

Abstract Submitted  
for the MAR17 Meeting of  
The American Physical Society

**Assembly and Conformation of PNIPAM and Molecular Analogs Below the LCST** XIAOLONG LANG, MICHAEL J. A. HORE, Case Western Reserve University — Poly(alkyl acrylamides), most notably poly(N-isopropylacrylamide) (PNIPAM), are widely studied thermoresponsive polymers. Linear PNIPAM, poly (N-n-propylacrylamide) (PNnPAM) and poly (N-cyclopropylacrylamide) (PNCpAM) were synthesized via RAFT polymerization to obtain polymers with varying end groups. The the polymers were studied with a combination of small-angle neutron scattering (SANS) and multi-angle (static) light scattering (MALS) to determine the influence of end group and monomer structure on assembly and conformation of the polymers in solution. Large scale clustering of the polymers is observed below the LCST, and as the terminal group became more hydrophobic, polymers formed micelles. These results are compared to 3- and 4-arm star-branched PNIPAM with similar end groups. The results indicate that, despite making up only a small fraction of the polymer, the terminal groups play a large role in both the conformation and assembly of PNIPAM and its analogs below the LCST. For star PNIPAM, changes to the structure of the polymer core led to distinct changes in the large scale clustering behavior of the polymer.

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Date submitted: 10 Nov 2016

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