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Effect of parameters on redistribution and removal of particles from drop surfaces SAI NUDURUPATI, MUHAMMAD JANJUA, LSSU, PUSHPENDRA SINGH, NJIT, NADINE AUBRY, CMU — It was recently shown by us that particles distributed on the surface of a drop can be concentrated at the poles or the equator of the drop by subjecting it to a uniform electric field and that such concentrated particles can then be removed from the drop by increasing the electric field intensity. In this talk, we present experimental results for the dependence of the dielectrophoretic force on the parameters of the system such as the particles' and drop's radii and the dielectric properties of the fluids and particles, and define a dimensionless parameter regime in which the technique works. In particular, we show that the technique is guaranteed to work if the drop radius is smaller than a critical value that depends on the physical properties of the drop and ambient fluids and those of the particles.

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