Stanford

Sebastian Dehe

Associate Scientist, SLAC National Accelerator Laboratory

Bio

BIO

Project scientist in the Bio department at the LCLS (SLAC National Accelerator Laboratory). Joined LCLS 2022 as a research associate, after obtaining a PhD (Dr.-Ing.) at TU Darmstadt in 2021, focusing on electrokinetic phenomena in fluid flow. At LCLS, focusing on development of droplet on demand sample delivery methods for time-resolved experiments, both for optical pump and mixing experiments.

Skills and experience in fluid mechanics and X-ray science: Design, control and optimization of DoD sample delivery platform at LCLS. Microfluidic and electric equipment control and operation. Laboratory based experiments (high-speed imaging, brightfield - and fluorescence imaging and evaluation. X-ray based measurement techniques: Solution phase scattering experiments, X-ray spectroscopy. Computational modeling using COMSOL Multiphysics.

EDUCATION AND CERTIFICATIONS

- Dr.-Ing., TU Darmstadt , Mechanical Engineering - Nano- and Microfluidics (2021)
- M.Sc., TU Darmstadt , Mechanical and Process Engineering (2017)
- B.Sc., TU Darmstadt , Mechanical and Process Engineering (2014)

Publications

PUBLICATIONS

- **The spatial structure of electrostatically forced Faraday waves** *JOURNAL OF FLUID MECHANICS*
  Dehe, S., Hartmann, M., Bandopadhyay, A., Hardt, S.
  2022; 939
- **Deformation modes of an oil-water interface under a local electric field: From Taylor cones to surface dimples** *PHYSICAL REVIEW FLUIDS*
  Dehe, S., Hardt, S.
  2021; 6 (12)
- **Hydrodynamic dispersion in Hele-Shaw flows with inhomogeneous wall boundary conditions** *JOURNAL OF FLUID MECHANICS*
  Dehe, S., Rehm, I., Hardt, S.
  2021; 925
- **Intermediate States of Wetting on Hierarchical Superhydrophobic Surfaces** *LANGMUIR*
  Rofman, B., Dehe, S., Frumkin, V., Hardt, S., Bercovici, M.
  2020; 36 (20): 5517-5523
- **Electro-osmotic flow enhancement over superhydrophobic surfaces** *PHYSICAL REVIEW FLUIDS*
  Dehe, S., Rofman, B., Bercovici, M., Hardt, S.
  2020; 5 (5)