ARBEITSGRUPPE FÜR MEHRPHASENSTRÖMUNG

Information on 13th workshop on two-phase Flow Predictions

Bild 1: The 13th workshop on Two-Phase Flow Predictions

Zentrum für Ingenieurwissenschaften
Martin Luther Universität Halle Wittenberg
D-06099 Halle (Saale), Germany
www-mvt.iw.uni-halle.de

The series of workshops started in 1984 at the Institute of Fluid Mechanics of the University of Erlangen/Nürnberg. The participation was limited to only a few people woring in the field of particle dispersion in turbulent flows. An important objective w the performance and discussion of numerical calculations for pre-defined test cases. During the last 20 years numerical calculations of dispersed flows have received considerable interest in research and technical applications. For numerous companies in the process industries (e.g. chemical industry or food industry) computaional fluid dynamics (CFD) for multiphase flows has become an essential tool for process analysis, optimisation and design. Most important for reliable numercal calculatio is the modelling of the underlying elementary processes, occurrig on the scale of the particle, such as particle transport in turbulence, particle wall collisions, inter-particle collisions, agglomeration, droplet/bubble collisions and coalescence as well as heat and mass transfer.
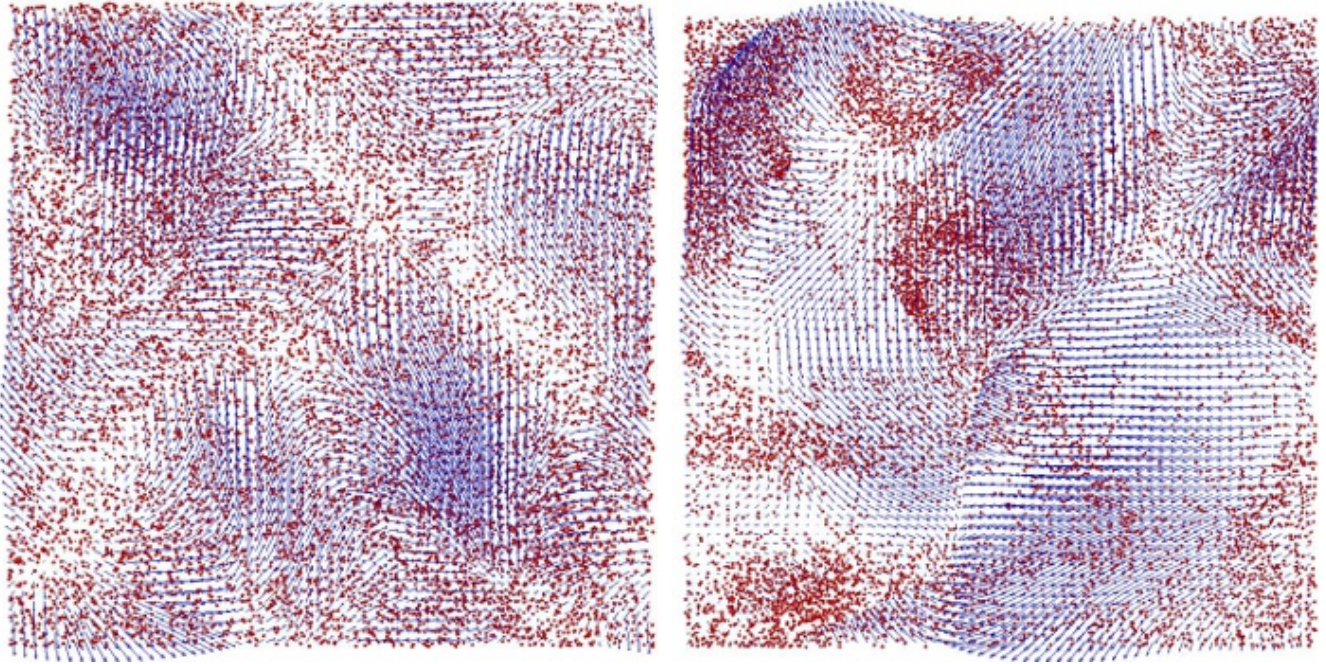
Bild 2 und 3: Computer-generierte Modelle von Flüssigkeitsströmungen

Organiser

Prof. Dr.-Ing. Martin Sommerfeld

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Sponsorship

The workshop will be co-sponsored by the ERCOFTAC (European Research Community on Flow Turbulence and Combustion). Young Ph.D. students may apply for financial support, which is provided by the ERCOFTAC.

