CFD2005
Conference Program

Sunday, June 5, 2005

17:00-19:00	Registration
18:00-19:00	Guided Tour at the Archbishop's Palace Museum
19:00-21:00	Reception

Monday, June 6, 2005

08:00-12:00	Registration
09:00-09:15	Welcome address
09:15-10:05	**<u>Keynote Lecture:</u>** *O. Simonin: Turbulent multiphase flows*
10:05-10:35	Coffee break

SESSION M-A **Industrial CFD**

10:35   M Kleven, MC Melaaen, M Reimers, JS Røtnes, L Aurdal, PG Djupesland, C Sheldrake (paper no 41):
> *The application of computational fluid dynamics (CFD) simulations for nasal drug delivery*

11:00   Xiaosi Feng, Suqin Dong, Ian Gartshore and Martha Salcudean:
> *A Large Eddy Simulation of the Fiber Orientation in the Converging Section of a Paper-machine Headbox*

11:25   Geir Berge, Arve Klavenes:
> *Comparison between big scale experiment and calculations on fire exposing an object A case of multi physic simulation*

11:50   Jérome Soulas, Hervé Neau, Olivier Simonin, Thibault Van den Moortel, Jean-Richard Llinas:
> *Entrainment Study from 3D CFD of Gas Phase Polymerisation Reactor at Laboratory Scale*

12:15   Dr. P.M.V. Subba Rao and Mr. Sunil Kumar Pandey:
> *Flow analysis and parametric study of a Pelton Turbine Bucket*

SESSION M-B	**Fundamental methods & Validation (I)**
10:35	M.Parvazinia, V.Nassehi, A.Khan, R.J.Wakeman: *Finite Element Modelling of Multiscale Transport Processes: The Brinkman and Convective-Diffusion Equations*
11:00	Gavrilov Andrey, Dekterev Alexander: *Numerical Modelling of Hydrodynamic Structures in Swirl Flows*
11:25	W.Dijkhuizen, M. van Sint Annaland and J.A.M. Kuipers.: *Numerical investigation of closures for interface forces in dispersed gas-liquid flows using a 3D Front Tracking model.*
11:50	Sinkunas S. Gylys J., Kiela A.: *Analysis of laminar loquid film flowing down a vertical surface*
12:15	K. Bech: *LES of a rectangular bubble column*

SESSION M-C	**Environment, Energy & Combustion (I)**
10:35	Yongxiang YANG, Rainier A. de JONG, and Markus A. Reuter: *Use of CFD to predict the performance of a heat treatment*
11:00	E.H. Chui: *Applications of CFD modelling in canadian industries*
11:25	P. Hellberg, T.L.I. Jonsson, P.G. Jönsson and D.Y Sheng: *A Model of Gas Injection into a Blast Furnace Tuyere*
11:50	Ajit Godbole and Paul Cooper: *Labyrinths and Heat Trees*
12:15	Bo Zhou, Yongxiang Yang, Markus A. Reuter, Udo M.J. Boin: *CFD Based Process Modelling of a Rotary Furnace for Aluminium Scrap Melting*

12:40	Lunch

14:00-14:50	<u>Keynote Lecture</u> *B. Hjertager: Reactive gas solids flows*

SESSION M-A	**Oil and Gas**
14:50	Randi Moe, Stein Sørbye, Ketil Skogen og Cecilie Lofseik: *A comparison of experimental data and CFD predicted cool down in subsea equipment*

15:15	Svend Tollak Munkejord, Mona J. Mølnvik, Jens A. Melheim, Inge R. Gran, Robert Olsen:
	Prediction of two-phase pipe flows using simple closure relations in a 2d two-fluid model
15:45	Coffee break
16:10	R.T. Faizullin, K.V. Loginov:
	Iterative algorithm for large hydraulic like problems
16:35	John Morud and Paal Skjetne:
	Simulation of gas-liquid flows with liquid films at walls
17:00	D.J. Wood, J. Kolbu and P.J. Nilsen:
	Modelling of the VIEC – a new device which aids separation
17:25	SS Mantha and V Kumar Mali:
	Parametric Analyses of Shell Nozzle junction. A Finite Element Analyses and Artificial Neural Network Approach.
17:50	

