

Abstract Submitted
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The Role of Hydrodynamic Behavior of DNA Molecules in Dielectrophoretic Polarization under the Action of an Electric Field¹ HUI ZHAO, University of Nevada Las Vegas — A continuum model is developed to predict the dielectrophoretic polarizability of coiled DNA molecules under the action of an alternating current electric field. The model approximates the coiled DNA molecule as a charged porous spherical particle. The model explains the discrepancies among scaling laws of polarizability of different-sized DNA molecules with contour length and such discrepancies are attributed to different hydrodynamic behavior. With no or one fitting parameter, theoretical predictions are in good agreements with various experimental data, even though in experiments there are some uncertainties in regards to certain parameters.

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