Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Temperature effect on structure of copper phthalocyanine thin films KEDAR MANANDHAR, KENNETH PARK, Baylor University, ZHEN SONG, TANHONG CAI, JAN HRBEK, Brookhaven National Laboratory — In situ deposited heteroepitaxial thin films of copper phthalocyanine (CuPc) on Ag(111) surfaces have been investigated by scanning tunneling microscopy. The molecules lay flat on the substrate forming a well ordered closed pack square lattice. A lattice vector of ordered film makes $4^0 \pm 0.5^0$with [0-11] direction of Ag (111) lattice. The lattice vectors of the overlayer have been measured 14Åx14Å corresponding to the surface molecular density of 5.10 x 10^{13}molecules/cm^2. The close packed square lattice remains highly ordered when annealed up to 500^0K. However further annealing of film to $\sim 700^0$K desorbs 75 % of molecules leaving submonolayers coverage of molecules. The remaining molecules aggregate to form dendrite like form, which appears to result from dimerization and polymerization. Molecular orientation in well ordered film, structural change of molecules in dendrite like form, and further discussion of temperature effects on CuPc thin films will be presented.

Kedar Manandhar
Baylor University

Date submitted: 22 Dec 2005 Electronic form version 1.4