

Abstract Submitted
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Inertial focusing in microchannel with triangular cross-section and size-based particle separation JEONG-AH KIM, WONHEE LEE, KAIST
— Inertial microfluidics is widely used for biological and chemical applications where high-throughput passive microparticle handling is required. We previously proved that cross-section shape can be a control parameter. We investigated inertial focusing in triangular channels with various sizes and angles while varying particle size and Reynolds number. Previous study reported 3 focusing positions close to center of each channel face. We found unexpected focusing behavior, which is the alteration of focusing configuration depending on particle size and Re. We fabricated a micro channel with varying cross-section along flow direction to control accessible focusing positions, by which enabled elimination of the overlapped focusing positions. The resulting channel allows particles with different size to focus at completely different focusing positions in a triangular channel, which leads to highly efficient particle separation without the external forces or labeling.

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