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Effect of Chemical Oxidation on the Self-Assembly of Organometallic Block Copolymers HANY EITOUNI, NITASH BALSARA, UC Berkeley, LBNL — The thermodynamic interactions in ferrocenyldimethylsilane diblock copolymers were systematically adjusted by oxidation of the ferrocene moiety with silver nitrate and examined using small angle x-ray scattering and depolarized light scattering. The polymers retained microphase separated ordered structures upon oxidation and showed systematic changes in the location of the order-disorder transition as a function of ferrocenium nitrate content. The extent of oxidation can be controlled locally through electrochemical techniques and hence ordered and disordered regions can be maintained within a sample. By controlling the redox properties of the ferrocene moiety in the backbone of the polymer, we have provided a novel method of controlling microstructure and hence bulk properties.

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