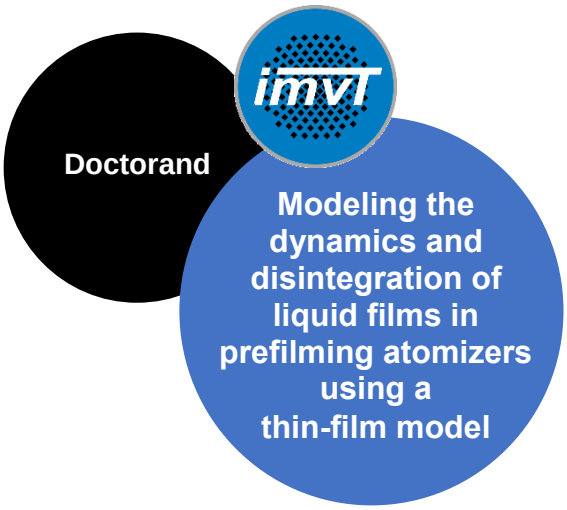
Universität Stuttgart



Prof. Carsten Mehring, Ph.D.
Institute of Mechanical Process Engineering

The Institute of Mechanical Process Engineering (IMVT) has an opening for a fixed-term research assistant position (TV-L 13) to be filled immediately.

We are looking for a candidate with a very good Master's degree in the field of mathematical modeling and numerical simulation of two-phase flows and ideally in the field of liquid atomization and the dynamics of liquid films.

Our institute conducts theoretical and experimental research related to the behavior and the interaction between solid, particulate and fluidic (gas/liquid) substances or material systems, as they appear in the production of high-performance and high-value materials and products, in technical applications and processing plants, and in nature.

The atomization of liquids by so-called lamella nozzles or prefilming atomizers is used in a wide range of technical applications, e.g. in air humidification, spray drying, dust and gas washers and in fuel atomization systems of heating units and aircraft engines. As part of the planned project, an existing non-linear thin-film model for primary liquid film break-up is to be extended. For this, a suitable physical and numerical model describing the dynamics of the ligament edges is to be developed and integrated with the existing film model. On the other hand, the resulting film and ligament break-up model has to be coupled consistently with a DPM (Discrete Phase Model) for the resulting droplet phase. Interaction of the liquid phase with the surrounding gas phase flow will be considered via an implementation of the overall film break-up and disintegration model in an existing flow solver for the gas phase.

Depending on the candidate’s qualification, there is the possibility to pursue a doctoral degree on the topic. The chosen individual is also expected to actively support teaching activities at the IMVT. Aside from the ability to work in a team environment and a good knowledge base in the field of numerical simulation and method development, very good German and English language skills are expected.

Please send your meaningful application by June 16, 2025 to:

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