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Microfluidics Based Magnetophoresis: A Review

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Abstract: Magnetophoresis, the manipulation of trajectory of micro?scale entities using magnetic forces, as employed in microfluidic devices is reviewed at length in this article. Magnetophoresis has recently garnered significant interest due to its simplicity, in terms of implementation, as well as cost? effectiveness while being efficient and biocompatible. Theory associated with magnetophoresis is illustrated in this review along with different sources for creating magnetic field gradient commonly employed in microfluidic devices. Additionally, this article reviews the state?of?the?art of magnetophoresis based microfluidic devices, where positive? and negative?magnetophoresis are utilized for manipulation of micro?scale entities (cells and microparticles), employed for operations such as trapping, focusing, separation, and switching of microparticles and cells. The article concludes with a brief outlook of the field of magnetophoresis.