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**Surface Properties of Bottlebrush Copolymer Thin Films<sup>1</sup>** XI-

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Bottlebrush polymers are novel macromolecules with polymeric side-chains. Due to their large size and densely crowded side-chains, bottlebrush polymers are candidates for a number of potential applications, including rheological modifiers, drug-delivery vehicles, and polymeric photonics. However, the structural details of bottlebrush polymers in solution and in the bulk are poorly understood. For example, while the overall size of bottlebrush polymers has been measured, the polymer stiffness and side-chain conformation have not been quantified. Here, we present a study of the surface properties of well-defined bottlebrush polymer and copolymer thin films. Surface property measurements provide a method to investigate polymeric side-chain conformation and flexibility. Bottlebrush polymers with mixed and copolymer side-chains are prepared via living ring-opening metathesis polymerization of norbornene-functionalized macromonomers. Contact angle measurements, x-ray photoelectron spectroscopy, and atomic force microscopy measurements on bottlebrush polymer thin films show that polymeric side-chains have significant conformational flexibility and that bottlebrush polymers with mixed and copolymer side-chains can be used to prepare stimuli-responsive surfaces.

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