

Acoustic assisted microfluidic technology for fabrication, manipulation and detection

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Abstract

Microfluidic technology is an outstanding technical achievement of 21st-century. It can precisely control and manipulate a small amount of fluid or microparticles in the fluids. It is a multidisciplinary subject involving engineering, physics, chemistry, biochemistry, and nanotechnology and accordingly different applications have been developed like drug delivery, cancer treatment, cell sorting and so on. Integrating different energy fields like electrical, optical and acoustic onto lab-on-a-chip platforms provides more possibilities for control and manipulation, and hence has opened many new frontiers in microfluidics. Particularly, the acoustic microfluidics as an important tool has been used in various biology, engineering and medical applications. In this talk, I will introduce our recent work of applying acoustic wave into microfluidic channel to enhance microdroplets formation, to manipulate microparticles, and to sort virus and so on. Other related issues will also be discussed.

Keywords: acoustofluidics, cell sorting, materials synthesis, manipulation

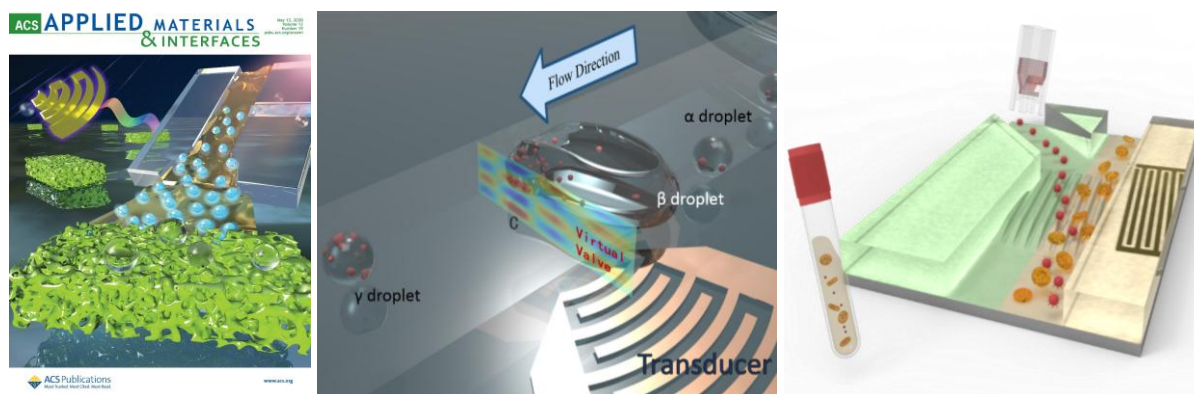


Figure 1. Acoustofluidic-assisted materials synthesis (Left), droplet manipulation (Middle) and cell sorting in microfluidic channel (Right)