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ICB PhD public presentations

DROPLET-BASED SYNTHESIS AND ASSEMBLY OF NANOMATERIAL SYSTEMS

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Co-examiners: Prof. Dr. Maksym Kovalenko and Prof. Dr. Philip D. Howes

24/01/2023, 14.00 pm, HCI D 2 and on Zoom
Meeting ID: 624 1000 6235

Project Summary: Segmented-flow microfluidic platforms have emerged as highly promising tools for the study of nanomaterials. Herein, we developed a range of specialized platforms for the synthesis and assembly of various nanomaterial systems. Firstly, we demonstrated the assembly of $CsPbBr_3$ nanocrystals into monodisperse and size-controlled, spherical supraparticles via an oil-in-oil templating approach in a microfluidic glass chip. Further, we studied the influence of different organic solvents in the aqueous and organic phase on the synthesis of Conjugated Polymer Nanoparticles in a microfluidic platform with online optical detection. In a similar microfluidic platform, we demonstrated a room-temperature, hexane-based synthesis of $CsPbBr_3$ nanocrystals. We thus present the use of multi-parametric screening platforms for the high-throughput study of various nanomaterials.

CV. Julia received her B.Sc. and M.Sc. in Nanoscience from the University of Hamburg in 2015 and 2018, respectively. During her master studies she spend half a year as a research intern at UC Berkeley in the group of Prof. Alivisatos. She joined the group of Prof. deMello in the Institute of Chemical and Bioengineering at ETH in November 2018 as a PhD student.