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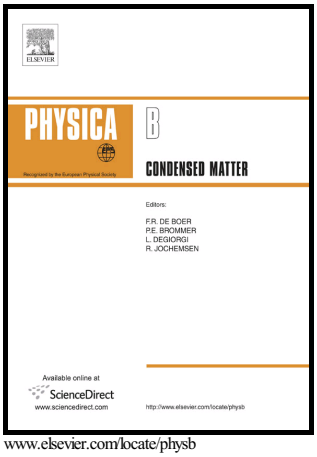

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Hybrid Electroluminescent Device Based on MEH-PPV and ZnO

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Highlights

-Manufacturing of organic/inorganic electroluminescent device based on MEH-PPV and ZnO has been reported.

-Two step processes have been used for synthesis of the ZnO, namely, spin coating for the seed layers and chemical bath deposition of ZnO.

- SEM images and X-ray diffraction of ZnO have been presented.

- current-voltage curves and electroluminescent measurements have been reported.

Abstract:

Hybird organic/inorganic electroluminescent device based on the structure of glass/ITO/PEDOT:PSS/MEH-PPV/ZnO/ZnO submicrorods/Al has been manufactured. Spin coating has been used to deposit both PEDOT:PSS and MEH-PPV. Two-step process has been used to synthesis ZnO submicrorods, namely, spin coating and chemical bath deposition. Changing the dimensions of the ZnO submicrorods in this layer structure has been investigated to improve the performance of the organic/inorganic electroluminescence device. Such layer structure provides electroluminescence with narrow emission bands due to a high gain with this structure. X-ray diffraction patterns and scanning electron microscope images show that ZnO submicrorods have hexagon structure. Current-voltage curve for the structure has been reported. Electroluminescence curves (electroluminescence intensity versus wavelength) at different bias voltages have been presented and these results show narrowing in full width at half maximum in the spectra at high current