MICROFLUIDIC PARTICLE MANIPULATION

Abstract

The present invention relates to the use of acoustic waves for the manipulation and sorting of particles and cells. In an embodiment, there is provided a microfluidic device for manipulating a particle in a fluid suspension, the device comprising: (a) a substrate; (b) a channel defined in the substrate, the channel having an inlet for receiving the fluid suspension and an outlet for discharging the fluid suspension; and (c) an acoustic source configured to deliver a travelling surface acoustic wave transverse the flow of the fluid suspension in the channel, wherein the acoustic source is an interdigital transducer (IDT), the IDT comprises a plurality of concentric circular arcs having a tapered end directed at the channel, and the tapered end has an aperture of between 4 μm and 150 μm. In an alternative embodiment, the device comprises a second channel disposed intermediate the first channel and the acoustic source wherein the first and second channels are connected by a pumping channel.

Figure 1