

Monday, July 9, 2007

|                                     |               |  | PAPER NUMBER |
|-------------------------------------|---------------|--|--------------|
| Session B3<br>Particle-Resolved DNS | 11:00 - 11:20 | A Lattice Boltzmann Method for multiphase flows<br>G. Thömmes, D. Kehrwald, M. Junk and J. Becker  | S3_Mon_B_1   |
| Hall 3                              | 11:20 - 11:40 | A coupled solver approach for multiphase flow problems<br>B. van Wachem and V.R. Gopala  | S3_Mon_B_2   |
| 11:00 -12:20                        | 11:40 - 12:00 | A fully coupled and implicit immersed boundary method for<br>J. Oliveira, A. Mark and B. van Wachem  | S3_Mon_B_3   |
| Chair: Prof. T. Kajishima           | 12:00 - 12:20 | Adaptive augmented Lagrangian techniques for simulating unsteady multiphase flows<br>S. Vincent, J. Larocque, P. Lubin, J.-P. Caltagirone and G. Pianet                    | S3_Mon_B_4   |
|                                     | 12:20 - 13:30 | Lunch Break  |              |
| Session C3<br>Particle-Resolved DNS | 14:20 - 14:40 | A New Novel Implicit Second-Order Finite-Volume Immersed-Boundary Method<br>A. Mark, J.E.S. Oliveira and B. van Wachem   | S3_Mon_C_5   |
| Hall 3                              | 14:40 - 15:00 | A new Immersed Boundary and Moving Mesh for Particulate Flow<br>S. Turek and D. Anca   | S3_Mon_C_6   |
| 14:20 -16:00                        | 15:00 - 15:20 | Euler-Lagrange Approach with spatially distributed Coupling<br>Thomas Reichardt and Martin Sommerfeld  | S3_Mon_C_7   |
| Chair: Prof. J.A.M. Kuipers         | 15:20 - 15:40 | Direct numerical simulation of dispersed three-phase flows<br>— VOF-IBM approach for multiple bubble and particle systems —<br>R. Iwata, S. Takeuchi and T. Kajishima      | S3_Mon_C_8   |
|                                     | 15:40 - 16:00 | Numerical Simulation of Complex Multi-Fluid Flows using a Combined Immersed Boundary<br>and Volume of Fluid Approach<br>N.G. Deen, M. van Sint Annaland and J.A.M. Kuipers | S3_Mon_C_9   |
|                                     | 16:00 - 16:20 | Coffee Break   |              |
| Session D3<br>Particle-Resolved DNS | 17:10 - 17:30 | DNS of the flow at the interface of a porous medium<br>A. Prosperetti and Q. Zhang   | S3_Mon_D_10  |
| Hall 3                              | 17:30 - 17:50 | On the effects of finite-size particles on decaying isotropic turbulence<br>A. Ferrante and S. Elghobashi  | S3_Mon_D_11  |
| 17:10 -18:30                        | 17:50 - 18:10 | Interaction of finite-size particles with turbulence<br>L. Zhang, L. Wakaba, J. Kim, S. Balachandar and P. Fisher  | S3_Mon_D_12  |
| Chair: Prof. E.E. Michaelides       | 18:10 - 18:30 |  | S3_Mon_D_13  |

