# The Dielectrophoretic Interactions of Curved Particles in a DC Electric Field

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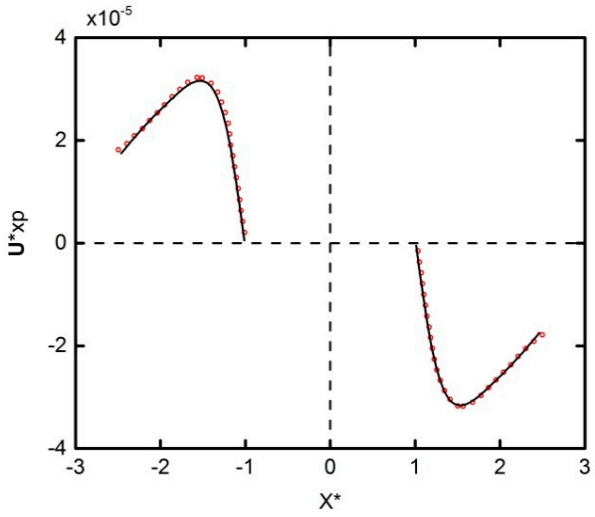



Figure S1. Model Validation.

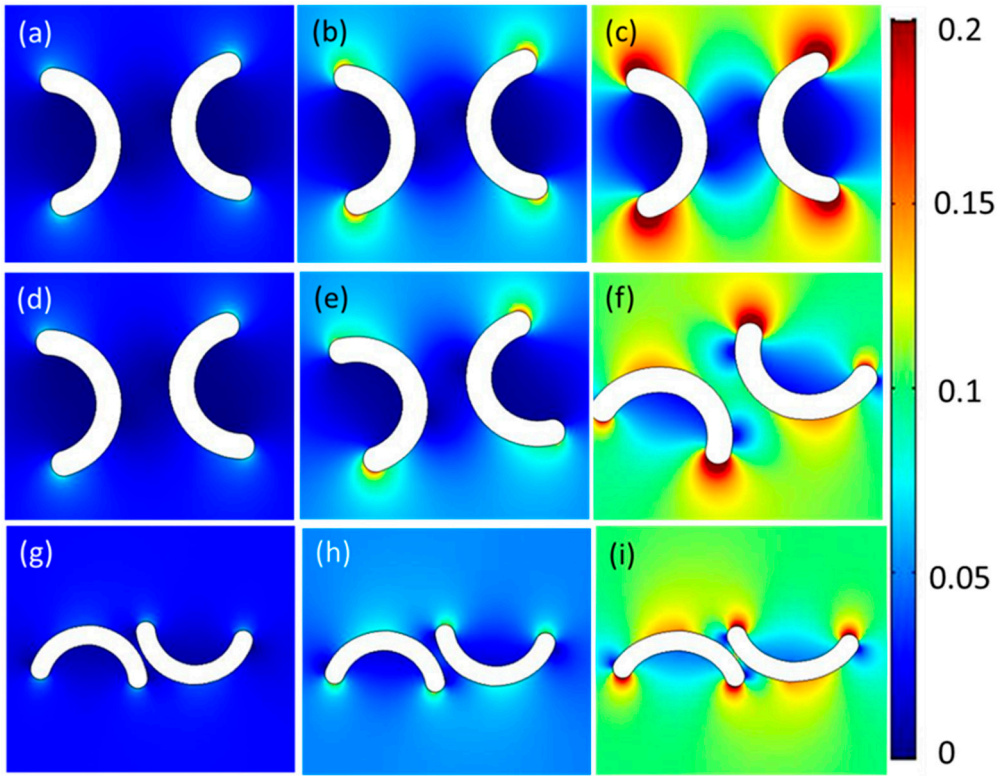



Figure S2. The curved particles are arranged back-to-back with shear modulus of 20 Pa. (a) (b) (c) correspond to $t^*$=0, (d) (e) (f) correspond to $t^*$=2000, while (g) (h) (i) represent $t^*$ =20,000, $t^*$=30,000, and $t^*$=20,000, respectively. (a) (d) (g) display the electric field intensity distribution of arcuate particles at 5 kV/m, (b) (e) (h) at 10 kV/m, and (c) (f) (i) at 20 kV/m.

