

SEMINARIO DE ESTUDIANTES

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Resumen:

There is currently a need for small, disposable systems for separating and concentrating samples in the medical and environmental testing fields. Insulator-based dielectrophoresis (iDEP) devices are useful for particle separation and concentration. These devices rely on dielectrophoresis, electrophoresis, and electroosmosis. Dielectrophoresis is a technique which depends on particle size and polarization when particles are exposed to a non-uniform electric field. Electroosmosis is a liquid based phenomenon producing particle migration by suspending medium motion. Electrophoresis is an effect based on particle charge resulting in particle migration. These iDEP devices have been shown to be useful in separating and concentrating particles and cells using direct current (DC). By applying a low frequency alternating current (AC) with a DC offset to iDEP devices, the selective passage of particles based on particle charge or size is achieved. The effectiveness of this technique is demonstrated by separating different micro-sized particle mixtures placed in the microchannels that were designed and fabricated at RIT.