

Abstract Submitted
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Formation and applications of multifunctional polymer brush gradients MICHAEL TOMLINSON, RAJENDRA BHAT, JASON STONE, JAN GENZER, NC State University, TAO WU, NIST — Surface confined polymer brushes prepared via surface-initiated controlled/living radical polymerization represent an effective way of tuning the physico-chemical properties of surfaces. We have recently developed methods leading to assemblies of surface-tethered polymers with continuously varying grafting density, molecular weight, and composition. We will demonstrate how these assembling concepts can be utilized to systematically study the performance of block copolymer polyampholyte brushes, comprising blocks of poly (dimethyl aminoethyl methacrylate) and poly(acrylic acid), on flat substrates. We also introduce a method of forming hydrophobic/hydrophilic polymer gradients by preparing poly (pentafluoro benzoyloxyethyl methacrylate)-block-poly(acrylic acid) polymer brushes. We will discuss how these amphiphilic surface-anchored polymer assemblies can be used to control transport of fluids on surfaces.

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