Synthesis and electrochemical properties of Ag/PEDOT anode materials

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PEDOT/Ag nanocomposites were prepared by polymerizing using cerium sulfate as an oxidant after completely mixing Ag(0) particles in THF solution with EDOT as monomer according to various ratios. Ag(0) particles in THF solution was synthesized by mixing silver acetate as metal precursor with t-BuONa in THF as stabilizer. The ratios of PEDOT to Ag(0) by weight percent were 10:0, 9:1, 7:3, 5:5 and 3:7, respectively. Ag nanoparticles were not only well-reduced as neutral state but also well-distributed as nanosize in PEDOT. The morphology of nanocomposites were investigated using X-ray diffraction (XRD), scanning electron microscopy (SEM) and XPS, and the electrochemical properties were examined.