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Interfacial segregation and micellization of hydrogen bonding copolymers MICHELLE LEFEBVRE, MURAT GUVENDIREN, MONICA OLVERA DE LA CRUZ, KENNETH SHULL, Department of Materials Science and Engineering, Northwestern University — An AB diblock copolymer in which A and B have unfavorable interactions will segregate to an interface between A and B homopolymers. The driving force for segregation is increased if the B homopolymer is replaced by a C homopolymer and B and C have favorable interactions. When copolymer accumulates at the interface, the preferred interfacial curvature changes as a function of the copolymer composition. This change in curvature leads to a variety of possible morphologies, including micelles, swollen micelles, or inverted micelles. To examine this effect we use a model system where A is polystyrene (PS), B is poly(4-hydroxystyrene) (PHS), and C is poly(2-vinylpyridine) (PVP), and the PHS and PVP can undergo hydrogen bonding. We measure the interfacial segregation of PS- PHS copolymers at an interface between PS and PVP using dynamic secondary ion mass spectrometry.

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