

Abstract Submitted
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Thermophoresis in microfluidic devices: Lattice-Boltzmann simulations¹ JENNIFER PEARCE, DAVID WILSON, SETH NORMAN, The University of Texas at Tyler — Thermophoresis, or mass accumulation due to a temperature gradient, has been shown to occur in microfluidic channels with fluid flow. It has separately, without flow, to lead to separation of different sizes of polymers. Here we report on simulations that combine these effects, fluid flow and size segregation. The simulation is based on the lattice-Boltzmann method for the fluid and a bead spring model for the polymer and has reproduced quantitatively thermophoresis of DNA. We investigate if thermophoresis can be used to separate polymers of different sizes using thermal flow field fractionation in microfluidic devices.

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Jennifer Pearce
The University of Texas at Tyler

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