Poly(phenylacetylene)s with Pendant Sulfonamide Receptors for Anion Detection

Significance: Development of colorimetric sensors capable of detecting anions in aqueous medium is of great interest. In this paper, the authors describe the synthesis of a series of poly(phenylacetylene)s baring pendant sulfonamide side chains. The sulfonamide moiety is demonstrated to act as an anion receptor via a deprotonation mechanism, allowing sensing of anions in aqueous environment.

Comment: In this paper, the authors report a two-step protocol leading to a series of poly(phenylacetylene)s containing pendant sulfonamide moieties with electron-withdrawing or electron-donating substituents (2a–f). The obtained polymers showed varied PDIs (see Table above) in agreement with known rhodium-catalyzed polymerizations of acetylenes. They furthermore demonstrate the utility of these polymers as anion sensors. 2b showed clear red-shifted absorption upon addition of fluoride in mixed solvents with 20% water content.