Contributions Session 3

Tuesday, July 10, 2007

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| Session A3<br>Particle-Resolved DNS | 9:50 - 10:10  | Particle-turbulence interaction<br>A. Naso and A. Prosperetti  | S3_Tue_A_14 |
| Hall 3<br>9:50 -10:50               | 10:10 - 10:30 | A Direct Numerical Simulation Method for the Study of Heat/Mass and Momentum Interactions<br>in Particulate Flows<br>Z.-G. Feng and E.E. Michaelides   | S3_Tue_A_15 |
| Chair: Prof. K. Squires             | 10:30 - 10:50 | Investigating turbulent particulate channel flow with interface-resolved DNS<br>M. Uhlmann   | S3_Tue_A_16 |
|                                     | 10:50 – 11:10 | Coffee Break   |             |
| Session B3<br>Point-Particle DNS    | 11:10 - 11:30 | Modeling particle dispersion in LES computations: The effect of the subgrid scale turbulence<br>C. Gobert and M. Manhart   | S3_Tue_B_17 |
| Hall 3<br>11:10 -12:30              | 11:30 - 11:50 | A possible turbulence limit for preferential accumulation<br>S. Scott and J. Shrimpton   | S3_Tue_B_18 |
|                                     | 11:50 - 12:10 | Preferential concentrations of finite-size massive particles by turbulence<br>E. Calzavarini, L. Biferale, M. Cencini, D. Lohse and F. Toschi  | S3_Tue_B_19 |
| Chair: Prof. B. Balachandar         | 12:10 - 12:30 | Reynolds number scaling of particle preferential concentration in turbulent channel flow<br>C. Marchioli and A. Soldati  | S3_Tue_B_20 |
|                                     | 12:30 – 13:30 | Lunch Break  |             |
| Session C3<br>Point-Particle DNS    | 14:20 - 14:40 | Effects of Inter-Particle Collisions and Two-Way Coupling on Particle Deposition Velocity<br>in a Turbulent Channel Flow<br>H. Nasr, G. Ahmadi and J. McLaughlin   | S3_Tue_C_21 |
| Hall 3<br>14:20 -16:00              | 14:40 - 15:00 | Statistics of particle dispersion in Direct Numerical Simulations of wall-bounded turbulence:<br>results of an international collaborative benchmark test<br>C. Marchioli, A. Soldati, J.G.M. Kuerten, B. Arcen, A. Tanière, G. Goldensoph, K.D. Squires,<br>M.C. Cargnelutti and L.M. Portela | S3_Tue_C_22 |
| Chair: Prof. S. Elghobashi          | 15:00 - 15:20 | Influence of the crossing trajectory effect on the turbulence seen by inertial particles in a channel flow<br>B. Arcen and A. Tanière  | S3_Tue_C_23 |
|                                     | 15:20 - 15:40 | Numerical study of educed coherent structures in the near wall region of a particle-laden channel flow<br>C.D. Dritselis and N.S. Vlachos  | S3_Tue_C_24 |
|                                     | 15:40 - 16:00 | DNS/DPS of particle temperature correlations in gas-solid turbulent flows<br>A. Couzinet, B. Bedat and O. Simonin  | S3_Tue_C_25 |
|                                     | 16:00 – 16:20 | Coffee Break   |             |
| Session D3<br>LES Modelling         | 17:10 - 17:30 | Crossing trajectory effect on the subgrid fluid turbulence seen by solid inertial particles<br>P. Fede, O. Simonin and P. Villedieu  | S3_Tue_D_26 |
| Hall 3<br>17:10 -18:30              | 17:30 - 17:50 | LES with subgrid-scale particle modelling in turbulent channel flow<br>J. Pozorski and M. Luniewski  | S3_Tue_D_27 |
|                                     | 17:50 - 18:10 | The Influence of Filtering on the Motion of Heavy Particles in Gas-Solid Turbulent Channel Flow<br>G. M. Goldensoph and K. D. Squires  | S3_Tue_D_28 |
| Chair: Prof. A. Sadiki              | 18:10 - 18:30 | “Synthetic Eddy Simulation” approach; accounting for residual flow field structure<br>M. Gorokhovski, A. Chtab and V. Sabel'nikov  | S3_Tue_D_29 |

