

# **Sasson Haviv, Biological Engineering**

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## **Positioning cells on a microchip using dielectrophoresis**

The ability to maneuver and position cells on a micro scale on microchips is highly desired. Polystyrene micro beads were used to model a biological cell. Dielectrophoresis (DEP) is the movement of a particle in a non-uniform ac electric field. The DEP force is used to move the beads to a specific location. The orientation of this force depends on the dielectric properties of the particle and the medium in which it is suspended, and the frequency of the electric field. Negative dielectrophoresis (nDEP), attracts the micro bead to the electric field minima, Whereas Positive DEP attracts the micro bead to the electric field maxima. We designed seven different micro electrodes configurations to see the effect of different electrode geometries on the DEP force and in turn on the motion of the beads. Experimental measures of the DEP force will be compared with numerical simulations performed using FAMLAB software. Results of this experiment will improve the ability to maneuver cells using DEP force.