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Morphological Characteristic of Hybrid Thin Films

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Abstract : Currently, organic-inorganic hybrid thin films have attracted researchers to explore them, where these thin films can give a lot of benefits. Hybrid thin films are thin films that consist of inorganic and organic materials. Inorganic and organic materials give high efficiency and low manufacturing cost in some applications such as solar cells application, furthermore, organic materials are environment-friendly. In this study, poly (3-hexylthiophene) was choosing as organic material which combined with inorganic nanoparticles, Cadmium Sulfide (CdS) quantum dots. Samples were prepared using new technique, Angle Lifting Deposition (ALD) at different weight percentage. All prepared samples were then characterized by Field Emission Scanning Electron Microscopy (FESEM) with Energy-dispersive X-ray spectroscopy (EDX) and Atomic Force Microscopy (AFM) to study surface of samples and determine their surface roughness. Results show that these inorganic nanoparticles have affected the surface of samples and surface roughness of samples increased due to increasing of weight percentage of CdS in the thin films samples.

Keywords : AFM, CdS, FESEM-EDX, hybrid thin films, P3HT
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