

Abstract Submitted
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Simulations, experiments and applications with streaming lattices GABRIEL JUAREZ, GIRIDAR VISHWANATHAN, YASHRAJ BHOSALE, TEJASWIN PARTHASARATHY, MATTIA GAZZOLA, University of Illinois at Urbana-Champaign — Steady streaming refers to the rectified flow patterns produced when solid boundaries interact with high frequency oscillatory flows. This phenomenon is arguably the most efficient way to exploit inertia at the microscale, with several practical applications from mixing to particle manipulation. Here, we present numerical predictions and experimental verifications of steady streaming realized in a periodic lattice of cylinders with alternating curvatures. The interplay between multiple curvatures and oscillation frequency leads to a rich variety of flow topologies, beyond classically understood ones. We leverage this setup for tunable non-contact filtration and enhanced particle trapping.

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