

Digitally controlled electrophoresis of charged droplets for microfluidic application

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A digital microfluidic system based on a novel electrophoretic method is made by simple fabrication with low cost and demonstrated under reasonable actuation voltage. Digitally controlled various motions such as translation, rotation, and coalescence are tested. We focused on mixing of droplets and analyzed quantitatively in various cases. Also two biochemical solidification reactions are demonstrated to show the unique feature of the current technology.