Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Coupling of Cobalt-Tetraphenylporphyrin Molecules in Copper Nitride Molecular Network VINICIUS CLAUDIO ZOLDAN, Laboratório de Filmes Finos e Superfícies, Universidade Federal de Santa Catarina, CHUNLEI GAO, Max Planck Institute of Microstructure Physics, Halle, Germany, RICARDO FACCIO, Cryssmat-Lab and Centro NanoMat, Facultad de Química, Universidad de la República, Montevideo, Uruguay, ANDRÉ AVELINO PASA, Laboratório de Filmes Finos e Superfícies, Universidade Federal de Santa Catarina — We have used low temperature scanning tunneling microscopy to study the interaction between individual cobalt-tetraphenylporphyrin molecules and a molecular copper nitride network. We demonstrated that the molecular Cu_3N-Cu(110) network promotes the decoupling of the porphiryn, allowing to visualize the molecular orbitals and vibronic states of the molecule, while keeping a strong coupling of the Co atom in the center of macrocycle with the substrate. The reverse behavior was observed when the molecule was sitting on the Cu(110) metallic surface. First principle calculations confirm the assembled position of the molecule on top of N atoms and the decoupling from the surface.

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Date submitted: 06 Dec 2011 Electronic form version 1.4