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**Electrical manipulation of submicron particles by reservoir-based dielectrophoresis (rDEP).** HERBERT HARRISON, MARK JOHNSON, SAURIN PATEL, XIANGCHUN XUAN, Clemson University — Reservoir-based dielectrophoresis (rDEP) is a recently developed technique by our group that exploits the inherent electric field gradients at a reservoir-microchannel junction for particle and cell manipulations. It is based on the induced negative dielectrophoretic motion at the junction to focus, trap and sort micron particles and cells. In this talk we present the experimental and numerical results for the electrical manipulation of submicron particles by rDEP. We study and compare the transport of submicron particles from reservoir to microchannel with negative and positive rDEP, respectively. The effects of electric field and medium concentration are examined. The goal is to implement a continuous particle sorting by negative and positive rDEP.

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