

EFCE Spotlight Talks

Working Parties on Multiphase Fluid Flow and Chemical Reaction Engineering

20 May

15:00 • 17:45
CET

Recent Developments and Further Demands in Reactive Gas-Liquid Flows



In order to design climate-friendly and sustainable processes with low resource consumption and reduced emissions, it is necessary to produce chemicals with high yield and selectivity. To achieve this, the transport processes within a reactor and the chemical reaction network must be suitably adjusted and controlled. In many fast gas-liquid reactions, such as oxidations, hydrogenations, or chlorinations, the time scale of transport across the liquid interface, through boundary layers and bubble wakes, and mixing by agitation and buoyancy-driven convection play a dominant role, in addition to the kinetics of the reaction networks. In recent years, tremendous progress has been made with new methods in experiment and numerical simulation, allowing deeper insights and targeted improvement of processes. Such opportunities will be presented and discussed in this spotlight talk and further needs will be addressed. Participants from academia and industry are welcome.

PROGRAM

- 15:00 **Welcome and introduction**
Michael Schlueter, Chair of WP Multiphase Fluid Flow
Olaf Hinrichsen, Chair of WP Chemical Reaction Engineering
- 15:10 **Interaction of reaction and internal fluid dynamics in jet loop reactors**
Erik von Harbou and Ferdinand Breit - University of Kaiserslautern, Germany
Oliver Bey, BASF, Ludwigshafen - Germany
- 15:35 **Hydrodynamics and photon transport in gas-liquid photoreactors**
Simon Kuhn, Process Engineering for Sustainable Systems, KU Leuven - Belgium
- 16:00 **Reactive mass transfer and deposit in the wake of confined bubbles**
Karine Loubiere, Anne-Marie Billet, Nicolas Dietrich - FERMAT, University of Toulouse - France
- 16:25 **Modeling and Simulation of Reactive Mass Transfer across Fluid Interfaces**
Dieter Bothe, Department of Mathematics, Technical University of Darmstadt - Germany
- 16:50 **Controlling and leveraging gas bubbles in electrochemical energy technologies**
David A. Vermaas, TU Delft - The Netherlands
- 17:15 **CO₂ absorption/capture modelling by Computational Fluid Dynamics validated with experimental data**
Dr. Yi Ouyang, Ghent University - Belgium
- 17:40 **Conclusions and closing**

[Registration and Payment](#)

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