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**Understanding the surface chemistry of amphiphilic copolymer thin films in aqueous environments** HILDA BUSS, Univ of California - Berkeley, NATHANIEL LYND, JCAP - Lawrence Berkeley National Lab, RONALD ZUCKERMANN, MF - Lawrence Berkeley National Lab, ED KRAMER, Univ of California - Santa Barbara, RACHEL SEGALMAN, Univ of California - Berkeley — Controlling the surface chemistry of polymer coatings which are stable in aqueous environment is a complex problem which depends heavily on the hydrophobicity of the polymer. Poly(styrene)-*b*-(ethyleneoxide-*co*-allylglycidylether)-*b*-poly(styrene) [PS-*b*-(PEO-*co*-AGE)-*b*-PS] triblock copolymers functionalized at the pendant allyl groups with fluorinated moieties are a promising class of polymers for applications in antifouling coatings. These polymers gain their water stability from the PS blocks and their antifouling character from the PEO block. Surface active fluorinated groups are used to direct the surface chemistry of the film during annealing. However, the surface can rearrange or become damaged upon immersion in water. Near edge X-ray absorption fine structure spectroscopy (NEXAFS) of films after soaking in water shows that the surface composition as characterized by the PS and PEO content in the first 6 nm of the film is directly related to the relative sizes of the PS and the P(EO-*co*-AGE) blocks as well as the fluorine content.

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