OTTO VON GUERICKE UNIVERSITÄT MAGDEBURG

WORKGROUP FOR MULTIPHAS FLOWS

Numerical calculations

For solving multi-scale problems in dispersed multi-phase flows two classes of numerical methods are being used. Fully resolved numerical simulations are mainly conducted using the Lattice-Boltzmann-Method (LBM) which allows to resolve complex particle (e.g. agglomerates) and the flow around or through such particles.

Such simulations are being used to support model developement, for example the drag coefficient of agglomerates. Numerical simulation of entire processes involving dispersed multi-phase flows are conducted mainly on the basis of the Euler-Lagrange approach where the particles (solids, droplets or bubbles) are treated as point masses. Different turbulence models may be used in this connections (e.g. RANS and LES) and steady as well as unsteady processes may be considered. Such large-scale calculations allow to support process design and optimization.

- Simulation via Euler-Lagrange-approach
- Simulation via dem Lattice-Boltzmann-approach

Various test systems are used for the simulation of process engineering processes.

- Experimental facilities

Information

The Euler/Lagrange method for the calculation of two-phase flows is explained in detail.

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