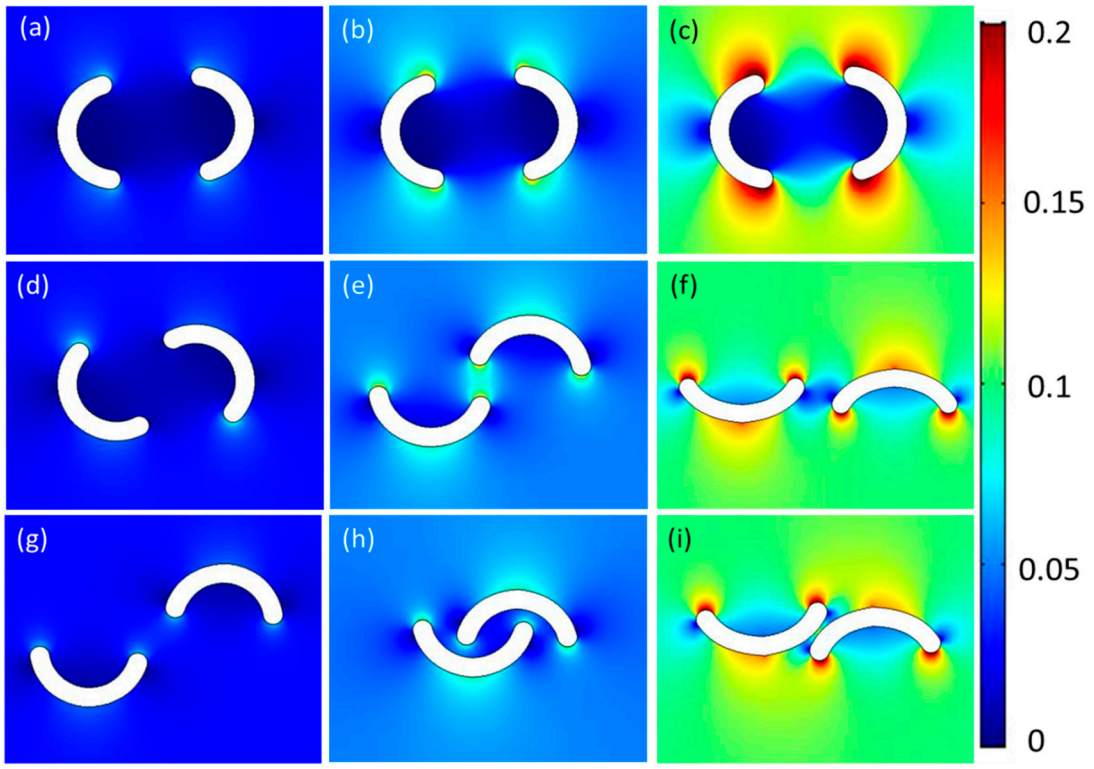



Figure S3. The curved particles are arranged in a face-to-face configuration with shear modulus of 20 Pa. (a), (b), and (c) correspond to time $t^*$=0; (d), (e), and (f) represent time $t^*$=12,900; while (g), (h), and (i) depict times $t^*$=200,000, $t^*$=200,000, and $t^*$=30,000, respectively. The electric field intensity distributions of arcuate particles are shown under different field intensities: (a), (d), and (g) at 5 kV/m; (b), (e), and (h) at 10 kV/m; and (c), (f), and (i) at 20 kV/m.

