

Abstract Submitted
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Directed assembly in designed flow fields TOBIAS M. SCHNEIDER, SHREYAS MANDRE, MICHAEL P. BRENNER, School of Engineering and Applied Sciences, Harvard University — Various approaches aim at the controlled assembly of mesoscopic objects into predefined shapes. While self-assembling strategies are conceptually difficult and often hard to implement, we present a new concept for directed assembly. We show that by controlling the fluxes on the boundary of a Hele-Shaw cell the flow field in the cell can be tailored such that many particles are simultaneously advected along prescribed trajectories and thereby assembled in the desired shape. Optimizing the particle paths allows to reduce the required fluxes such that they should be experimentally accessible using microfluidic techniques.

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