

Abstract Submitted  
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**Ordering and Dynamics of  $\text{CN}^-/\text{Cu}(001)$  Surfaces<sup>1</sup>** ERKAN CIFTLIKLI, IAN SHUTTLEWORTH, ALEXEI ERMAKOV, JANE HINCH, Department of Chemistry and Chemical Biology, Rutgers University, NJ 08854. —  $\text{C}_2\text{N}_2$  adsorption on  $\text{Cu}(001)$  is largely dissociative, yielding adsorbed  $\text{CN}^-$  species. Exposure dependent angular-resolved Helium Atom Scattering (HAS) measurements show the initial development of a diffuse backscattered intensity, followed by the onset of  $c(10 \times 6)$  superstructure domain growth only in a limited exposure temperature range. Diffraction from an ordered phase is not observed for exposures above 323K, nor below 223K. Yet, even at optimal deposition temperatures, a diffuse scattering contribution remains at saturation and persists beyond 473K. Energy and angular resolved measurements show that the diffuse He intensity is strongly inelastic, and multiphonon-like; i.e. not showing features with resolvable discrete energies. The surface temperature and momentum exchange dependencies of this intensity will elaborate the nature of the dynamics of  $\text{CN}^-$  on  $\text{Cu}(001)$  surfaces. The  $\text{CN}^-$  coverage dependence of the inelastic intensity also illustrates the influence of intermolecular interactions in  $\text{CN}^-$  motion.

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