

## Electrochemical and morphological characteristics of Sn(0)/PEDOT conducting polymer composite

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Sn(0) particles were synthesized by reducing Sn(OAc)<sub>3</sub> as metal precursor with NaH and t-BuONa in THF. Sn(0)/PEDOT conducting polymer composites were prepared by chemically polymerizing EDOT monomer using 0.1 M cerium sulfate solution. The ratios of PEDOT to Sn(0) by weight percent were 10:0, 7:3, 5:5, 3:7, and 0:10, respectively. Sn(0) nanoparticles were well distributed as the neutral state in PEDOT polymer chain. The morphological characteristics of Sn(0)/PEDOT conducting polymer composites were investigated using XRD, SEM, TEM, and XPS. The electrochemical properties of conducting polymer composites were executed by using CV, and impedance, and the cell was composed as a three-electrode system: Li metal reference, Li counter electrode and working electrode.