

# Solute-Exclusion Zones: New Driving Force for Microfluidics

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Microfluidic technologies provide multifaceted research tools and medical applications. However, lack of embedded power sources has seriously limited the independency and portability of microfluidics. Here we integrated the exclusion zone (EZ) into lab-on-chip systems. Without external power sources, with EZ as driving power, microparticles can be guided hundreds of micrometers from hydrophilic polymer surfaces and transported effectively through laminar interfaces cross flow streams. Here we demonstrated the feasibility of samples mixing, size-dependant separating, and specimen guiding in microfluidics. With its simplicity and low-cost, EZ-zone-based designs can confer a broad range of utilities for point-of-care diagnosis or stand-alone environmental monitoring microsystems.