TECHNISCHE UNIVERSITÄT DRESDEN

HZDR

HELMHOLTZ ZENTRUM DRESDEN ROSSENDORF

- Institut für Energietechnik,

  AREVA-Stiftungsprofessur für bildgebende Messverfahren für die Energie-und Verfahrenstechnik

- Institut für Fluiddynamik, Abteilung Experimentelle Thermofluiddynamik

Belegarbeit/ Diplomarbeit

3D Particle Tracking Velocimetry Investigation and Analysis in Novel 8 Loop-Airlift Reactor

Sustainability plays an increasing role in biochemical and environmental engineering, natural mirror image structure packing provides attractive morphological properties which can be used as support to immobilize active components for water treatment. Among different configurations, a novel 8-type connected airlift-driven fluidized bed reactor configuration allows complete fluidizing the highly porous catalyst The first step towards implementing the new concept comprises the hydrodynamic characterization of the system especially the flow pattern of the solid phase. The goal is to study experimentally the velocity and holdup distribution of fluidized solid in a laboratory scale cold flow setup. Specifically determination of three-dimensional velocity fields in the 8 loop-airlift reactors using a high-speed camera-mirror system and analysis the data via implement Mathlab cod. The institute of Experimental Fluid Dynamics at HZDR provides an internship or diploma/bachelor position for students to perform experimental measurement and the analysis of the data.

Subtasks:

Perform a calibration of the high-speed camera-mirror system

Analysis the recorded pictures and extract the axis dimension via Mathlab program

Calculated the hydrodynamics parameters such as velocity fields, particles distribution and test the validation of results

Requirements:

Internship/beleg or diploma student of mechanical engineering in general

Interest in data analysis with good skills in Mathlab implementing

Good skills in English communication

Duration: 4 months am latest from May, it is also possible to specify a date after discussion

Contact person

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