M.S., Mitra, S., Karim, I., **Swapnil Ghatage,** Peng, Z., Doroodchi, E., Moghtaderi, B., Joshi, J.B. and Evans, G.M. (University of Newcastle) BED EXPANSION BEHAVIOUR IN A BINARY SOLID-LIQUID FLUIDISED BED WITH DIFFERENT INITIAL SOLID LOADING- CFD SIMULATION AND VALIDATION	**Alasdair Mackenzie**, Lopez, A.L., Ritos, K.R., Stickland, M.T.S. and Dempster, W.M.D. (University of Strathclyde) A COMPARISON OF CFD SOFTWARE PACKAGES' ABILITY TO MODEL A SUBMERGED JET	**Dang Cheng**, Peters, E.A.J. and Kuipers, J.A.M. (Eindhoven University of Technology) NUMERICAL MODELLING OF FLOW AND COUPLED MASS AND HEAT TRANSFER IN AN ADSORPTION PROCESS
10.40	**Yali Tang**, Deen, N.G., Peters, E.A.J. and Kuipers, J.A.M. (Eindhoven University of Technology) DIRECT NUMERICAL SIMULATIONS AND EXPERIMENTS OF A DENSE GAS-FLUIDIZED BED	**Chong Wong,** Solnordal, C.B. and Morand, H. (CSIRO) FLEXIBLE PIPE EROSION MODELLING	**Chris Solnordal,** Allport, A. and Wardhaugh, L.T. (CSIRO) HYDRODYNAMIC MODELLING STUDY OF A ROTATING LIQUID SHEET CONTACTOR

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

	SESSION 1 *(Conference Room 210 & 211)* **Porous Flows** *(Session Chair Saud Khashan)*	SESSION 2 *(Conference Room 209)* **Erosion** *(Session Chair Matt Sinnott)*	SESSION 3 *(Conference Room 208)* **Stirred Tanks** *(Session Chair Daniele Marchisio)*
11.30	**Partha Kundu**, Kumar, V. and Mishra, I.M. (Indian Institute of Technology) NUMERICAL MODELING AND SIMULATION OF TURBULENT FLOW OF NEWTONIAN FLUIDS THROUGH POROUS MEDIA USING RANS AND LES APPROACH	**Joan Boulanger**, Wong, C.Y., Zamberi, M.S.A., Shaffee, S.N.A., Johar, Z. and Jadid, M. (CSIRO) EROSION MODEL CALIBRATION WITH GENETIC ALGORITHM	**Amit Patil** and Johansen, S.T. (SINTEF Materials and Chemistry) COMPUTATIONAL AND EXPERIMENTAL STUDY OF OIL-WATER EMULSION FLOW AND STABILITY IN A STIRRED TANK
11.50	**Sebastian Meinicke**, Wetzel, T. and Dietrich, B. (Karlsruhe Institute of Technology) CFD MODELING OF SINGLE-PHASE HYDRODYNAMICS AND HEAT TRANSFER IN SOLID SPONGES	**Peter Rizkalla,** and Fletcher, D.F. (LEAP Australia Pty Ltd) DEVELOPMENT OF A SLURRY ABRASION MODEL USING AN EULERIANEULERIAN 'TWO-FLUID' APPROACH	**Graeme Lane** (CSIRO) PREDICTING THE ENERGY DISSIPATION RATE IN A MECHANICALLY STIRRED TANK
12.10	**Shakil Ahmed**, Mueller, T.M.M. and Clennell, M.B.C. (CSIRO Energy Flagship) DIGITAL ROCKS SIMULATION OF SEISMIC ATTENUATION CAUSED BY WAVE INDUCED FLUID FLOW	Sinnot, M.D., **Sharen Cummins** and Cleary, P.W. (CSIRO) DEM MODELLING OF WEAR IN HIGH SHEAR MIXERS	Song, T., Jiang, K.X., Zhou, J.W., Shen, Z.C. and **Yuqing Feng**, (Beijing General Research Institute of Mining and Metallurgy) CFD IMPELLER SPEED EVALUATION OF AN INDUSTRIAL SCALE TWO-PHASE FLOW STIRRED TANK

