

# A low sample volume particle separation device with electrokinetic pumping based on circular travelling-wave electroosmosis

Shiang-Chi Lin,<sup>a</sup> Jau-Ching Lu,<sup>b</sup> Yu-Lung Sung,<sup>a</sup> Chih-Ting Lin,<sup>\*a,c</sup> and Yi-Chung Tung<sup>\*b</sup>

<sup>a</sup> Graduate Institute of Electronics Engineering, National Taiwan University, Taipei 10617, Taiwan

<sup>b</sup> Research Center for Applied Sciences, Academia Sinica, Taipei 11529, Taiwan. Fax: +886 2 2782 6680; Tel: +886 2 2789 8000 ext 17; E-mail: [tungy@gate.sinica.edu.tw](mailto:tungy@gate.sinica.edu.tw)

<sup>c</sup> Department of Electrical Engineering, National Taiwan University, Taipei 10617, Taiwan. Fax: +886 2 2368 1679; Tel: +886 2 3366 9603; E-mail: [timlin@cc.ee.ntu.edu.tw](mailto:timlin@cc.ee.ntu.edu.tw)

## Supplementary Movies

Supplementary movie 1 and movie 2 are the original movies videotaping behaviors of 15  $\mu\text{m}$  and 1  $\mu\text{m}$  polystyrene beads in the circular TWEO device respectively. In addition, supplementary movie 3 demonstrates the separation phenomenon of two kinds of polystyrene beads mixed together. We utilize the stereo microscope (M165 C, Leica Microsystems, Wetzlar, Germany) with a single-lens reflex camera (500D, Canon, Ohta-ku, Tokyo) to record the particle behaviors, and the video time scale is real for the whole recording process.