

Abstract Submitted  
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**Electrokinetic Transport and Manipulation of Particles in Microfluidic Reservoirs**<sup>1</sup> JUNJIE ZHU, XIANGCHUN XUAN, Department of Mechanical Engineering, Clemson University, Clemson, SC 29634-0921 — Electrically controlled microfluidic devices have been proven to be very useful in manipulating both synthetic and biological particles in terms of efficiency, sensitivity, and simplicity. The success of these devices depends on a comprehensive understanding of electrokinetic particle transport in every part of their microchannels and reservoirs. In this talk we present an experimental and numerical study of the electrokinetic transport of spherical polystyrene beads in microfluidic reservoirs. We also demonstrate that polystyrene beads can be continuously focused, trapped, concentrated, and separated in microfluidic reservoirs. This diverse electrical control of particle transport in reservoirs is envisioned to open new possibilities for handling bioparticles in electrokinetic microfluidic systems.

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