Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

LEED Structure Factor analysis of ultra-thin Ag and Ti films on the crystalline Al(100) surface[1] M. KOPCZYK, W. PRIYANTHA, H. CHEN, Department of Physics, Montana State University, Bozeman, Montana 59717, USA, D. S. CHOI, Department of Physics, Kangwon National University, Chunchon, Kangondo 200-701, Korea, R. J. SMITH, Department of Physics, Montana State University, Bozeman, Montana 59717, USA — The surface structure for one monolayer of Ag deposited on the Al(100) surface at room temperature has been studied using low energy electron diffraction (LEED). The LEED pattern is analyzed using structure factor calculations to find the theoretical relative intensities of the LEED spots. From the LEED pattern, we infer that Ag on the Al(100) surface forms a quasi-hexagonal structure in a (5x1) coincidence lattice with the fcc-structure of the Al(100) substrate surface, i.e. the surface layer of Ag atoms is coincident with the Al(100) surface unit cell, having a repeat distance of 5 Al(100) interatomic spacings in the [110] direction. The LEED pattern shows a double-domain (5x1) structure with additional intensity in those spots corresponding to a (111) close-packed hexagonal layer. Study of an ultra-thin layer of Ti deposited on the Al(100) surface reveals a much simpler c(2x2) LEED pattern.

[1]This work was supported by the National Science Foundation, NSF Grant DMR 0516603

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Date submitted: 05 Dec 2006 Electronic form version 1.4