

# Simulation of the liquid flow distribution in laboratory-scale additively manufactured packings

Nadin Sarajlic<sup>1</sup>, Johannes Neukäufer<sup>2</sup>, Mohamed Ashour<sup>2</sup>, Thomas Grützner<sup>2</sup>, Sebastian Meinicke<sup>3</sup>, Carsten Knösche<sup>3</sup>, Jürgen Paschold<sup>3</sup>, Harald Klein<sup>1</sup>, and Sebastian Rehfeldt<sup>1</sup>

<sup>1</sup>Technical University of Munich

<sup>2</sup>Ulm University

<sup>3</sup>BASF SE

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## Abstract

This paper demonstrates that a newly designed packing structure can be additively manufactured, and that a more uniform liquid distribution is achieved with it. Preliminary computational fluid dynamics simulations eliminate the necessity to manufacture every developed geometry when optimizing packing structures. This work simulates the liquid flow inside two packing structures with an enclosing wall at laboratory scale. The periodic setup permits simulations of the liquid distribution in a large part of the column even for complex packing structures. A novel method for the systematic evaluation of the liquid distribution is applied to the simulation results and subsequently validated with experimental data. The results are used to improve the liquid distribution inside laboratory-scale packing structures.

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