

**Characterization of Poly(3-octylthiophene)/Silver nanocomposites prepared by solution doping**, Pinter E, Fekete ZA, Berkesi O, Makra P, Patzko A, Visy C, JOURNAL OF PHYSICAL CHEMISTRY C, 111 (2007) 11872-11878.

**Abstract**

Poly(3-octylthiophene)/silver nanocomposites (P3OT/Ag) were prepared by impregnating the polymer powder in silver perchlorate salt solutions. The total silver content, up to 6 wt %, was determined by inductively coupled plasma atomic absorption spectroscopy (ICP-AAS). The electric conductivities of the composites were measured and correlated with the silver content. Conductivity increased by more than 5 orders of magnitude with silver doping. The incorporated silver was speciated by X-ray diffraction (XRD). Silver was found in the form of both Ag and AgCl, predominantly in metallic nanocrystallites. The size distribution of the nanoparticles, determined from transmission electron microscopy (TEM), was found to be bimodal with two maxima around 3 and 17 nm, correlating with the two forms of silver in the composite. Increased conductivity was interpreted by results obtained by photoacoustic Fourier transform infrared spectroscopy (PAS-FTIR). The observed large Seebeck coefficient of P3OT is promising from the point of view of thermoelectric application.