

Field emission properties of carbon nanotube-cold cathode prepared by dip coating

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We have fabricated carbon nanotube (CNT)-cold cathodes using a dip coating process. In our study, chemical vapor deposition (CVD)-grown thin multi-walled carbon nanotubes (TMWNTs) were sonicated, centrifuged, and uniformly dispersed in various solutions such as Dimethyl formamide (DMF), 2-Propanol (IPA), and de-ionized water. Then, dip coating of TMWNTs was carried out on an indium-tin-oxides (ITO) glass. We have controlled the density of TMWNTs by monitoring the number of dipping times. Then, field enhancement factor, turn-on voltage, maximum current density, and life time of the cold cathode have been carefully examined upon the density of TMWNTs.

Keywords: Cold cathode; Carbon nanotubes; Dip-coating; Thin multi-walled carbon nanotubes.

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