

Abstract Submitted
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Separation of DNA by Length using Counter-Rotating Vortices

JENNIFER PEARCE, Roger Williams Univ — DNA has been observed to be trapped at a convergent stagnation point in simulations based on the lattice-Boltzmann method using a bead-spring model for the DNA. We have successfully separated DNA strands whose lengths differ by 20%. Currently we are investigating parameters that optimize this technique and hope to separate lengths differing by as little as 5%. Mastering this technique could allow advancements in developing microfluidic techniques for DNA amplification based on PCR and purification of the PCR product. Additionally these simulations mimic conditions found in pores of hydrothermal vents, therefore these studies can shed light on the development of the amplification of long strands of DNA preferentially.

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