Contributions Session 3

Wednesday, July 11, 2007

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| Session A3<br>LES Modelling                   | 9:50 - 10:10  | LES of particle tracking in a Induction Crucible<br>A. Jakovics, M. Kirpo and B. Nacke  | S3_Wed_A_30 |
| Hall 3<br>9:50 -10:50                         | 10:10 - 10:30 | LES and RANS modeling of turbulence enhancement by the particle wake effect and simulation of turbulence modulation in dense gas-particle flows<br>L.X. Zhou, Z.X. Zeng and H.Y. Qi | S3_Wed_A_31 |
| Chair: Prof. O. Simonin                       | 10:30 - 10:50 | Particle Effect on Turbulent Hierarchical Structures in a Gas-particle Flow<br>B. Wang, H. Zhang and X. Wang  | S3_Wed_A_32 |
|   | 10:50 – 11:10 | Coffee Break  |             |
| Session B3<br>Particle-Turbulence Interaction | 11:10 - 11:30 | A continuous random walk model for turbulent particle dispersion and deposition in arbitrary wall bounded geometries<br>A. Dehbi  | S3_Wed_B_33 |
| Hall 3<br>11:10 -12:30                        | 11:30 - 11:50 | A stochastic model of coherent structures in boundary layers for the simulation of particle deposition in turbulent flows<br>M. Guingo and J.-P. Minier                             | S3_Wed_B_34 |
| Chair: Prof. A. Soldati                       | 11:50 - 12:10 | On crossing-trajectory effects in gas-particle turbulent shear flow<br>B. Oesterle  | S3_Wed_B_35 |
|   | 12:10 - 12:30 | On the stochastic Lagrangian modelling of the fluid velocity seen in a particle-laden channel flow<br>B. Arcen and A. Tanière   | S3_Wed_B_36 |
|   | 12:30 – 13:30 | Lunch Break   |             |
| Session C3<br>Modelling Particle-Laden Flows  | 14:20 - 14:40 | A General Purpose Implicit Coupled Algorithm for Solution of Eulerian Multi-Phase Transport Equations<br>A. Ghobadian and S.A. Vasquez  | S3_Wed_C_37 |
| Hall 3<br>14:20 -16:00                        | 14:40 - 15:00 | A Quadrature-Based Moment Method for Dilute Gas-Particle Flows<br>O. Desjardins, R.O. Fox and P. Villedieu  | S3_Wed_C_38 |
| Chair: Prof. R. Issa                          | 15:00 - 15:20 | Composite Two-Fluid-PDF Models For Particle Transport in Bounded Flows.<br>D. Swailes, P.J. van Dijk and M.W. Reeks   | S3_Wed_C_39 |
|   | 15:20 - 15:40 | Evaluation of a p.d.f. model for the transport of particles in a channel flow<br>B. Arcen, A. Tanière and L. Zaichik  | S3_Wed_C_40 |
|   | 15:40 - 16:00 | DNS study of the influence of the wall boundary conditions on local-equilibrium models in dilute particle-laden turbulent pipe flows<br>A.M.P. Boelens and L.M. Portela             | S3_Wed_C_41 |
|   | 16:00 – 16:20 | Coffee Break  |             |
| Session D3<br>Modelling Particle-Laden Flows  | 17:10 - 17:30 | Evaluation of a kinetic theory model for particles in turbulence<br>R. Skartlien  | S3_Wed_D_42 |
| Hall 3<br>17:10 -18:30                        | 17:30 - 17:50 | Derivation and Application of a Poly-Celerid Method for Poly-Dispersed Two-Phase Flows<br>P. Bollweg, A. Kaufmann and W. Polifke  | S3_Wed_D_43 |
| Chair: Prof. M.W. Reeks                       | 17:50 - 18:10 | Implementation and analysis of numerical solution of the population balance equation in CFD packages<br>L.F.L.R. Silva, R.B. Damian and P.L.C. Lage                                 | S3_Wed_D_44 |
|   | 18:10 - 18:30 | The use of the maximum entropy assumption to provide realizable closure models<br>S.J. Lewis, S.J. Scott, J.S. Shrimpton  | S3_Wed_D_45 |