SESSION M-B	**Fundamental methods & Validation (II)**
14:50	Anja R. Paschedag, Mirco Wegener, Kai Schultze, Matthias Kraume:
	Mass transfer at single droplets under influence of Marangoni convection
15:15	Luciano G. Noleto, Antonio C.P. Brasil Junior:
	Turbulent Wake near Confined Bluff Bodies
15:45	Coffee break
16:10	Geoffrey M. Evans, Anh V. Nguyen:
	Liquid and Gas Jets Impinging on a Moving Wetted Surface
16:35	S. T. Johansen and W. Shyy:
	Advantages of transient turbulence modelling
17:00	A. Ashrafian and S. T. Johansen:
	Wall boundary conditions for rough walls
17:25	Mahesh Prakash, Paul Cleary, Mohamed Nabil Noui-Mehidi, Hugh Blackburn, Geoff Brooks:
	Simulation of Suspension of Solids in a Liquid in a Mixing Tank using SPH and Comparison with Physical Modeling Experiments

SESSION M-C	**Multifluid flow analyses (I)**
14:50	G.A. Bokkers, M. van Sint Annaland, J.A.M. Kuipers: *Particle segregation in gas-solid fluidized beds with binary mixtures using a Multi Fluid Model*
15:15	C. Ratnayake, M.C. Melaaen, Biplab K. Datta: *Pressure Drop Prediction in Dense Phase Pneumatic Conveying using CFD*
15:45	Coffee break
16:10	Zhang, Deen and J.A.M. Kuipers: *Numerical Simulation of the dynamic flow behavior in a bubble column: Comparison of the bubble-induced turbulence models in the k-epsilon model,.*
16:35	Olga Batrak, Olivier Simonin, Isabelle Flour, Everest Perez: *Numerical study of circulating fluidized bed flow behaviour with bidisperse mixtures of particles*
17:00	Rahel Yusuf, Morten C. Melaaen and Vidar Mathiesen: *CFD Modeling of Heat Transfer in Gas Fluidized Beds*
17:25	A. A. Kareeri, H. H. Zughbi and H. H. Al-Ali, *Simulation of Flow in a Radial Flow Fixed Bed Reactor (RFBR)*
17:50	Håvard Lindborg and Hugo A. Jakobsen: *2D simulations of circular bubbling gas-solid fluidized bed reactors*
18:15	END DAY 1

Tuesday, June 7, 2005

08:30	<u>Keynote Lecture</u> *W. Shyy UFL, Simulation of multi-material systems*

SESSION M-C	**Metallurgical fundamentals**
09:20	V Bojarevics and K A Pericleous, *Pseudo-Spectral Solutions for Fluid Flow and Heat Transfer in Electro- Metallurgical Applications*
09:50	D.Jiroveanu, P.Gardin, J.F.Domgin *Modelling and numerical simulations of 3D bubbly flow by the Eulerian- Lagrangian approach*
10:15	Coffee break

10:45	S.Taniguchi, et al.,
	Mathematical Model for Turbulent Coagulation of Suspended Particles in Agitated Liquid
11:10	Y.Sasaki et al.,
	Numerical Simulation of combustion phenomena in the Sumitomo Toyo Flash Smelting Furnace
11:35	P. Chapelle, A. Jardy, J.P. Bellot, D. Ablitzer:
	On the derivation of hydrodynamic equations for describing arc plasma expansion in the Vacuum Arc Remelting process
12:00	M Phil Schwarz:
	Hydrodynamics Modelling of Hydrometallurgical Unit Operations
12:25	Lunch

13:50	**Keynote Lecture**
	Prof. J. Kuipers: Lagrangian modeling of dispersed phases (NL)

