Abstract Submitted for the MAR06 Meeting of The American Physical Society

Structure and Charge Density Waves of K0.3MoO3 (blue bronze) (20-1) Surfaces by Variable Temperature STM MAXIM NIKIFOROV, University of Pennsylvania, ABDEL ISAKOVIC, Cornell University, ROBERT THORNE, Cornell University, DAWN BONNELL, University of Pennsylvania — Scanning Tunneling Microscopy has been used extensively in the study of charge density waves in hexagonal compounds such as NbSe2,  $\alpha$ -TaSe2,  $\alpha$ -TaSe2, NbSe3 etc. A limited number of studies have been done of the surfaces of K0.3MoO3 (blue bronze), a monoclinic compound. To date, charge density waves on blue bronze have not been imaged by STM. In this work we demonstrate unit cell spatial resolution on the blue bronze (20-1) surface at room temperature and at 110K. The contrast in images obtained at room temperature is attributed to the surface atomic structure. The role of the tip atom in the contrast formation is demonstrated by comparison of three different images of the (20-1) surface of K0.3MoO3. At low temperatures charge density waves are superimposed on the unit cell resolution pattern. To the best of our knowledge this is the first observation of charge density waves on blue bronze by STM.

> Maxim Nikiforov University of Pennsylvania

Date submitted: 30 Nov 2005

Electronic form version 1.4