



TECHNISCHE UNIVERSITÄT  
BERGAKADEMIE FREIBERG

Die Ressourcenuniversität. Seit 1765.



Center for Innovation Competence:  
Virtual High Temperature Conversion

## Agenda Workshop on Fluidized Bed Modeling

TU Bergakademie Freiberg, Fuchsmühlenweg 9, 09599 Freiberg, Germany, Room DBI318

March, 22–24, 2017

### Wednesday afternoon – General multiphase approaches

- 14:00–14:30 *Andreas Richter/Bernd Meyer, TU Bergakademie Freiberg*  
Welcome and introduction
- 14:30–15:30 *Hans Kuipers, Technische Universiteit Eindhoven*  
Multi-scale modelling of mass, momentum and heat transport in dense gas-particle flows
- 15:30–16:10 *Falah Alobaid, Technische Universität Darmstadt*  
Two-fluid and Euler-Lagrange/DEM model for reactive gas-solid flows
- 16:10–16:30 Coffee break
- 16:30–17:10 *Siegmar Wirtz, Ruhr-Universität Bochum*  
Thermochemistry in CFD/DEM – applications and their requirements
- 17:10–17:50 *Sebastian Kriebitzsch, TU Bergakademie Freiberg*  
Modeling approaches for polydisperse systems in an Euler-Euler framework
- 19:00–open Discussions and dinner at restaurant Stadtwirtschaft

### Thursday morning – Applications

- 09:00–09:40 *Niels Deen, Technische Universiteit Eindhoven*  
Metal powders as CO<sub>2</sub>-free dense energy carriers
- 09:40–10:20 *Maksym Dosta/Ernst-Ulrich Hartge, University of Technology Hamburg-Harburg*  
Multiscale simulation of the fluidized bed granulation process
- 10:20–10:40 Coffee break
- 10:40–11:20 *Kari Myöhänen, Lappeenranta University of Technology*  
Modeling of large scale CFB units by a semi-empirical approach



11:20–12:00 *Lukas Porter, TU Bergakademie Freiberg*  
Towards a validated CFD setup for a range of fluidized beds

12:00–13:00 Lunch break

#### **Thursday afternoon – Modeling on different scales**

13:00–13:40 *Adam Klimanek, Silesian University of Technology*  
Modeling of oxy-combustion and gasification in small scale circulating fluidized beds by means of the hybrid Euler-Lagrange approach

13:40–14:20 *Wojciech Adamczyk, Silesian University of Technology*  
Modeling of large scale CFB boilers applying hybrid Euler-Lagrange approach

14:20–15:00 *Ernst-Ulrich Hartge, University of Technology Hamburg-Harburg*  
Simulation of coupled fluidized bed systems by use of a MP PIC method

15:00–15:20 Coffee break

15:20–16:00 *Kari Myöhänen, Lappeenranta University of Technology*  
CFD modeling experiences from small to large scale

16:00–17:30 Open discussion about modeling of real fuels, e.g. non-spherical particles, large particle-size-distributions, agglomeration, heterogeneous reactions, radiation

18:30–open Discussions and dinner at restaurant Schwanenschlößchen

#### **Friday – Software tools and validation data**

09:00–09:40 *Joanna Bigda, ICHPW*  
Comparison of numerical approaches for fluidized bed systems

09:40–10:20 *Alexander Laugwitz, TU Bergakademie Freiberg*  
The COORVED gasifier as a possible validation basis for reactive high-pressure systems

10:20–11:45 Closing discussion about further common research perspectives

11:45–12:15 Lunch break

12:15–14:00 Visit of the COORVED gasifier and lab tour