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Field emission from carbon nanotubes prepared on the Ti/Si substrate using spray technique

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Field emission from carbon nanotube emitter fabricated on the Ti deposited silicon substrate by spray method was investigated. Purified SWNTs, and DWNTs were used as starting materials. they were sonicated in a alcohol solution during 4 days then were uniformly distributed on the Ti/Si substrate by spray method. In this work, the density of CNTs on the substrates can be controlled easily by adjusting spray numbers. As the spray numbers increased on the substrates, the turn-on voltage decreased while the emission current density increased. the emission properties of SWNT and DWNT emitters formed by spray method indicated good stability during 5 hours voltage apply. we also achieved uniform emission pattern using DWNT arrays on a large area Ti/Si substrate (4x8 cm²).