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

PLENARY SESSION *(Session Chair Jiyuan Tu)*	Conference Room 210 & 211	
1.30	**Keynote Lecture** **Huilin Lu**, Guodong, L., Shuai, W. and Wenhao, Y. (Harbin Institute of Technology, CHINA)	*STRUCTURE-DEPENDENT DRAG MODEL FOR SIMULATION OF GAS-SOLIDS FLUIDIZED BEDS*

	SESSION 1 *(Conference Room* 210 & 211*)* **Gas - Particle Flows Mini Symposia** *(Session Chair Niels Deen)*	**SESSION 2** *(Conference Room 209)* **Combustion** *(Session Chair Jamal Naser)*	**SESSION 3** *(Conference Room 208)* **Simulation of Flow Structures** *(Session Chair Jan Erik Olsen)*
2.25	**William Rogers**, Syamlal, M.S., Dietiker, J.D., Li, T.L., Musser, J.M. and Shahnam, M.S. (U.S. DOE, National Energy Technology Laboratory, , NETL) THE NETL MFIX SUITE OF MULTIPHASE FLOW MODELS: APPLICATIONS TO FOSSIL ENERGY TECHNOLOGIES	**Shen Long**, Tian, Z.F., Nathan, G.J., Chinnici, A.C. and Dally, B. (University of Adelaide) CFD MODELLING OF ISOTHERMAL MULTIPLE JETS IN A COMBUSTOR	**Zhi Yuen Ng**, Hussam, W.K. and Sheard, G.J. (Monash University) WAKE STRUCTURES OF UNSTEADY TWO-DIMENSIONAL FLOWS PAST CYLINDERS WITH TRIANGULAR CROSS-SECTIONS
2.45	Liu, H.L., **Robert Cattolica** and Seiser, R.S. (University of California San Diego) OPERATING PARAMETER EFFECTS ON THE SOLID CIRCULATION RATE IN A DUAL FLUIDIZED-BED GASIFICATION SYSTEM	**Christian Heschl**, Klanatsky, P., Nöhrer, D., Inthavong, K., Fesharaki, M. and Tu, J.Y. (University of Applied Sciences Burgenland) COMPUTATION OF THE TEMPERATURE DISTRIBUTION IN BIOMASS BOILERS WITH RECIPROCATING GRATE FURNACES	**Krishna Mohanarangam**, Stephens, D.W., Cao, X., Fawell, P.D., Simic, K. and Yang, W. (CSIRO Mineral Resources Flagship) EXPERIMENTAL AND NUMERICAL INVESTIGATION OF TURBULENT MIXING FIELDS BEHIND BLUFF BODY JETS
3.05	**Ramon Voncken**, Roghair, I., Gallucci, F. and van Sint Annaland, M. (Eindhoven University of Technology) MASS TRANSFER PHENOMENA IN FLUIDIZED BEDS WITH VERTICALLY AND HORIZONTALLY IMMERSED MEMBRANES	**Ruth Mossad**. and Deo, R. (University of Southern Queensland) NUMERICAL MODELLING OF THE VELOCITY FIELD OF A PLANE JET FLOW AT MODERATE JET EXIT REYNOLDS NUMBERS	**Clint Howard**, Abbas, A., Langrish, T.A.G. and Fletcher, D.F. (The University of Sydney) APPLICATION OF PROPER ORTHOGONAL DECOMPOSITION (POD) TECHNIQUES AND SCALE-RESOLVING CFD SIMULATIONS TO STUDY SWIRLING FLOW IN AN AXISYMMETRIC SUDDEN EXPANSION

