

# !! Lecture Announcement!!

(students with background in mechanical & chemical engineering, pharmaceutical sciences, as well as chemistry are welcome!)

CHE.874UF

## Design of Multiphase Flow Processes

1.3 Lecture/0.7 Exercise  
Summer 2022

Institute for Process and Particle Engineering,  
Simulation Science Group  
<https://ippt.tugraz.at/SimSci>

### Short Description

An overview of the applications of multiphase processes will be provided, mainly focusing on fundamental design questions and selected applications in the area of “pharmaceutical engineering”. For example, the influence of mixing on fast chemical reactions will be discussed. The students will gain advanced skills in the conceptual design, calculation and simulation of multiphase reactors (e.g., gassed stirred tanks, fluidized beds).

### Core Topics

- Basics of **Mixing and Reacting Flows**
- **Fluidized Beds and Gassed Stirred Tanks**
- **Modeling and Numerical Simulation** of Multiphase Systems (includes an introduction to the software tools **OpenFOAM®**, **LIGGGHTS®**, and **ASPHERIX®**)

### Expected Knowledge of the Participants

Basic skills in reaction engineering and particle technology are desired, but not required

### Language

Lecture Notes will be provided **in English**. Presentations and exercises can be given in German or English.

### Time

**The course starts Friday, March 4<sup>th</sup> 2022 (9.15 a.m., HS i8; or online)**. The lessons will be **blocked** such that the course will end mid of June latest. **The course will be “online ready”, thus no physical presence is required.**

### Contact and Further Details

<https://tc.tugraz.at/main/course/view.php?id=579>  
Assoc.Prof. Stefan Radl ([radl@TUGraz.at](mailto:radl@TUGraz.at))

!!includes Software Training for CFD and DEM!!