Location

The workshop will be held at the Centre of Engineering Sciences of the Martin-Luther-University Halle-Wittenberg.

Content

The main objective of the workshop is to bring researchers together working in the field of dispersed multiphase fow on a theoretical, numerical or experimental basis. Oral presentations and posters in the following areas are most welcome for the workshop:

- Modelling of dispersed turbulent two-phase flows (turbulence models, heat and mass transfer, particle-wall interaction, particl particle interaction, bubble and droplet interaction, agglomeration,...)
- Recent developments on Euler/Euler and Euler/Lagrange approaches
- Direct numerical simulations of fully resolved particles (solid particles, droplets and bubbles)
- Direct and large eddy simulations of particulate flows (point mass approach)
- Application of numerical methods for two-phase flows in process engineering
- Experimental studies on dispersed two-phase flows including new measurements techniques

During the 4-day Workshop 40 presentations, each 30 min including discussion can be accommodated. Additionally, about 15 posters may be accepted.

The selection of oral presentations and posters will be based upon an abstract of one DIN A4-page. The abstracts and any relate correspondence should be sent to Prof. Dr.-Ing. M. Sommerfeld.

An additional objective of the Workshop will be related to the validation of numerical predictions obtained by different model approaches and numerical codes. These validations will be based on pre-defined test cases for which experimental or numerica

results (e.g. direct or large eddy simulations) are available. Several test cases have been selected and will be made available to the interested groups prior to the Workshop on the homepage of the organiser (www-mvt.iw.uni-halle.de/english/index.php). The test cases are generally blind test cases and only boundary and inlet conditions will be provided. The following test cases are tentatively planned:

- ▶ Sedimentation of a solid particle towards a plane wall; test case for fully resolved DNS
- ▶ Recent developments on Euler/Euler and Euler/Lagrange approaches
- ▶ Small-scale liquid-solid fluidised bed with about 2000 particles and a mean volume fraction of 30% (data from University of Toulouse)
- ▶ DNS data on droplet coalescence in homogeneous isotropic turbulence (data from IMF Toulouse)
- ▶ Pneumatic conveying of fine particles through a horizontal glass pipe with a length of 5.5 m and a diameter of 80 mm (MVT, MLU-Halle)

During the Workshop, the test case results will be exhibited in the poster session. If time allows a round table discussion on the test case results will be arranged. After the Workshop the test case results will be also displayed at the homepage of the organiser. Joint publications of the test case calculations are encouraged.

The number of groups participating in one test case calculation is limited to about five. Any questions regarding the test cases m be sent to Prof. Dr.-Ing. M. Sommerfeld.

Test Case Calculations

Testcases

Settling of a single towards a plane wall	›
Coalescing droplets in homogeneous isotropic turbulence	›
Pneumatic conveying of fine particles through a horizontal glass pipe	›
Liquid-solid fluidised bed	›

Registration fee

The registration fee for the Workshop is 300 Euro, which includes the proceedings, refreshments during the breaks, lunches, an excursion and a common dinner in a historic place of the region. The registration fee should be paid by bank transfer only. An invoice or receipt will be issued after the final registration.

Proceedings

The proceedings will include papers of all accepted presentations and posters and will be provided on a CD at the Workshop registration.

Time Schedule

Availability of test case specification:
March 1, 2012

Final date for submission of abstracts:
April 30, 2012

The abstracts should be submitted to: › Carola.Thomas@iw.uni-halle.de (mailto:Carola.Thomas@iw.uni-halle.de)
Authors informed concerning acceptance of presentation:
May 31, 2012

Final date for submission of the test case results:
July 16, 2012

Final date for receipt of camera-ready manuscripts of the contributions:
August 31, 2012

(Contributions received after this date cannot be included in the proceedings)