**Structural and Optoelectronic Properties optimization of small molecule DH6T over different Surface Energy thin films of PVP**

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Abstract*:* All organic transistors (OFETs) are the future of modern electronics. Small molecule based OFETs shows superior performance over the polymer based OFETs owing to their well-ordered and more crystalline film formation capabilities.DH6T small molecule thin films were thermally evaporated on the polymeric dielectric PVP thin films having different surface energies. As growth of small molecules, affects various optoelectronic properties of the fabricated device, and can be altered by changing the surface energy of underlying dielectric film. AFM study of ITO/PVP/DH6T structure suggested that grain size is larger on the polymer surface with higher surface energy. Further XRD results revealed that crystallinity is more in the DH6T thin films grown on the polymer films with higher surface energy. It was shown by photoluminescence studies that smaller grain sizes with lower crystallinity corresponds to more quenching of PL spectra of DH6T thin films grown on the lower surface energy dielectric thin films.

Keywords: Polymer Dielectric; DH6T; Small Molecule; PL quenching; Crystalline

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**References:**

1. Emanuele Orgiu , Simone Locci, Beatrice Fraboni, Erika Scavetta, Paolo Lugli Annalisa Bonfiglio, Org. Electron. 12 (2011) 477
2. Chao Wang, Wen-Ya Lee, Reina Nakajima, Jianguo Mei, Do Hwan Kim, and Zhenan Bao Chem. Mater. 25 (2013) 4806