

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Frequency-dependent manipulation of 1- μm -diameter PS particles on VNE at AC voltages of $f = 1\text{ kHz}$, 10 kHz , 100 kHz , 1 MHz , and 10 MHz ($V_{pp} = 2.5\text{ V}$, 2x speed).

File Name: Supplementary Movie 2

Description: Trapping and releasing of 50-nm-diameter SUVs on VNE with the predefined pattern array of the KIST emblem under switching on (AC voltage of $V_{pp} = 2\text{ V}$ and $f = 100\text{ kHz}$) and off.