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Structure of an ultra-thin Ag film on the Al(100) surface[1] M. KOPCZYK, Montana State University, A. KAYANI, Montana State University, R.J. SMITH, Montana State University, D.S. CHOI, Kangwon National University, Chunchon, Korea — 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), ion scattering spectroscopy (ISS) and Rutherford backscattering spectroscopy (RBS). The Ag coverage was determined with RBS. We conclude that the Ag atoms form two domains of a buckled, quasi-hexagonal structure that is incommensurate 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. The analysis of the ISS results suggests that the heights of the adsorbed Ag atoms above the Al surface are not all the same, leading to the proposed buckling model. In addition, some Al atoms apparently move from the substrate up into the Ag adlayer.

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