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Supplementary Figure S1.

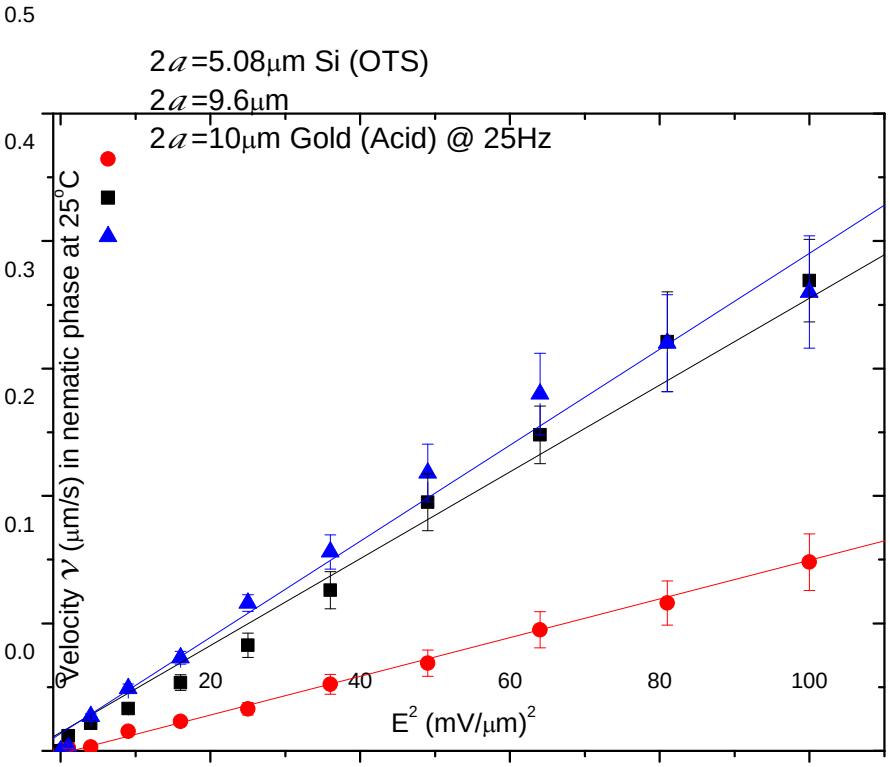

Fig.S1. Electrophoretic velocity v vs E^2 for sinusoidal field of frequency 25Hz; $p_x > 0$; OTS-coated silica spheres with $2a = 5.08\,\mu\text{m}$ (circles), OTS-coated borosilicate spheres with $2a = 9.6\,\mu\text{m}$ (squares) and gold spheres with $2a = 10\,\mu\text{m}$ (triangles), moving in E7.

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Supplementary Video for Figure 2b. This movie shows the motion of silica spheres (5μm diameter) coated with OTS. The host is E7 LC with Δε=13.8. When the symmetric ac field of 45 mV/ μm (100Hz) is applied parallel to the director, spheres with elastic dipole $p_x>0$ will move to the right, while spheres with $p_x<0$ will move in opposite direction. The average velocity of particles is 2.3 μm/s. (QuickTime; 1.2 MB).

Supplementary Video for figure 2d. This movie shows the motion of borosilicate spheres (17μm diameter) coated with DDMAC. The host is a mixture of 13.45 wt% of E7 in MLC 7026-00 with Δε=0.03 . When the symmetric ac field of 30 mV/ μm (1Hz) is applied parallel to the director, spheres with elastic dipole $p_x>0$ will move to the left, while spheres with $p_x<0$ will move in opposite direction. The average velocity of particles is 4.6 μm/s. (QuickTime; 0.6 MB).