

Abstract Submitted
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Scanning Probe Microscopic Characterization of Electronic Properties of Self-Assembled Organic Monolayers on Au Surface GOVIND MALLICK, SHASHI KARNA, US Army Research Laboratory — The surface ordering and electronic properties of σ -bonded 1-dodecanethiol molecules and a series of π -bonded molecules of comparable length self-assembled on Au-on-mica surface have been studied by atomic force and scanning tunneling microscopic measurements. The molecular-level surface-probe microscopic images show a higher degree of ordering in the monolayers of σ -bonded molecule compared to that of the conjugated π molecules. This is explained in terms of a larger molecular volume and intermolecular repulsion in the later than the former. Electronic measurements reveal, as expected, a higher tunnel current in the π -bonded molecules compared to σ -bonded molecules.

Govind Mallick
US Army Research Laboratory

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