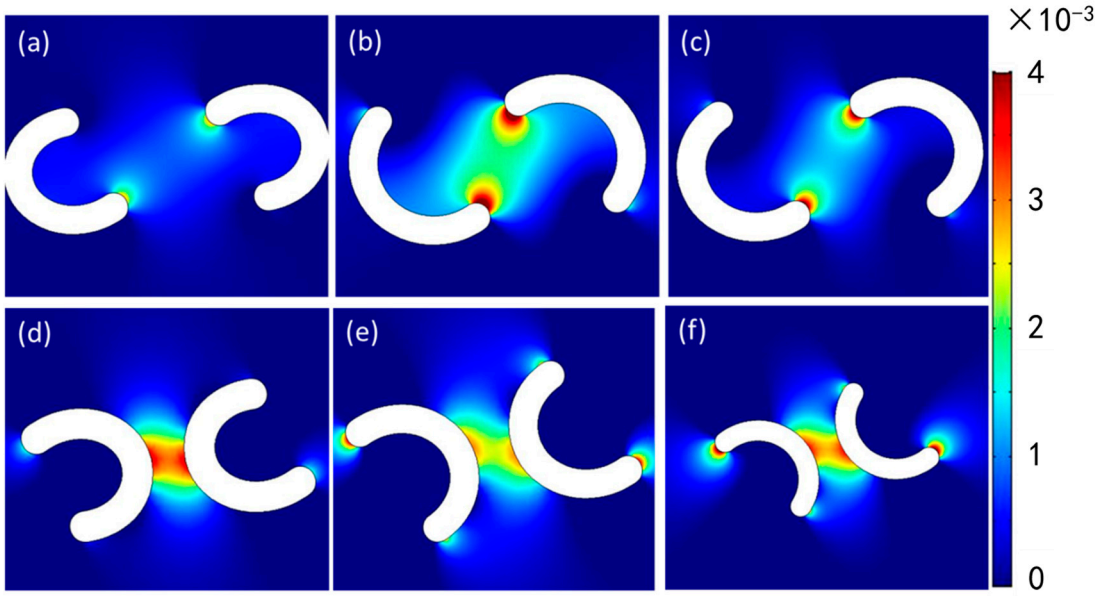



Figure S4. The pressure distribution of the flow field around the particle at time $t^*$=1000: (a)(b)(c) correspond to face-to-face particle configurations with elastic moduli of $G_0$=20Pa, $G_0$=40Pa, and $G_0$=80Pa respectively; (d)(e)(f) represent back-to-back particle arrangements with elastic moduli of $G_0$=20Pa, $G_0$=40Pa, and $G_0$=80Pa respectively.