Metallurgical processing

14:40	T.Toh,
	Magnetohydrodynamic Simulation in Steelmaking Process by 3D Finite Volume Method
15:05	Daekwun Ko, Jae-Ou Choi, and Kyesoon Hwang
	CFD as a Tool to Design Efficient Dedusting Systems for Steel-making Plants
15:30	Coffee break
16:00	L.Zhang, B.G.Thomas,
	University of Illinois at Urbana-Champaign, USA
	Application of Computational Fluid Dynamics to Steel Refining and Casting Processes
16:25	Lei Hong, Zhu Miaoyong
	A General Numerical Method for Calculating Magnetic Field, Flow Field and Induced Current Field in Continuous Casting Mold with EMBR
16:50	F. Kavicka,
	The numerical and experimental investigation of a concasting technology
17:15	David J Willis, Florin Ilinca, Frank Ajersch and Nega Setargew:
	Fluid Flow Modeling in a 55%Al-Zn Coating Metal Pot
17:40	End Session 1
SESSION 2	
08:30	**Keynote Lecture**

Numerical methods

09:20	Kristian Holmås, Dag Mortensen, Jan Nossen, Ruben Schulkes and Hans Petter Langtangen: *Simulation of two-phase fluid flow using both the level-set and the volume of fluid methods*
09:50	Knut Vågsæther and Dag Bjerketvedt: *Simulation of supersonic shear layers with high resolution TVD methods*
10:15	Coffee break
10:45	Zhilin Yang and Weiming Ma: *Direct numerical simulation of dynamic three-fluid flow*
11:10	Mourat Heniche, Philippe A. Tanguy: *A predictor-corrector shooting scheme for tracer trajectory calculations*
11:35	Robert Olsen and Inge Røinaas Gran: *Applying characteristic based boundary conditions for the two-fluid model to a two-dimensional channel flow*
12:00	Abdurazag Ghila and Ali Zewebek: *Numerical Investigation of Tip Stall Growth in Axial-flow Fan*
12:25	Lunch
13:50	**Keynote Lecture**

Particle methods (I)

14:40	Evelyne Desaulniers, François Bertrand, Louis-Alexandre Leclaire and D. Vidal: *Numerical Modeling of Granular Flow with the Discrete Element Method: Application to Pigment Consolidation in Paper Coating Process*
15:05	Skjetne P, Holdahl R, Hellevik, LR, Olsen JE: *The SINTEF 3D discrete element method code*
15:30	Coffee break
16:00	Mahesh Prakash, Paul Cleary, Nick Stokes: *A Pseudo Two Phase Model to Simulate Slurry Flow in Spiral Separators using SPH*
16:25	Paul Cleary: *DEM modelling of particulate feeders*
16:50	Maria Fernandino, Tor Ytrehus: *Lattice Boltzmann simulation of open channel flow with a flat interface*
17:15	S. Arnout, F. Ferhaeghe, B. Blanpain, P. Wollants: *Lattice Boltzmann modelling of refractory slag interaction*

17:40	End Session 2

SESSION 3

08:30	**<u>Keynote Lecture</u>**
	Separation technology
09:20	V. Guimet, T. Honore, J.M. Audic, Z. Do-Quang:
	Rheology and transfer in CFD models for wastewater
09:50	Chao Yang, Zai-Sha Mao, Gengzhi Yu:
	Numerical Simulation of Sedimentation of a Solid Particle in non-Newtonian Fluid
10:15	Coffee break
10:45	Stefan Pirker:
	Simulation of Slag Entrainment During Metal Charging
11:10	C. Torres, L. Gomez and R. Mohan:
	CFD Simulations and Mechanistic Modeling of Dual Inlet Gas-Liquid Cylindrical Cyclone (GLCC) Compact Separator
11:35	N Naudé, L Lorenzen, AV Kolesnikov:
	Determining the flow innside a MDS jig seaparator: Link to CFD modeling
12:00	Fu Ping Qian, Ming Yao Zhang:
	Numerical and Experimental Investigation of gas-solid flow in cyclone separator with a prolonged vertical tube at the bottom
12:25	Lunch
13:50	**<u>Keynote Lecture</u>**
	Complex flow and mixing
14:40	Philippe A. Tanguy, Arash Iranshahi, Mourad Heniche, Ryuichi Yatomi, Shoji Morinaga, Katsuhide Takenaka:
	Mixing Hydrodynamics 3D Simulation of the MAXBLEND Impeller
15:05	Marc Dhainaut, Pål Tetlie, Knut Bech, Stein Tore Johansen:
	Modeling and experimental investigations of a stirred tank reactor
15:30	Coffee break
16:00	Guillaume Vinay, Anthony Wachs, Jean-François Agassant:
	Numerical simulation of weakly compressible viscoplastic waxy crude oil flows