Contributions Session 3

Thursday, July 12, 2007

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| Session A3<br>Modelling Particle-Laden Flows | 9:50 - 10:10  | A Hybrid Eulerian Lagrangian Method Applied to Turbulent Gas-Solid Channel Flow<br>X. Pialat, O. Simonin and P. Villedieu  | S3_Thu_A_46 |
| Hall 3<br>9:50 -10:50                        | 10:10 - 10:30 | A stochastic particle-particle collision model for dense gas-particle flows implemented in the Lagrangian solver of ANSYS CFX and its validation<br>B. Hussmann, M. Pfitzner, T. Esch and T. Frank | S3_Thu_A_47 |
| Chair: Prof. B. Oesterle                     | 10:30 - 10:50 | Lagrangian Particle Tracking on Unstructured Meshes in a CT based Mouth-Throat Geometry<br>S. Jayaraju, M. Brouns, S. Verbanck and C. Lacor  | S3_Thu_A_48 |
|  | 10:50 – 11:10 | Coffee Break   |             |
| Session B3<br>Particle-Laden Flows           | 11:10 - 11:30 | Numerical study of secondary flow in pneumatic conveying of solids in an horizontal pipe<br>S. Lain, B. Quintero and M. Sommerfeld   | S3_Thu_B_49 |
| Hall 3<br>11:10 -12:30                       | 11:30 - 11:50 | Turbulence Characteristics in Two-Phase Pipe Flow Lading with Various Particles<br>T. Ishima, H. Kawashima, N. Shinozuka and T. Obokata  | S3_Thu_B_50 |
| Chair: Prof. E. Loth                         | 11:50 - 12:10 | LES/DPS of Horizontal Gas-Solid Channel Flow with Particle-Particle Collision and Wall Roughness Effects<br>A. Konan, S. Badarayani, O. Simonin and K. Squires                                     | S3_Thu_B_51 |
|  | 12:10 - 12:30 | Comparison of the simulations of turbulent particulate flow in pipes using the TBL, RANS and PDF methods<br>A. I. Kartushinsky, E.E. Michaelides and L. Zaichik                                    | S3_Thu_C_52 |
|  | 12:30 – 13:30 | Lunch Break  |             |
| Session C3<br>Particle-Laden Flows           | 14:20 - 14:40 | Large Eddy Simulation of a Particel Laden Swirling Flow Based on an Eulerian-Lagrangian Approach<br>F. Hahn, A. Sadiki and J. Janicka  | S3_Thu_C_53 |
| Hall 3<br>14:20 -16:00                       | 14:40 - 15:00 | LES-Simulation of the formation of particle strands in a cyclone using an unsteady Euler-Lagrange approach<br>J. Lipowsky and M. Sommerfeld  | S3_Thu_C_54 |
| Chair: Dr. Th. Frank                         | 15:00 - 15:20 | Numerical study of particle-laden turbulent channel flow with heat transfer<br>M. Jaszczur and L.M. Portela  | S3_Thu_B_55 |
|  | 15:20 - 15:40 | Numerical and experimental investigation on the particle-laden airflow generated by a pseudo-machining operation<br>E. Belut, F. Bonthoux, B. Oesterle and A Kheiri                                | S3_Thu_C_56 |
|  | 15:40 - 16:00 | Experimental and Numerical Investigations of Isothermal Fluid-Particle Flows in Vertical Cuvette<br>E.-S. Zanoun, C. Egbers, X. Guo and U. Riebel  | S3_Thu_C_57 |
|  | 16:00 – 16:20 | Coffee Break   |             |
| Session D3<br>Particle-Laden Flows           | 17:10 - 17:30 | Particle Interaction with coherent structures in a two-phase jet<br>R.K. Decker and U. Fritsching  | S3_Thu_D_58 |
| Hall 3<br>17:10 -18:30                       | 17:30 - 17:50 | Flow Analysis of Particle Laden Round Jet Flow from Abrasive Jet Machining Nozzle by PIV Measurement<br>M. Sugimoto and T. Shakouchi   | S3_Thu_D_59 |
| Chair: Prof. M. Founti                       | 17:50 - 18:10 | Experimental Study of Large-Scale Clustering of Particles in Non-Isothermal Turbulent Flow<br>A. Eidelman, T. Elperin, N. Kleeorin, I. Rogachevskii and I. Sapir-Katiraie                          | S3_Thu_D_60 |
|  | 18:10 - 18:30 | Vortex simulation for the interaction between a vortex ring and solid particles<br>T. Uchiyama and H. Yagami   | S3_Thu_D_61 |

Contributions Session 3

Friday, July 13, 2007

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| Session A3<br>Particle-Laden Flows | 9:50 - 10:10  | Comparison between Euler/Euler and Euler/Lagrange LES approaches for confined bluff-body gas-solid flow prediction<br>M. García, E. Riber, O. Simonin and T. Poinso                | S3_Fri_A_62 |
| Hall 3<br>9:50 - 10:50             | 10:10 - 10:30 | The structure of gas-solid flow past blunted body: effect of blowing<br>A. Varaksin, T. Ivanov and M. Protasov   | S3_Fri_A_63 |
| Chair: Dr. A. Kartushinsky         | 10:30 - 10:50 | Measurements of particle dispersion and turbulent flux in the wake of a cylinder<br>S. Horender and Y. Hardalupas  | S3_Fri_A_64 |
|                                    | 10:50 - 11:10 | Coffee Break   |             |
| Session B3<br>Particle-Laden Flows | 11:10 - 11:30 | Numerical Solution of 2D and 3D Transonic Flow of Wet Steam in Turbine Cascades<br>J. Halama and J. Fort   | S3_Fri_B_65 |
| Hall 3<br>11:10 - 12:30            | 11:30 - 11:50 | Lagrangian and Eulerian Simulations of Particle-Laden Compressible gas - Shock-Wave Diffraction at a Right-Angled Corner<br>A. Haselbacher, F.M. Najjar, L. Yue and S. Balachandar | S3_Fri_B_66 |
| Chair: Dr. S. Horender             | 11:50 - 12:10 | Effect of solid particles on flow structure of supersonic two-phase gas-solid particles impact jet in the self-oscillation regime<br>V.V. Semionov and A.N. Volkov                 | S3_Fri_B_67 |
|                                    | 12:10 - 12:30 | Simulation of dense and dilute multiphase compressible flows with Eulerian-Lagrangian approach<br>I. Lomov   | S3_Fri_B_68 |
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Contributions Session 3