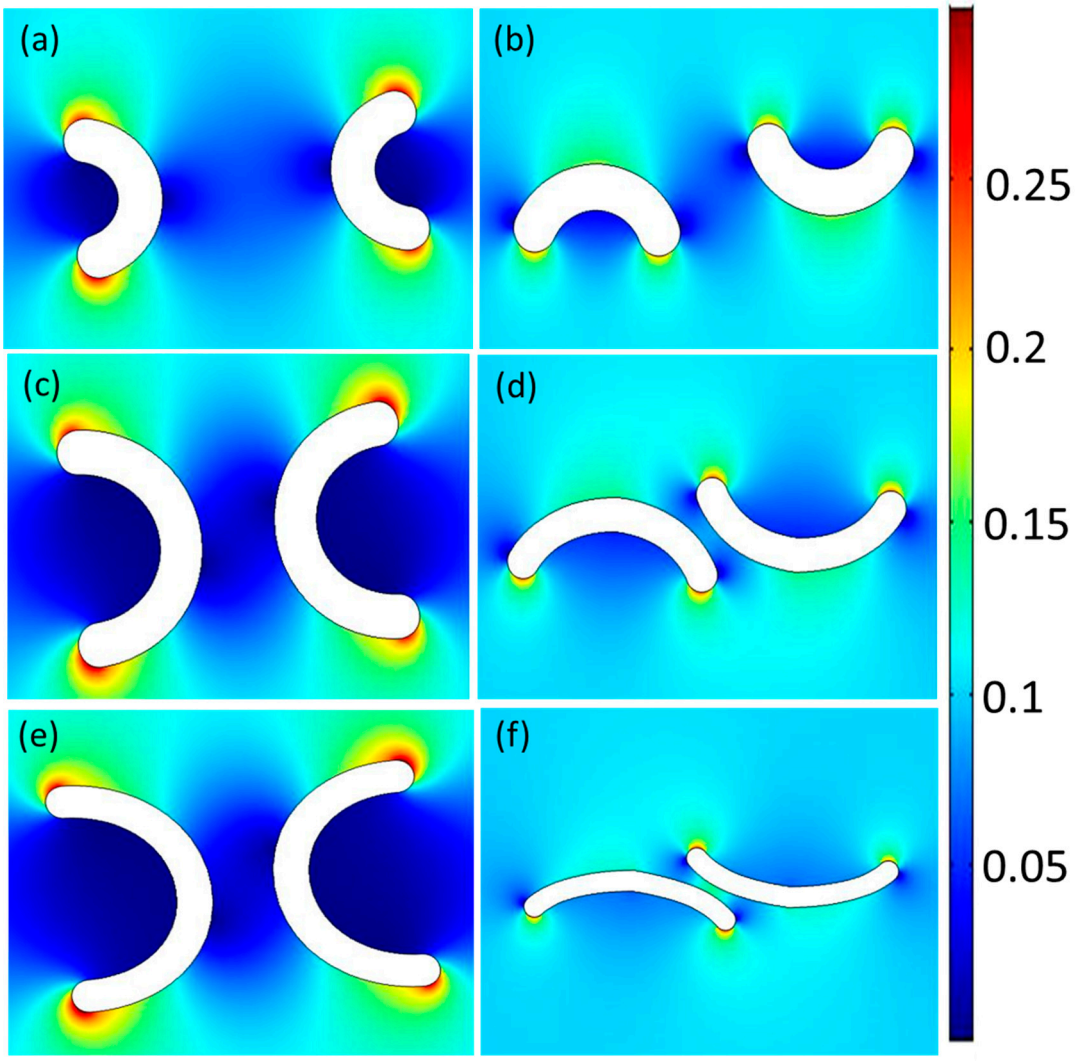



Figure S5. The particles are arranged back-to-back, and the distribution of electric field intensity around the particles is illustrated under the following conditions: an applied electric field strength of 20 kV/m, an elastic modulus of $G_0$ = 20 Pa, and arc-shaped particle endpoint separations of (a)(b) 1.5, (c)(d) 2.5, and (e)(f) 3.5. The corresponding time instances are (a)(c)(e) $t^*$ = 100, (b) $t^*$ = 3500, (d) $t^*$ = 4500, and (f) $t^*$ = 12900.

