

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Scanning Tunneling Microscopy and Spectroscopy Studies of a Model Organic Spintronic Interface: Alq3 on Cr(001) ZHENGANG WANG, ALEX PRONSCHINSKE, DANIEL DOUGHERTY, NC State University, SURFACE SCIENCE TEAM — Scanning tunneling microscopy was used to observe coverage-dependent structure during growth of the first monolayer of Alq3 on a Cr(001) surface. No long range molecular ordering is observed, though molecules tend to form randomly oriented chain-like aggregates even at the lowest coverages. This illustrates that the well-known amorphous nature of Alq3 films begins even in the first layer, but that the disorder in films have subtle local correlations relevant to electronic and spintronic device modeling. Scanning tunneling spectroscopy was used to locate the LUMO-derived transport state above the Fermi level and correlate its position with local film structure.

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Date submitted: 18 Nov 2010

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