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Polymer-polymer and hybrid clay-polymer complexes at liquid-liquid interfaces YUHAO WANG, SVETLANA SUKHISHVILI, Department of Chemistry, Chemical Biology and Biomedical Engineering, Hoboken, New Jersey 07030 — We report on polymer-polymer and hybrid clay-polymer complex formation at oil-water interfaces. The complexes were composed of poly(methacrylic acid) (PMAA) and poly(N-isopropylacrylamide) (PNIPAM) or PNIPAM modified Laponite (L@PN). Interfacial surface tension, confocal laser scanning microscopy (CLSM) and cryogenic scanning electron microscopy (cryo-SEM) measurements were performed at various ratios of complex components and as a function of solution pH. The results reveal that interfacial PNIPAM/PMAA and L@PN/PMAA complexes are significantly more stable across the pH scale than their solution counterparts, probably because of the suppressed ionization of PMAA at the oil-water interface. In addition, we will discuss the effect of interfacial complex formation on PMAA chain dynamics, as measured by fluorescence-correlation spectroscopy (FCS), and demonstrate the use of these systems to control emulsion stability via changes in solution pH or temperature.

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