

Abstract Submitted  
for the DFD13 Meeting of  
The American Physical Society

**Electrical trapping and sorting of particles in an asymmetric ratchet microchannel** AKSHAY KALE, XINYU LU, XIANGCHUN XUAN, Clemson University — Ratchet microchannels have been demonstrated to implement the electrical focusing, trapping, and sorting of various particles. However, no work has thus far been done on the effects of the structure of ratchets on the transport and manipulation of particles in ratchet microchannels. In this talk we present our recent results of the electrokinetic particle trapping and sorting in an asymmetric ratchet microchannel. The ratchet effects (i.e., forward or backward motion) on the trapping effectiveness and location of particles are examined under various DC-biased AC electric fields. The discrepancies in the trapping voltage and location are utilized to demonstrate a continuous electrical sorting of particles by size.

Xiangchun Xuan  
Clemson University

Date submitted: 24 Jul 2013

Electronic form version 1.4