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Dynamics of charged particles in nonpolar solvent in response to an electric field TINA LIN, DAVID WEITZ, Harvard University — In nonpolar solvent, surfactant molecules aggregate to form charge-stabilizing reverse micelles. This enables surface charging of colloidal particles suspended in nonpolar solvent. We investigate the dynamics of such charged particles in response to an externally applied electric field. By combining microfluidics and confocal microscopy, we directly visualize the transport of particles between two parallel electrodes. We use direct visualization to measure the electrophoretic mobility of each particle and determine the effect of added surfactant on the measured mobility. In addition, we find that the presence of surfactant has a significant effect on the transport dynamics of the charged particles.

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