



Poly(p-phenylene vinylene)/porous GaP composite materials

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Abstract

We report results obtained from physical characterization of thin composite films made by mixing poly(p-phenylene vinylene) (PPV) and porous gallium phosphide (GaP) particles with different GaP concentrations. Optical measurements including Raman, infrared and photoluminescence show that the GaP particles were progressively incorporated to the polymer film which fills the powder pores. The fabricated films possess properties of both materials with a weak contribution of GaP to the optical properties, the main interaction effect consists in a blue shift in the emission spectra of PPV. Diodes using composites as an active layer exhibit higher conductivity than that of PPV, leading to an enhancement of the light emission. The improvement in optical and electrical performance of the composite based light emitting diodes (LEDs) makes this new composite a good candidate for display applications.