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Enhanced conductive property of Ag or SiO_2 nanoparticles incorporated Poly(*p*-phenylenevinylene)(PPV) nanocomposite films

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Polymer/nanoparticle composites have been increasingly studied because of their enhanced properties such as high luminescence, low drive voltage, high conductivity, enhanced mechanical property, UV-resistivity, and so on. However our understanding of the effects of nanoparticles on the performance of organic devices is far from complete because an exact role of nanoparticle in polymer composite is still disputable.

In this study, we made poly(p-phenylene vinylene) (PPV) nanohybrid films by incorporation of Ag or SiO_2 nanoparticles into the PPV. A possible interaction between nanoparticles was investigated and especially we focused whether there is a change in the interaction between SiO_2 or Ag nanoparticles and matrix or not. The surface morphology of the structure was observed by using an atomic force microscopy and the electrical property was measured using current-voltage measurements. The optical properties were also investigated by UV-vis spectroscopy.