

Abstract Submitted
for the DFD14 Meeting of
The American Physical Society

Rapid Electrokinetic Patterning for Vertical Stacking and Manipulation of Particles KATHERINE CLAYTON, AVANISH MISHRA, STEVEN WERELEY, Purdue University — A variety of optical and optoelectrical-based microfluidics techniques have been used for the trapping and manipulation of particles in a colloidal solution. Rapid Electrokinetic Patterning (REP) is one such technique. It uses laser activated electrothermal flow to trap particles in a monolayer. Particles can be manipulated on the substrate by steering the laser. In this work we show that by a careful selection of parameters, particles can be rapidly trapped in a tower configuration instead of a monolayer. Moreover, this vertical tower can be manipulated and stationed at any desirable place on the chip. We intend to discuss underlying physical mechanism and potential applications in biology.

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Date submitted: 01 Aug 2014

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