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Field emission study of MWCNT/conducting polymer nanocomposite

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Abstract

MWCNTs/Polypyrrole nanocomposites were synthesized by solution mixing method. These synthesized nanocomposites were studied carefully by Raman Spectroscopy and Scanning Electron Microscopy measurements. The field emission study of MWCNTs/Polypyrrole nanocomposites were performed in diode arrangement under vacuum of the order of 10⁻⁵ Torr. The emission current under exploration depends on applied voltage. The prepared nanocomposites depict low turn-on held at 1.4 V/μm that reaches to a maximum emission current density 0.020 mA/cm² at 2.4 V/μm, which is calculated from the graph of current density (J) against the applied electric field (E) and from Fowler-Nordheim (F-N) plot. (C) 2014 Elsevier B.V. All rights reserved.

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