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ELECTRICAL AND OPTICAL CHARACTERISTICS OF LIGHT EMITTING POLYMER NANOTUBE AND MATRIX POLYMER COMPOSITES

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The composites of π -conjugated poly (3-methylthiophene) (P3MT) nanotubes with poly (9-vinylcarbazole) (PVK) were prepared in the form of film. The P3MT nanotubes were synthesized through electrochemical polymerization method by using anodic aluminum oxide (Al_2O_3) nanoporous template.^[1] The formation and physical dimensions of P3MT nanotubes were measured by using scanning electron microscope, transmission electron microscope, and atomic force microscope. We synthesized the composites, in which the P3MT nanotubes were used as light emitting materials and PVK was used as matrix polymer. From Raman spectra and ultraviolet and visible absorption spectra, structural properties of composites were measured. Electrical and optical properties of the composites were measured in different weight ratios of P3MT/PVK.



Figure 1. SEM image of P3MT nanotubes

References

- [1] D. H. Park, B. H. Kim, M. G. Jang, K. Y. Bae, J. Joo, *Appl. Phys. Lett.* **86**, 113116 (2005)