Due to their attractive electrochemical properties (facile electron transfer, low oxidation potential, and two stable redox states), ferrocene-terminated organic monolayer films have been exploited for a variety of applications that include biosensing, molecular electronics, and electrochemically-switchable surfaces. The talk will describe work focused on using the molecular reorientation and surface-confined ion-pairing reaction that accompany electron transfer in self-assembled monolayers (SAMs) of ferrocenylalkanethiolates on gold for (i) micromechanical actuation and (ii) detection of the micellization of anionic surfactants in aqueous solution.