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Droplet generation and coalescence in microchannel junctions

Microfluidics provides a powerful method to generate and operate uniformed droplets in microchannels. The microchannel junctions are versatile, which can be used to rupture liquid and lead droplet coalescence. Creating new microchannels structures and methods are necessary to make more controllable droplets in size, structure and component during microfluidic applications, and they are also important to understand the fluid dynamics in microchannel space, especially for the generation and evaluation of complex interfaces. During the last 10 years, we kept on studying the generation and coalescence of droplets in microchannel junctions, including new method to form tiny droplets in large microchannels, determining the dynamic interfacial tension during droplet generation, droplet break-up behavers in complex gas-liquid-liquid flow and droplet coalescence dynamics during head-on collisions. The phenomena are very interesting during these processes and some simple laws are useful to apply microfluidic technology in emulsification and material preparation.

Biography

Kai Wang has completed his PhD at the age of 28 years from Tsinghua University and Postdoctoral Studies from Polymer Science, in the same University. He is interested at the microflow system and flow chemistry processes. He has published more than 95 papers in reputed journals and more than 40 Chinese patents.

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