

Abstract Submitted
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Separation of polymers by length in rotational flow FAIHAN AL-FAHANI, School of Engineering, Computer Science, and Construction Management, JENNIFER KREFT PEARCE, Department of Physics, Roger Williams University — We use a lattice-Boltzmann based Brownian dynamics simulation to determine if polymers of different lengths can be separated by a combination of a trapping force and fluid flow. We produce two counter-rotating vortices in the simulation, similar to the work of Hilgenfeldt, et al., that used rotational flow to separate colloids of different size. We can achieve separation of polymers that differ in length by as little as 30%. We expect that this technique could be used in a microfluidic device to analyze the size of long DNA fragments produced in common molecular biological tests.

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