

Electrochemical and Electro-optical Properties of an Ionic Conjugated Polymer, Poly(2-ethynylpyridinium-N-benzoylsulfonate)

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The electrooptical and electrochemical properties of a self-dopable ionic conjugated polyacetylene, poly(2-ethynylpyridinium-N-benzoylsulfonate) (PEPBS), were studied. The photoluminescence spectra of the polymer showed that the photoluminescence peak was located at 545 nm corresponding to the photon energy of 2.27 eV. The cyclic voltammograms of the polymer exhibited reversible electrochemical behaviors between the doped and undoped peaks. It was found from the dependence of the oxidation current density of the polymer on scan rate that the kinetics of the redox process was diffusion-controlled. The electrical conductivity of undoped PEPBS was  $5.7 \times 10^{-9}$  S/cm.