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

	SESSION 1 *(Conference Room 210 & 211)* **Gas - Particle Flow Mini Symposia** *(Session Chair William Rogers)*	SESSION 2 *(Conference Room 209)* **Modelling Frameworks** *(Session Chair Phil Schwarz)*	SESSION 3 *(Conference Room 208)* **MHD & Heat Transfer** *(Session Chair Christian Heschl)*
3.55	**Lei Yang**,Padding, J.T. and Kuipers, J.A.M. (Eindhoven Uinversity of Technology,) COMPARISON OF A TWO-FLUID MODEL AND AN EULER-LAGRANGE MODEL FOR SIMULATION OF DENSE GAS-FLUIDIZED BEDS	**Josip Zoric,** Busch, A.B., Meese, E.A.M., Khatibi, M.K., Time, R.W.T., Johansen, S.T. and Rabenjafimanantsoa, H.A.R. (SINTEF Materials & Chemistry) ON PRAGMATISM IN INDUSTRIAL MODELING PART II: WORKFLOWS AND ASSOCIATED DATA AND METADATA	**Azan Sapardi**, Hussam, W.K., Pothérat, A. and Sheard, G.J. (Monash University) INFLUENCE OF STRONG SPANWISE MAGNETIC FIELD ON THE QUASI-TWO-DIMENSIONAL MHD FLOW IN A 180-DEGREE SHARP BEND
4.15	**Baoyu Guo**, Su, Y.B., Yang, D. and Yu, A.B. (University of New South Wales) GAS - LIQUID FLOW IN WET ELECTROSTATIC PRECIPITATORS	**Krishnaswamy Nandakumar,** Tyagi, M. and Joshi, J.B. (Louisiana State University) EPIC – ENABLING PROCESS INNOVATION THROUGH COMPUTATION: A HIERARCHICAL MODELLING FRAMEWORK FOR INNOVATION	**Kay Buist**, Backx, B.J.G., Deen, N.G. and Kuipers, J.A.M. (Eindhoven University of Technology) PARTICLE FLUID HEAT TRANSFER IN SEMI-STRUCTURED ARRAYS USING RECONFIGURED CONSTANT TEMPERATURE ANEMOMETERS
4.35	**Qinfu Hou,** E, D.Y., Kuang, S.B., Li, Z.Y. and Yu, A.B. (Monash University) A NOVEL DISCRETE PARTICLE MODEL OF BLAST FURNACE IRONMAKING PROCESS	Li, N., **Sherman Cheung**, Li, X.D. and Tu, J.Y. (RMIT University) DEVELOPMENT OF A MULTI-OBJECTIVE DESIGN OPTIMIZATION PLATFORM USING NSM-PSO AND CFD FOR HEATING AND VENTILATION APPLICATIONS	**Ahmad Hamid**, Hussam, W.K. and Sheard, G.J. (Monash University) CONVECTIVE HEAT TRANSFER ENHANCEMENT VIA ELECTRICALLY DRIVEN VORTICES IN AN MHD DUCT FLOW

4:55 **Vendors Forum** *CONFERENCE ROOM 210 & 211*

(Session Chair Peter Witt)

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5.50	**POSTER SESSION**	Conference Foyer, MCEC, Melbourne

Bednarz, T.B., Psaltis, S.P., Taylor, J.T., Matyka, M.M. and Turner, I.T. (QUT) COMPUTATIONAL FLUID DYNAMICS AND GPUS	Boulanger, J.A.R., Wong, C.Y., Solnordal, C.B., Zamberi, M.S.A., Shaffee, S.N.A., Zohar, Z. and Jadid, M. (CSIRO) SIMPLIFIED COMPUTATIONAL APPROACH TO MULTI-PHASE EROSION	Bhuiyan, A. .A. and Naser, J. (Swinburne University of Technology) A CFD MODELLING OF RADIATIVE PERFORMANCE IN CO-FIRING OF BIOMASS WITH VICTORIAN BROWN COAL IN INDUSTRIAL FURNACE	Tian, T.L., Inthavong, K., Lidén, G.L., Shang, S.Y.D., Tu, J.Y. and Ahmadi, A.G. (RMIT University) TRANSPORT AND DEPOSITION OF WELDING FUME AGGLOMERATES IN A REALISTIC HUMAN NASAL CAVITY
Pereira, G.G., Cleary, P.W. and Lemiale, V. (CSIRO) APPLICATION OF THE SPH METHOD TO COMPRESSION OF SOLID MATERIALS	Vakamalla, T.R., Kowshik, A.V. and Mangadoddy, N. (IIT Hyderabad) DENSE SLURRY CFD MODEL FOR HYDROCYCLONE PERFORMANCE EVALUATION INCORPORATING RHEOLOGY, PARTICLE DRAG AND LIFT FORCES	Kumar, M., Mangadoddy, N. and Govender, I. (Indian Institute of Technology Hyderabad) TWO-WAY COUPLED CFD-DEM MODEL TO PREDICT TUMBLING MILL DYNAMICS	Kenny, E.K., Couperthwaite, S.C. and Millar, G.M. (Queensland University of Technology) CFD FLUID FLOW MODELLING IN AMD LIME NEUTRALISATION TANKS: IDENTIFYING THE FLOW CHARACTERISTICS THAT FACILITATE SCALE FORMATION
Yongchao Rao, Wang, S., Dai, Y. and Xu, R. (Changzhou University) NUMERICAL SIMULATION ON GAS-LIQUID TWO PHASE SPIRAL FLOW ROTATED BY VANE	Yuliang Wu, Shen, Y., Yu, A., Jiang, Z., Zhang, X. and Xue, Q. (Monash University) MODELLING STUDY OF DIRECT REDUCTION IN A ROTARY HEARTH FURNACE FOR METALLURGICAL DUST RECYCLING: MODEL DEVELOPMENT		

