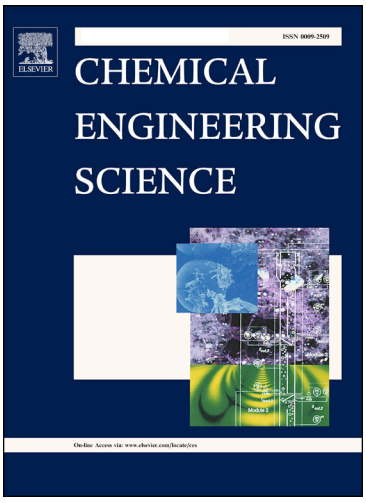

From Core-shell to Janus: Microfluidic Preparation and Morphology Transition of Gas/Oil/Water Emulsions

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From Core-shell to Janus: Microfluidic Preparation and Morphology Transition of Gas/Oil/Water Emulsions

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Abstract: In this article, gas-liquid-liquid emulsion drops were firstly generated by one-step method in a coaxial microfluidic device. Based on that, the effects of several parameters on the morphology transition from core-shell to Janus droplets was studied systematically. By tuning flow rates, interfacial tensions and viscosity, we can change the size and morphology of droplets. Furthermore, non-spherical microparticles were obtained by using photo-responsive reagent through solidification. The developed approach offers a novel and simple strategy on the synthesis of Janus emulsions and anisotropic microparticles with controlled morphologies.

Key words: microfluidics; gas-liquid-liquid emulsions; microparticles; Janus