conferenceseries.com SciTechnol

J Nanomater Mol Nanotechnol 2018, Volume 7
DOI: 10.4172/2324-8777-C8-042

22nd International Conference on

Graphene, Carbon Nanotubes and Nanostructures

September 17-18, 2018 | Berlin, Germany

Nanoparticle decorated multi walled carbon nanotubes and nanocomposites: Next generation high intensity electron source

Santanu Ghosh
Indian Institute of Technology Delhi, India

We present here field emission (FE) properties of two types of nanostructured composite films, promising novel materials for third generation electron sources and displays: (i) nanoparticle decorated multi-walled carbon nanotubes (MWCNTs) and (ii) metal insulator nano composite thin-films. FE measurements were carried out in an indigenously developed high vacuum diode set up. The salient results obtained can be summarized as a significant improvement of FE current and temporal stability associated with an appreciable reduction in turn on field from metal nanoparticle decorated MWCNT films as compared to only MWCNT films: showing promises for electron guns, x-ray sources etc., and appreciable increase in FE current density with high mechanical durability in metal nanoparticle decorated composites: promising planar emitter for future flat-displays. The enhanced FE characteristics of these emitters are understood from combined experimental results, electronic structure first-principles based calculations study.

santanu1@physics.iitd.ac.in