5.50	**Happy Hour – Drinks**	Conference Foyer, MCEC, Melbourne
7.00	**FINISH**	

Day 2 - Tuesday, 8 December

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

PLENARY SESSION

(Session Chair David Fletcher)

Conference Room 210 & 211

9.00 **Keynote Lecture**

Srinivasa Mohan, (ANSYS, INDIA)

MODELING MIXED FLOW REGIMES AND REGIME TRANSITIONS IN GAS-LIQUID SYSTEMS

	SESSION 1 *(Conference Room 210 & 211)* **Industrial DEM** *(Session Chair Gerald Pereira)*	SESSION 2 *(Conference Room 209)* **Bio-Engineering Mini Symposia** *(Session Chair Simon Harrison)*	SESSION 3 *(Conference Room 208)* **Flotation** *(Session Chair Chris Solnordal)*
9.55	**Lucilla Coelho de Almeida**, Oliveira, J.A.A. and de Almeida, L.C. (Engineering Simulation & Scientific Software) DEM-CFD COUPLING: MATHEMATICAL MODELLING AND CASE STUDIES USING ROCKY-DEM® AND ANSYS FLUENT®	**Matt Sinnot**, Cleary, P.W. and Harrison, S.M. (CSIRO) MULTIPHASE TRANSPORT IN THE SMALL INTESTINE	**Jingzhong Kuang,** Feng, Y.Q., Yang, W., Witt, P.J., Schwarz, M.P. and Qiu, T. (Jiangxi university of science and technology) CFD MODELLING AND PIV VALIDATION OF FLOW FIELD IN A FLOTATION CELL
10.15	**Luca Benvenuti**, Kloss, C.K. and Pirker, S. (Johannes Kepler University) DEM PARAMETER IDENTIFICATION FOR BY MEANS OF ARTIFICIAL NEURAL NETWORK FOR IRON ORE SINTERING	**Mohit Tandon**, Elias, J. and Lo, S. (CD-Adapco) COMPARATIVE ANALYSIS OF TWO MULTIPHASE MODELLING APPROACHES FOR BLOOD FLOW	**Balraju Vadlakonda** and Mangadoddy, N. (IIT Hyderabad) HYDRODYNAMIC STUDY OF TWO PHASE FLOW OF COLUMN FLOTATION USING ELECTRICAL RESISTANCE TOMOGRAPHY AND CFD TECHNIQUES

