

Abstract Submitted  
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**In situ x-ray scattering investigation of Ag/Si(111)7x7** YIYAO CHEN, M.W. GRAMLICH, S.T. HAYDEN, University of Missouri, Columbia, MO, M.C. TRINGIDIES, Ames Lab-USDOE, Iowa State University, Ames, Iowa, P.F. MICELI, University of Missouri, Columbia, MO — We have used in situ synchrotron x-ray scattering to investigate the growth of quantum-size-effect (QSE) Ag nanocrystals on Si(111)-7x7. The experiments explore the buried interface and the wetting layer as well as the interlayer spacings and the height distribution of the islands at different coverage and temperatures. The areal density of the wetting layer is found to be 30% of Ag(111) and it is located above the adatom layer at a sharp interface. As the coverage is varied, all Ag layer heights are observed in the height distribution except for 2 atomic layers (measured from the Si surface), which were negligible. The structure of the islands and wetting layer will be discussed in relation to recent work that questions whether Ag/Si(111) is a QSE system. Research funding is supported by NSF DMR-0706278. The experiments were performed at the Advanced Photon Source Sector 6 beam-line at Argonne National Laboratory, which is supported by the US-DOE through Ames Lab under Contract No. W-7405-Eng-82.

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