Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Correlation length of a near-critical, eight-arm star polystyrene in methylcyclohexane ANGIE TRIPLETT, NITHYA VENKATARAMAN, D.T. JACOBS, Physics Department, The College of Wooster, Wooster OH 44691 — The turbidity of eight-arm star polystyrene in methylcyclohexane has been measured and used to determine the correlation length amplitude ξ_0. The turbidity in this system was determined from the measured ratio of the transmitted to incident light intensities as a function of temperature. Various systematic errors were explored and eliminated in obtaining a value of ξ_0 for this branched polystyrene with a total molecular weight of 228,000. Ornstein-Zernike theory is used to fit the turbidity data. The value of ξ_0 is comparable to that reported in the literature for a linear polystyrene of the same molecular weight in methylcyclohexane. We acknowledge the support from NSF-REU grant DMR 0243811 and to the donors of the American Chemical Society Petroleum Research Fund.

Donald Jacobs
The College of Wooster

Date submitted: 01 Dec 2004 Electronic form version 1.4