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

	SESSION 1 *(Conference Room 210 & 211)* **Gas - Particle Flow Mini Symposia** *(Session Chair Ivo Roghair)*	SESSION 2 *(Conference Room 209)* **Bio-Engineering Mini Symposia** *(Session Chair Kiao Inthavong)*	SESSION 3 *(Conference Room 208)* **Solar Energy & Heat Transfer** *(Session Chair Joan Boulanger)*
11.10	**Allan Love** (Doosan Babcock Limited) APPLICATION OF A DISCRETE PHASE MODELLING APPROACH TO INDUSTRIAL SCALE PARTICLE FLOWS	**Simon Harrison**, Cleary, P.W. and Sinnott, M.D. (CSIRO) INVESTIGATING STOMACH MIXING AND EMPTYING FOR AQUEOUS LIQUID CONTENTS USING A COUPLED BIOMECHANICAL-SMOOTHED PARTICLE HYDRODYNAMICS MODEL	**Oliver Cassells**, Hussam, W.K. and Sheard, G.J. (Monash University) HEAT TRANSFER ENHANCEMENT USING VORTEX PROMOTERS IN MAGNETO-HYDRO-DYNAMIC FLOWS
11.30	**Zizi Li**, van Sint Annaland, M. and Kuipers, J.A.M. (Eindhoven University of Technology) EFFECT OF OPERATING PRESSURE ON PARTICLE TEMPERATURE DISTRIBUTION IN A FLUIDIZED BED WITH HEAT PRODUCTION	Alargha, H.M., **Mohammad Hamdan**, Elshawarby, A. and Aziz, W.H. (United Arab Emirates University) CFD SENSITIVITY STUDY FOR NEWTONIAN VISCOSITY MODEL IN CEREBRAL ANEURYSMS	**Apurv Kumar** and Kim, J.S. (CSIRO) HYDRODYNAMICS AND RADIATION EXTINCTION CHARACTERISTICS FOR A FREE FALLING SOLID PARTICLE RECEIVER
11.50	**Jan-Hendrik Kruger**, Du Toit, C.G. and Van der Merwe, W.J.S. (North-West University) NUMERICAL VALIDATION OF THE EISFELD AND SCHNITZLEIN PRESSURE DROP CORRELATION FOR SMALL ASPECT RATIO PACKED BEDS	**Li Tian**, Ahmadi, G.A. and Tu, J.Y. (RMIT University) BROWNIAN DYNAMICS OF NANO-FIBERS IN HUMAN UPPER TRACHEOBRONCHIAL AIRWAYS	Chinni, A.C., Arjomanda, M., Lu, Z. ., **Zhao Tian**, and Nathan, G.J. (The University of Adelaide) EXPERIMENTAL AND NUMERICAL INVESTIGATION OF THE ISO-THERMAL FLOW FIELD IN A NOVEL SOLAR EXPANDING-VORTEX PARTICLE REACTOR
12.10	**Alvaro Carlos Varas**, Peters, E.A.J., Deen, N.G. and Kuipers, J.A.M. (Eindhoven University of Technology) NUMERICAL AND EXPERIMENTAL CHARACTERIZATION OF PARTICLE CLUSTERS IN RISER FLOW	**Sargon Gabriel,** Lu, S.Z., Ding, Y., Feng, Y.Q. and Gear, J.A. (RMIT University) INVESTIGATING THE FEASIBILITY OF IMPLEMENTING STEADY RELATIVE TO PULSATILE FLOW IN ATHEROSCLEROSIS GROWTH MODELING	**Tzekih Tsai,** King, M.P. and Sheard, G.J. (Monash University) HIGH RESOLUTION SIMULATION REVEALING $RA^{1/4}$ SCALING REGIME FOR NUSSELT NUMBER IN HORIZONTAL CONVECTION

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

PLENARY SESSION Conference Room 210 & 211

(Session Chair Peter Liovic)

1.30 **Keynote Lecture** *CRYSTAL GROWTH AT THE NANOSCALE: NONLOCAL HYDRODYNAMIC MODELS*

John Lowengrub
(University of California, USA)

	SESSION 1 *(Conference Room 210 & 211)* **Gas - Particle Flow Mini Symposia** *(Session Chair Rahul Bharadwaj)*	**SESSION 2** *(Conference Room 209)* **Micro-Engineering Mini Symposia** *(Session Chair Malcolm Davidson)*	**SESSION 3** *(Conference Room 208)* **Numerical Methods** *(Session Chair Raymond Cohen)*
2.25	**Christoph Goniva**, Blais, B.B., Radl, S.R. and Kloss, C.K. (DCS Computing) OPEN SOURCE CFD-DEM MODELLING FOR PARTICLE-BASED PROCESSES	**Khoa Le-Cao**, Phan-Thien, N. and Khoo, B.C. (National University of Singapore) A DISSIPATIVE PARTICLE DYNAMICS MODEL OF YIELD STRESS FLUIDS: APPLICATION TO HIGHLY CONCENTRATED SEDIMENT MIXTURES	**Saurish Das**, Kuipers, J.A.M. and Deen, N.G. (Eindhoven University of Technology) DIRECT NUMERICAL SIMULATION OF FLOW THROUGH A SOLID FOAM: 3D MICRO-CT IMAGE TO AN IMMERSED BOUNDARY METHOD (IBM) BASED CFD MODEL
2.45	**James Hewett** and Sellier, M. (University of Canterbury) TRANSIENT SIMULATION OF ACCUMULATING PARTICLE DEPOSITION ON A CYLINDER IN CROSS-FLOW	**Rohit Pillai**, Berry, J. D., Harvie, D.J.E. and Davidson, M. R. (University of Melbourne, University of Melbourne) ELECTROPHORETIC EFFECTS ON SATELLITE DROPLET FORMATION DURING ELECTROCOALESCENCE OF MICRODROPS	**Petar Liovic** (CSIRO) LAGRANGIAN PARTICLE TRACKING POST-PROCESSING FOR LINKING CFD TO BIOREACTOR ANALYSIS
3.05	**Sathish Sanjeevi**, Padding, J.T. and Kuipers, J.A.M. (Technical University of Eindhoven) DIRECT NUMERICAL SIMULATIONS OF FLUID DRAG FORCES OF NON-SPHERICAL PARTICLES	**Saud Khashan,** Alazzam, A., Mathew, B., Dagher, S. and Hamdan, M. (United Arab Emirates University) CFD SIMULATION OF MAGNETIC SEPARATION IN MICROFLUIDICS SYSTEMS USING MIXTURE MODEL	**Cam Minh Tri Tien,** Mai-Duy, N., Ngo-Cong, D., Tran, C. D. and Tran-Cong, T. (University of Southern Queensland) STABLE INTEGRATED RBF CALCULATION USING PRECONDITIONING AND HIGH-ORDER COMPACT APPROXIMATION FOR SECOND-ORDER PDES

