

Abstract Submitted
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Rheology of Poly(*N*-isopropylacrylamide)-Clay Nanocomposite Hydrogels JACK LOMBARDI, DI XU, DIVYA BHATNAGAR, DILIP GER-SAPPE, JONATHAN SOKOLOV, MIRIAM RAFAILOVICH, Materials Science and Engineering Department, Stony Brook University, Stony Brook, NY 11790, USA — The stiffness of PNIPA Gels has been reported could be significant improved by gelation with clay fillers. Here we conducted systematic rheology study of synthesized PNIPA-Clay Composites at different clay concentration, in a range from fluid to strong gel, where G'' dominant changed to G' dominant. Molecular dynamics simulation was employed to analyze the structure of composites and corresponding mechanical changes with increased clays. Where we found viscoelastic behavior become significant only 1.5 times above percolation threshold. The yield stress extrapolated from our rheology results shows good fitting to modified Mooney's theory of suspension viscosity.

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