Continuous micro-magnetophoretic separation using a dipole magnetic field

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Abstract: The use of a dipole magnetic field on particle separation in a microfluidic channel is introduced. We compare a monopole magnetic field with a dipole magnetic field by computer simulation, and the separation of magnetic beads utilizing the dipole magnetic field is demonstrated. The dipole field generates a higher magnetic flux density at the separation zone than the monopole field. In the demonstration, the dipole field successfully derives the deflection of magnetic beads flowing through a microfluidic channel.

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