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

	SESSION 1 *(Conference Room 210 & 211)* **Gas - Particle Flow Mini Symposia** *(Session Chair Christian Goniva)*	SESSION 2 *(Conference Room 209)* **Aluminium & Alumina** *(Session Chair Ingo Eick)*	SESSION 3 *(Conference Room 208)* **Oil & Gas** *(Session Chair Tore Flatten)*
3.55	**Mohammad Banaei**, van Sint Annaland, M., Kuipers, J.A.M. and Deen, N.G. (Eindhoven University of Technology) BUBBLE-EMULSION HEAT TRANSFER COEFFICIENT IN GAS-SOLID FLUIDIZED BED USING TWO FLUID MODEL	**Tony Murphy**, Thomas, D.G., Nguyen, V., Feng, Y.Q. and Gunasegaram, D. (CSIRO) A DESKTOP COMPUTER MODEL OF ARC WELDING USING A CFD APPROACH	**Jan Erik Olsen**, Skjetne, P. and Johansen, S.T. (SINTEF) VLES TURBULENCE MODEL FOR AN EULERIAN-LAGRANGIAN MODELLING CONCEPT FOR BUBBLE PLUMES
4.15	**Swagatika Dash**, Soni, R.K., Mohanty, S. and Mishra, B.K. (CSIR-Institute of Minerals and Materials Technology) PRELIMINARY CFD STUDIES OF A CONTINUOUS INDUSTRIAL SCALE FLUIDIZED BED ROASTER	**Phil Schwarz**, Feng Y.Q. and Witt, P.J. (CSIRO) INCORPORATION OF FINITE BUBBLE SIZE EFFECTS IN A CFD MODEL OF AN ALUMINIUM REDUCTION CELL	Yang, Y., Wen, C., Wang, S. and **Yuqing Feng**, (Changzhou University) NUMERICAL SIMULATION OF PARTICLE FLOW IN A NATURAL GAS SUPERSONIC SEPARATOR
4.35	Buist, K.A., Yang, L., **Niels Deen**, Padding, J.T. and Kuipers, J.A.M. (Eindhoven University of Technology) STUDY OF PARTICLE ROTATION IN PSEUDO 2D FLUIDIZED BEDS	**David Whyte**, Brown, G.J. and Fletcher, D.F. (Alcoa of Australia Limited) PREDICTING FLOW IN ALUMINA DIGESTION VESSELS	
4.55	**FINISH**		

6:00	**PRE-DINNER DRINKS**	Hilton Hotel South Wharf, Melbourne
7:00 to 10.00	**CONFERENCE DINNER**	Hilton Hotel South Wharf, Melbourne

Day 3 - Wednesday, 9 December

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

PLENARY SESSION

(Session Chair John Taylor)

Conference Room 210 & 211

9.00 **Keynote Lecture**

ADAPTATIONS OF PDE-BASED CODES TO EXTREME SCALE

David Keyes
(King Abdullah University of Science and Technology, SAUDI ARABIA)

