Ordering of CN species on copper (001) B.J. HINCH, E.Z. CIFTI-LIKLI, I.G. SHUTTLEWORTH, S.E. SYSOEV, A. V. ERMAKOV — Work function measurements during the adsorption of cyanogen (NCCN) on Cu(001) imply a dissociative adsorption of CN species over 130K. Helium atom reflectivity also indicates uptake of the radical species up to exposures of approximately 4 Langmuir, and also the onset of a weak ordering phenomena as adsorption temperatures exceed ~ 240K. At 260K quasi hexagonal c(6x10) superstructures are observed with helium diffraction. At least two exposure ranges are observed with differing c(6x10) superstructure diffraction peak intensity ratios. The saturated phase shows strong long range ordering but also an intense diffuse scattering component. Inelastic scattering studies indicate a marked multiphonon scattering component to the diffuse intensity, and an absence of single phonon excitation features. Models for this simultaneously ordered/disordered surface will be discussed. The thermal stability of the CN superstructures will also be addressed.

B.J. Hinch
Rutgers University

Date submitted: 01 Dec 2004