

Abstract Submitted
for the DFD11 Meeting of
The American Physical Society

Thermophoresis of a temperature responsive polymer¹ JENNIFER KREFT PEARCE, KLINTON KILGORE, AUDREY HAMMACK, JACOB FORD, The University of Texas at Tyler — Thermophoresis, the migration of a species due to a temperature gradient, has been shown to be a possible mechanism for manipulating molecules in microfluidic devices. The mechanism governing thermophoresis is complex making its dependence on different physical factors hard to predict. We experimentally investigate thermophoresis of a polymer which exhibits inverse temperature dependence of its solubility in water. For sufficiently high average temperatures, two forms of the molecule are present. We measure the Soret coefficient of both and find that one has positive S_T and the other negative. We investigate the cause of this sign change using a Lattice Boltzmann based simulation. We find that the conformation of the polymer can influence its migration in a temperature gradient.

¹Acknowledgment is made to the Donors of the American Chemical Society Petroleum Research Fund for support of this research.

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Date submitted: 12 Aug 2011

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