Davoud Dastan, J Nanomed Nanotechnol 2016, 7:2 (Suppl)
http://dx.doi.org/10.4172/2157-7439.C1.028

Electrical study of organic field effect transistors grown on flexible substrates

Davoud Dastan
Savitribai Phule Pune University, India

Organic field effect transistors (FET) have been prepared on flexible substrates. A gate dielectric layer consists of organic and inorganic composite materials have been used for the enhancement of electrical characteristics of the FET. Nano-particulates titania were embedded into poly vinyl alcohol (PVA) and ammonium dichromate. The cross-linking of PVA with ammonium dichromate (PVA-ad) was performed with the exposure of ultraviolet (UV) irradiation. The solution of PVAad+TiO2 was spun onto rigid substrates. The gold contacts were made using thermal evaporation on top of the samples. In order to measure the electrical features of FET's, an active layer of copper phthalo-cyanine (CuPc6) was deposited andthe output characteristics of the devices were investigated using semiconductor parameter analyzer. The surface morphology of the prepared FET's was studied by means of Atomic Force Microscopic (AFM).The output characteristics results of devices exposed to UV light revealed higher mobility, on/off ratio, and threshold voltage with respect to the pristine samples.Moreover, devices with PVAad+TiO2 as gate dielectric exhibited better electrical performance compared to those with PVA-ad as gate dielectric. The AFM images illustrated higher surface roughness for irradiated devices. Additionally, granular and uniform morphology with grain sizes in the range of 20-50 nm were observed for FET devices.

Biography

Davoud Dastan has completed his MSc from Savitribai Phule Pune University and is currently a PhD student in the same University. He has published more than 15 papers in reputed journals and also participated in more than 30 international conferences.

d.dastan@yahoo.com

Notes: