

ICB PhD public presentations

ON THE SYNTHESIS AND STUDY OF PHOTOLUMINESCENT NANOCRYSTALS USING INTEGRATED MICROFLUIDIC SYSTEMS

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Zoom: <https://ethz.zoom.us/j/99941323210>

Project Summary: Photoluminescent nanocrystalline materials are of special interest owing to their tuneable physical and chemical properties, and their potential utility as functional elements in biological experimentation, optoelectronics, optical communications, and laser technologies. My PhD research focusses on the synthesis of high quality photoluminescent nanocrystals through optimization of their reaction parameters and surface binding ligands using high-throughput integrated microfluidic platforms. I demonstrate that the droplet-based microfluidic approach is an efficient optimization method for syntheses with a high dimensional parameter space, and results in extensive data sets for in depth analysis. With in-line and/or on-line integrated optical detection systems, microfluidics not only shows great advantages in synthesis and parameter screening, but also allows advanced characterization of nanocrystal growth mechanisms, an extremely important frontier in nanocrystal research.

CV: Shangkun received his BEng. in Polymer Materials and Engineering, and MSc. in Polymer Chemistry and Physics from Jilin University, China. In September of 2016, he started his doctoral studies in deMello Group.