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Morphology and Surface Energy of a Si Containing Semifluorinated Di-block Copolymer Thin Films.[1] UMESH SHRESTHA, Clemson University, STEPHEN CLARSON, University of Cincinnati, DVORA PERAHIA, Clemson University — The structure and composition of an interface influence stability, adhesiveness and response to external stimuli of thin polymeric films. Incorporation of fluorine affects interfacial energy as well as thermal and chemical stability of the layers. The incompatibility between the fluorinated and non-fluorinated blocks induces segregation that leads to long range correlations where the tendency of the fluorine to migrate to interfaces impacts the surface tension of the films. Concurrently Si in a polymeric backbone enhances the flexibility of polymeric chains. Our previous studies of poly trifluoro propyl methyl siloxane-polystyrene thin films with SiF fraction 0.03-0.5 as a function of temperature have shown that the SiF block drives layering parallel to the surface of the diblock. Here in we report the structure and interfacial energies of SiF-PS in the plane of the films, as a function of the volume fraction of the SiF block obtained from Atomic Force microscopy and contact angle measurement studies.

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