Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Adsorption of NH_3 on Si(001) and Bi nanolines JAMES OWEN, DAVID BOWLER, ICYS, National Institute for Materials Science, KAZUSHI MIKI, National Institute for Materials Science — Ammonia adsorbs dissociatively onto the Si(001) surface. Using scanning tunnelling microscopy(STM), we have identified the major and minor fragments that result and have found that adsorption is correlated along dimer rows. From our STM data we have determined the strength of the correlation between neighbouring adsorbates, and found that the direction of the correlation changes between 300K and 450K. We propose a reaction pathway based on the STM data and DFT modelling. The Bi nanoline is inert to adsorption of ammonia, and hence ammonia can be used to passivate the Si(001) surface.

James Owen
ICYS, National Institute for Materials Science

Date submitted: 21 Jan 2005 Electronic form version 1.4