	SESSION 1 *(Conference Room 210 & 211)* **Bubbly Flows** *(Session Chair Mohit Tandon)*	**SESSION 2** *(Conference Room 209)* **CFD, GPUs and Next Generation Computing Mini-Symposia** *(Session Chair David Keyes)*	**SESSION 3** *(Conference Room 208)* **Gas - Particle Flow Mini Symposia** *(Session Chair Qinfu Hou)*
9.55	**David Fletcher**, McClure, D.D., Kavanagh, J.M. and Barton, G.W. (University of Sydney) CFD SIMULATION OF INDUSTRIAL BUBBLE COLUMNS: NUMERICAL AND MODELLING CHALLENGES AND SUCCESSES	**Andrew Larson**, Carver, T.D. and Zhao, P.H. (CPFD Software) CUDA ACCELERATED LAGRANGIAN INTERPOLATION TO CARTESIAN GRID	**Gerald Pereira** (CSIRO) A MULTIPHASE GRAY-SCALE LATTICE BOLTZMANN MODEL
10.15	**Jan Erik Olsen**, Popescu, M. and Tetlie, P. (SINTEF) MODELLING MIXING IN LANCE STIRRED REACTORS	Posey, S.A., **Simon See** and Wang, M.A. (NVIDIA Corporation) GPU PROGRESS AND DIRECTIONS IN APPLIED CFD	Liao, J.H., **Yansong Shen**, Yu, A.B., Li, Y.T. and Zhu, J.M. (Monash University) COMPARING THE PERFORMANCE OF A BLACK COAL AND AN UPGRADED BROWN COAL BY BRIQUETTING IN IRONMAKING BLAST FURNACE
10.35	**Krushnathej Thiruvalluvan Sujatha**, Jain, D., Kamath, S., Kuipers, J.A.M. and Deen, N.G. (Technical University of Eindhoven) EXPERIMENTAL AND NUMERICAL INVESTIGATION OF A MICRO-STRUCTURED BUBBLE COLUMN WITH CHEMISORPTION	**Raymond Cohen**, Hilton, J.E., Hasan Khan, S., Wang, Y. and Prakash, M. (CSIRO) SWIFT: A GPU BASED COUPLED HYDRODYNAMIC/HYDRAULIC FRAMEWORK FOR URBAN FLOOD PREDICTION	**Joan Boulanger**, Wong, C.Y., Zamberi, M.S.A., Shaffee, S.N.A., Johar, Z. and Jadid, M. (CSIRO) FINES EROSION: THE COUNTER-INTUITIVE EFFECT OF TURBULENCE