| 16:50 | Feng Wang, Zai-Sha Mao, Chao Yang: |
| | *Numerical simulation and measurement of phase holdups in liquid-liquid-solid three-phase stirred tanks* |

| 17:15 | R.C.Arora, B. Tripathi and S.G.Moulic : |
| | *Investigation of the buoyancy flow over the room space constituent* |

| 17:40 | End Session 3 |

| 19:00 | Bus to Sverresborg |

| 19:15 | Visit to Sverresborg folk museum |

| 20:00-23:00 | Conference dinner at Sverresborg: |

| 23:30 | Return |

WEDNESDAY, 8 JUNE, 2005

SESSION 1

| 08:30 | **Keynote Lecture** |
| | *Dr. P. Cleary: Smooth Particle Hydrodynamics; Status and future potential (AUS)* |

Particle methods (II)

| 09:20 | Cueille, P.V., Vila, J.P., Fontaine E.: |
| | *Numerical Simulations of Lock-Exchange Flow with Smoothed Particle Hydrodynamics* |

| 09:50 | Ajit Godbole, Buyung Kosasih and Anton Fuchs: |
| | *Particle Trajectories in Dilute Phase Pneumatic Conveying* |

| 10:15 | Coffee break |

| 10:45 | Hellevik, LR, Olsen JE, Skjetne P, Holdahl R: |
| | *Effects of particle forces in discrete element methods applied to minerals processing* |

| 11:10 | Mahesh Prakash, Paul Cleary, John Grandfield, Patrick Rohan , Vu Nguyen: |
| | *Optimisation of Ingot Casting Wheel Design using SPH* |

| 11:35 | Matteo Chiesa, Robert Olsen Jens. A. Melheim: |
| | *Euler/Lagrange simulations of a twodimensional fluidized bed* |

| 12:00 | Lunch |

13:00	**<u>Keynote Lecture</u>**
	Dr. F. Boysan, Fluent Inc: CFD perspectives for the future (USA)
14:20	End address
14:45	Coffee break
15:10	Home

SESSION 2

08:30	**<u>Keynote Lecture</u>**
	Environment, Energy & Combustion (II)
09:20	Dekterev Alexander, Gavrilov Andrey:
	Complex Modeling of Reconstruction Variants of the Coal-Dust Furnace
09:50	A. Saghafi:
	CFD modelling of CO2 injection in deep coal seams for greenhouse gas mitigation
10:15	Coffee break
10:45	Fei Huang, David G. Schalles:
	Numerical Simulation of Radiant Tube Burner during Start-up
11:10	Rohitha Weerasinghe:
	Analysis of performanve parameters of a semi-enclosed wood fired cook stove using computational fluid dynamics
11:35	M. Baburić, N. Duić:
	CFD simulation of diffusion flames – importance of radiation modelling
12:00	Lunch
13:30	**<u>Keynote Lecture</u>**
14:20	End address
14:45	Coffee break
15:10	Home

SESSION 3

08:30	**Keynote Lecture**
	Multifluid flow analyses (II)
09:20	Ronald Breault and Chris Guenther:
	Sensitivity of Gas-Solids Dispersion and Mass Transfer Coefficient in an Eulerian-Eulerian CFD Model
09:50	Harald Laux, Joakim Bremnes Øian, Tor Ytrehus:
	Experimental and numerical study of a three-phase mixing process
10:15	Coffee break
10:45	C. Dorao, H. Jakobsen:
	An evaluation of Selected Numerical Methods for solving the Population Balance Equation
11:10	Paal Chr. Friberg:
	Gas velocities and hold-up in a bubble column as function of contamination
11:35	Mohamed Sayed and Stuart B. Savage:
	A Model of the Flow of Granular Materials Down Chutes
12:00	Lunch
13:30	**Keynote Lecture**
14:20	End address
14:45	Coffee break
15:10	Home