

Abstract Submitted
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Design and Realization of Temperature-Responsive Polymers with Tunable Onset of Response EVANGELOS MANIAS, Penn State University — Temperature responsive polymers offer high potential for applications involving chemical sensing and/or stimuli-driven actuation, but their proliferation has been hampered by the inability to tailor by design the onset-point of their response. A systematic series of temperature-responsive polymers were designed, synthesized, and studied, and the onset of their T-response was tailored by design of their monomer. Their T-response was studied both for their water solutions, and when they were end-tethered on a surface. Thermodynamic considerations for the monomer design, afford the possibility to fine-tune the lower critical solution temperature (LCST) point, at values ranging from 5 to 70°C, in water. Solubility studies and phase diagrams will be presented for their aqueous solutions, whereas water contact angle, ellipsometry, and atomic force microscopy will be shown for end- grafted polymers.

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