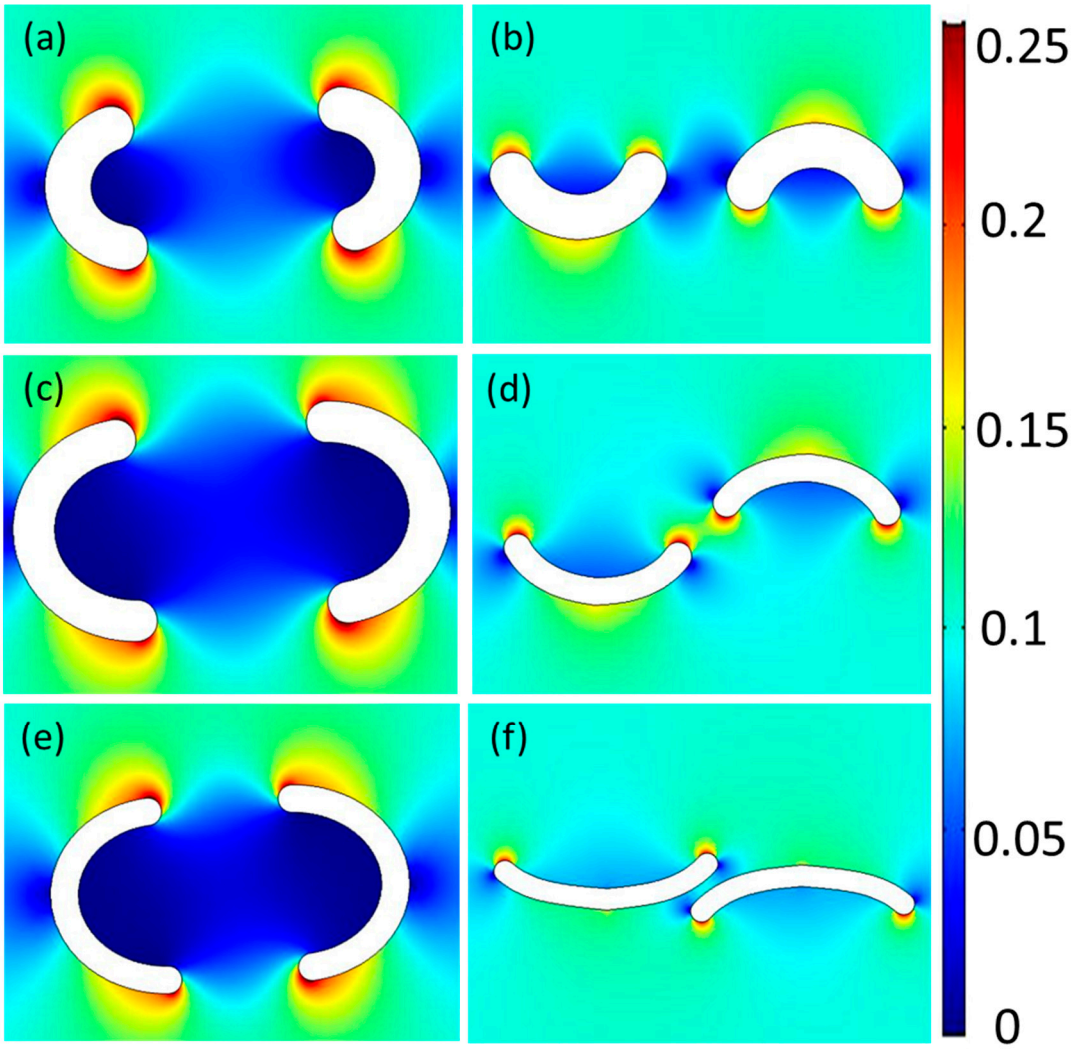
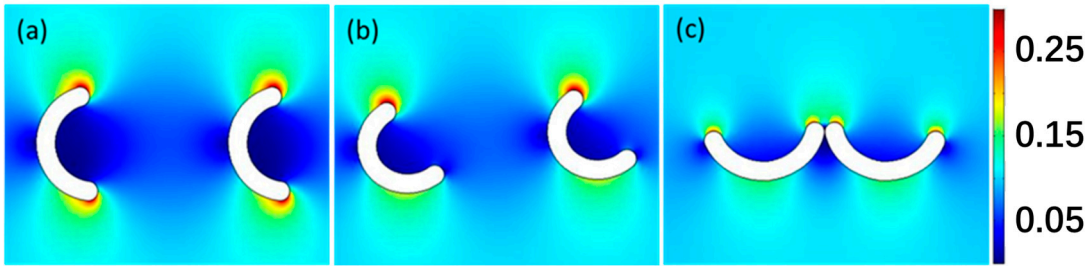



Figure S6. The distribution of electric field intensity around particles arranged in a face-to-face configuration is presented under the following conditions: an applied electric field strength of 20 kV/m, an elastic modulus of $G_0$ = 20 Pa, and interparticle endpoint distances of (a)(b) 1.5, (c)(d) 2.5, and (e)(f) 3.5. The corresponding dimensionless time instants are: (a)(c)(e) $t^*$ = 100, (b) $t^*$ = 6000, (d) $t^*$ = 6500, and (f) $t^*$ = 12900.




Figrue S7. The electric field intensity is 20 kV/m, the elastic modulus is $G_0$ = 40 Pa, and the separation between the two curved particles is 5 μm. The distribution of electric field intensity near the curved particles is illustrated as follows: (a) $t^*$ = 0, (b) $t^*$ = 1000, (c) $t^*$ = 20000.