

Open PhD position in

## Numerical simulation of particle/bubble interactions for green processes

The **Institute of Process Engineering (IVT)** and the **Department of Particulate Flow Modelling (PFM)** at Johannes Kepler University in Linz, Austria, join forces for the multiscale investigation of particle/bubble interactions with application in green processes based on the research funding from the Austrian research fund (FWF), **project PARBUIN**. As a part of this FWF project, we intend to strengthen our abilities in physical understanding and multiscale numerical simulation of the three-phase slurry bubble columns by a PhD thesis that covers:



*VOF-IB simulation of a rising bubble and a falling particle in a water column.*

- Fully-resolved simulation of three-phase liquid-gas-solid flows based on the **volume of fluid method** coupled with the **immersed boundary method** (VOF-IB method)
- Analysis and simulation of the interactions of single bubbles as well as bubble swarms with solid particles at different operating conditions
- Model development and improvement for the population balanced-based **Euler-Euler simulation** of full-scale slurry bubble columns

This PhD project should start in **October 2023** and is funded for 3 years. The prospective PhD researcher will be employed at PFM for 30 hours/week with a gross salary of **2.464 €/month** paid **14 times** a year according to the FWF standard salary for doctoral students.

We are looking for a highly motivated student in the field of **engineering science (mechanical engineering, chemical engineering, fluid mechanics) and physics**. Candidates should have experience in numerical simulation and CFD. Experience in multiphase flow simulation (preferably with OpenFOAM) and programming in C++ is a plus.

Interested candidates are required to **prepare a two-page application**. The first page covers information on the applicant (name, photo, date of birth, email, academic career, titles of selected projects, and publications) and the second page features an abstract of the applicant's Master thesis (or equivalent research project).

This short application is due on **June 23<sup>th</sup>, 2023** and should be sent by email (pdf file) to [andrea.scharinger@jku.at](mailto:andrea.scharinger@jku.at)

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