

Abstract Submitted
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Experimental Investigation of an Electrostatic Brownian Ratchet

BRIAN LONG, HEINER LINKE, University of Oregon, Eugene, OR 97403 — An asymmetric, periodic array of linear Pt electrodes on a SiO₂ substrate forms a ratchet potential for charged particles in solution. By using 0.2 micrometer diameter, carboxylate-modified, fluorescent polystyrene beads we can track an ensemble of individual particles as they diffuse and respond to the time-dependent potential of a Brownian flashing ratchet. Unlike previous experimental investigations of electrode ratchet systems (e.g. Bader, et al Electrophoresis 2000, 21, 74-80), particle tracking allows us to both quantify ensemble quantities and characterize the trajectories of individual particles. Current project status will be reported.

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