

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

In-situ x-ray scattering investigation of strain in thin-film morphological evolution of homoepitaxial Ag(001)¹ S. T. HAYDEN, University of Missouri - Columbia, C. KIM, Kyung Hee University, E. H. CONRAD, Georgia Institute of Technology, M. W. GRAMLICH, P. F. MICELI, University of Missouri - Columbia — Because it escapes detection in most experimental probes of surfaces, the role of strain during film growth has not been widely investigated. However, large strain fields arise from vacancy nano-clusters [C. Kim et al., APL **91**, 093131 (2007)] that can be incorporated during film growth at lower temperatures. It has also been suggested that extreme surface morphologies, resulting from a deposition flux at grazing angles, might lead to significant strain [Y. Shim et. al., PRL **101**, 11601 (2008)]. Because of its simultaneous sensitivity to both the surface and the subsurface, x-ray scattering is a particularly valuable technique for exploring the role of strain in epitaxial crystal growth. This talk will discuss our recent in-situ x-ray diffuse scattering and reflectivity measurements, performed at the Advanced Photon Source, which investigate the low temperature homoepitaxial growth of Ag(001).

¹Research funding is supported by NSF DMR-0706278. The MUCAT beamline is supported by US-DOE through Ames Lab.

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Date submitted: 18 Nov 2009

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