10.55 **MORNING TEA** — Conference Foyer, MCEC, Melbourne

	SESSION 1 *(Conference Room 210 & 211)* **Population Balance** *(Session Chair Krishnaswamy Nandakumar)*	SESSION 2 *(Conference Room 209)* **Multiscale & Multiphase Methods** *(Session Chair Sharen Cummins)*	SESSION 3 *(Conference Room 208)* **Cyclones** *(Session Chair David Fletcher)*
11.30	Buffo, A., Vanni, M. and **Daniele Marchisio** (DISAT - Politecnico di Torino) SIMULATION OF A REACTIVE GAS-LIQUID SYSTEM WITH QUADRATURE-BASED MOMENT METHOD	**Steven Psaltis**, Farrell, T.W., Burrage, K., Burrage, P., McCabe, P., Moroney, T., Turner, I.W., Mazumder, S. and Bednarz, T. (Queensland University of Technology) MATHEMATICAL MODELLING OF GAS PRODUCTION IN A COAL SEAM GAS (CSG) FIELD	**Darrin Stephens,** Sideroff, C. and Jemcov, A. (Applied CCM Pty Ltd, Applied CCM Pty Ltd) SIMULATION AND VALIDATION OF TURBULENT GAS FLOW IN A CYCLONE USING CAELUS
11.50	**Lukas Metzger** and Kind, M. (Karlsruhe Institute for Technology) THE INFLUENCE OF MIXING ON FAST PRECIPITATION PROCESSES - A COUPLED CFD-PBE APPROACH USING THE DIRECT QUADRATURE METHOD OF MOMENTS (DQMOM)	**Hung Nguyen**, Tran, C.D. and Tran-Cong, T. (University of Southern Queensland) SIMULATION OF FLOW OF FIBRE SUSPENSIONS USING AN IRBF-BCF BASED MULTISCALE APPROACH	**Asha Kumari**, Narasimha, M., Sreedhar, G.E., Shivakumar, R. and Sharma, S.K. (Indian Institute of Technology Hyderabad) CFD STUDY ON THE EFFECT OF NEAR GRAVITY MATERIAL ON DMC TREATING COAL USING DPM AND ASM MULTIPHASE MODEL
12.10	**Sara Vahaji**, Deju, L., Cheung, S.C.P. and Tu, J.Y. (RMIT University) NUMERICAL INVESTIGATION ON THE PERFORMANCE OF COALESCENCE AND BREAK-UP KERNELS IN SUBCOOLED BOILING FLOWS IN VERTICAL CHANNELS	**Martin Prebeg**, Flåtten, T.F. and Müller, B.M. (Norwegian University of Science and Technology) BOUNDARY AND SOURCE TERM TREATMENT IN THE LARGE TIME STEP METHOD FOR A COMMON TWO-FLUID MODEL	**Baoyu Cui**, Wei, D., Zhang, C., Li, T., Liu, K. and Feng, Y.Q. (Northeastern University China) STUDY ON IMPROVING THE CLASSIFICATION EFFICIENCY OF A LARGE-SCALE HYDROCYCLONE BASED ON CFD SIMULATION
12.30	**Philipp Lau**, and Kind, M. (Karlsruhe Institute of Technology) PREDICITION OF PARTICLE GROWTH DURING MELT SPRAY GRANULATION USING A FIVE FLUID CFD-PBE APPROACH	Gada, V.H., Elias, J., **Mohit Tandon** and Lo, S. (CD-Adapco) A LARGE INTERFACE MULTI-FLUID MODEL FOR SIMULATING MULTI-PHASE FLOWS	Padhi, M. and **Teja Reddy Vakamalla** (Indian Institute of Technology Hyderabad) SIMULATING MULTI-COMPONENT PARTICLES BEHAVIOUR DURING THE CLASSIFICATION PROCESS IN A HYDROCYCLONE USING MULTIPHASE CFD MODEL

12.50 **LUNCH** Conference Foyer, MCEC, Melbourne

	SESSION 1 *(Conference Room 210 & 211)* **Pyrometallurgy** *(Session Chair Mark Davis)*	SESSION 2 *(Conference Room 209)* **Wind & Energy** *(Session Chair Zhao Tian)*	SESSION 3 *(Conference Room 208)* **Gas - Particle Flow Mini Symposia** *(Session Chair Amit Patil)*
1.50	White, M., **Ross Haywood**, Ranasinghe, D.J. and Chen, S. (Hatch Pty Ltd) THE DEVELOPMENT AND APPLICATION OF A CFD MODEL OF COPPER FLASH SMELTING	**Zahid Iqbal** and Chan, A.L.S. (City University of Hong Kong) A STUDY OF THE EFFECT OF ELEMENT TYPES ON FLOW AND TURBULENCE CHARACTERISTICS AROUND AN ISOLATED HIGH-RISE BUILDING	**Kaiwei Chu**., Wang, Y., Yu, A., Pan, R. and Xia, B. (Monash University) CFD-DEM STUDY OF AIR ENTRAINMENT IN FREE-FALLING PARTICLE PLUMES
2.10	Hewage, A.K., **Jamal Naser** and Brooks, G. (Swinburne University of Technology) NUMERICAL SIMULATION OF SLAG FOAMING IN OXYGEN STEELMAKING	**Sahar Noori** and Ranjbaran, N. (Amirkabir University) NUMERICAL INVESTIGATION OF VERTICAL AXIS WIND TURBINE WITH TWIST ANGLE IN BLADES	**Vishwanath Kumar**, Das, S., Kumar, A., Fabijanic, D. and Hodgson, P. (Deakin University) QUALITATIVE ASSESSMENT OF BUBBLE BEHAVIOUR FOR CENTRAL AND ASYMMETRIC INJECTION IN 2D GAS-SOLID FLUIDIZED BED USING IMAGE ANALYSIS TECHINIQUE AND CFD MODELLING

2.30 **Panel Discussion –** *CONFERENCE ROOM 210 & 211*

(Session Chair Petar Liovic)

Panel 1 -

Panel 2 -

3.20 **Closing Ceremony (Conference Room 210 & 211)**
Presentation of Student Prizes

3:30 **AFTERNOON TEA** Conference Foyer, MCEC, Melbourne