

Abstract Submitted  
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**Correlation length of a near-critical, eight-arm star polystyrene in methylcyclohexane** HENRY TIMMERS, SARAH SUDDENDORF, ANGIE TRIPLETT, NITHYA VENKATARAMAN, D.T. JACOBS, Physics Department, The College of Wooster, Wooster OH 44691 — The turbidity of monodisperse, eight-arm star polystyrene in methylcyclohexane has been measured near each system's critical point and used to determine the correlation length amplitude  $\xi_0$  at various molecular weights. The turbidity 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  $\xi_0$  for each molecular weight of the branched polystyrene in methylcyclohexane. Ornstein-Zernike theory is used to fit the turbidity data. The values of  $\xi_0$  and their dependence on molecular weight are 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.

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