

Supplementary Materials: Assembly and Rearrangement of Particles Confined at a Surface of a Droplet, and Intruder Motion in Electro-Shaken Particle Films

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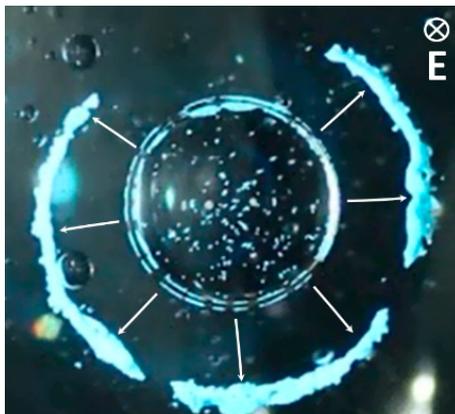


Figure S1. Detachment of surface microparticles from a silicone oil droplet. Initially, the stable particle film was formed using E -field of 200 Vmm^{-1} , DC. When the polarization of the E -field changes and its intensity is increased to more than 800 Vmm^{-1} , the particle film undergoes one cycle of shaking. At the compression stage, the compressed particle film starts to crumple and eventually irreversibly detach (some or all particles depending on the E -field strength) from the surface of the droplet. The droplet is imaged parallel to the direction of E -field through transparent electrodes. The diameter of the droplet is $\sim 1.7 \text{ mm}$.

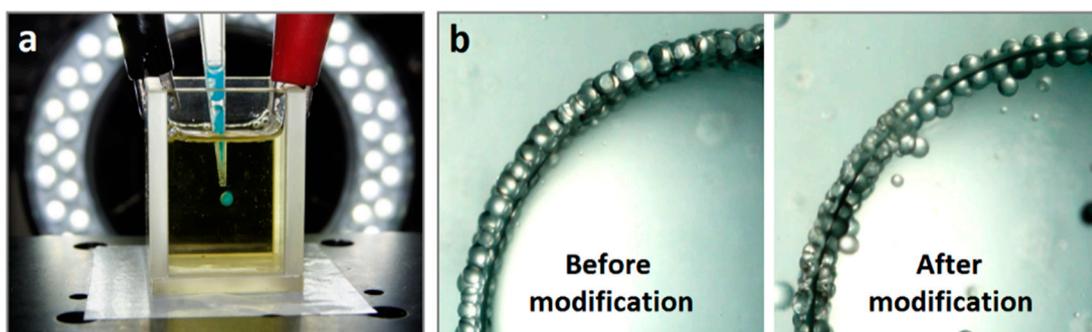


Figure S2. (a) The sample cell was made of glass ($15 \text{ mm} \times 15 \text{ mm} \times 30 \text{ mm}$) where two of the walls are coated with electrically conductive ITO layers. The high-voltage bipolar signal was provided to the cell via two crocodile clips attached to the ITO electrodes. The transparent ITO electrodes allow for observation in a direction along the electric field. A droplet containing colloidal particles is made using a mechanical pipette; (b) Modification of the surface chemistry of the polystyrene particles (PS140) resulted in a change of their contact angle at the castor oil–silicone oil interface.