

Abstract Submitted
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Copper Phthalocyanine Crystal Growth Dependence on Gold Substrate Roughness¹ ERIKA ESCOBAR, THOMAS GREDIG, CSULB — Copper phthalocyanine (CuPc) thin films play an important role in the design of various electronics, such as gas sensors and photovoltaic devices. CuPc thin films of thickness 30 nm were deposited on gold-coated silicon substrates with two different deposition temperatures to vary the crystal size of copper phthalocyanine. The roughness of gold is modified using different thicknesses of gold. X-ray diffraction in Bragg-Brentano configuration was used to determine the crystal structure of the CuPc thin films. A dominant peak at the d-spacing of 1.3 nm suggests that the planar molecules are standing upright on the substrate. This peak diminishes for CuPc thin films deposited at higher growth temperatures and thicker gold films. For this group of thin films, a new peak corresponding to a d-spacing of 3.1 nm still manifests crystal growth, but suggests that the planar molecule is growing flat. The data therefore suggests that CuPc crystals can grow on gold surfaces with the b-axis aligned either parallel or perpendicular depending on the substrate roughness.

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