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Physics of Dielectrophoretic Trap by Analogy with Electrophoretic Paul Trap[1] JAE HYUN PARK, Gyeongsang National University, South Korea — Dielectrophoresis (DEP) is defined as the motion of suspended particles in solvent resulting from polarization forces induced by an inhomogeneous electric field. DEP has been utilized for various biological applications such as trapping, sorting, separation of cells, viruses, nanoparticles, etc. The analysis of DEP trap has been so far based on the period-averaged pondermotive forces only while the dynamic features of DEP trapping have not been attracted. However, the recent study about aqueous electrophoretic Paul trap showed that a close relation between particle properties and their random motions, which cannot be understood via pondermotive effects. Similar to this, the present study reveals a detailed understanding of dynamic responses of DEP trap and their relation to various system parameters. The analogy with electrophoretic Paul trap is emphasized.

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