

Abstract Submitted
for the OSS14 Meeting of
The American Physical Society

Investigating the Epitaxial Nature of Copper Thin Films¹ LAURA CARPENTER, DENNIS KUHL, Marietta College — Research has shown that it is possible to grow thin metal films epitaxially on ordered Si substrates in low vacuum. Longiaru, Krastev, and Tobin demonstrated the epitaxial growth of Cu(100) at 10^{-5} Torr. Using a similar procedure, copper thin films were grown by the thermal evaporation on Si(100) substrates in Marietta College's surface science lab at 10^{-5} Torr. In this study the hydrofluoric acid (HF) etching time of the Si(100) was varied per growth to study its effect on copper's epitaxy. In situ resistance measurements were recorded, and θ - 2θ Bragg diffraction was used to examine the epitaxy normal to the surface after growth. The films ranged from 65 nm to 212 nm with HF etching times between 2 minutes and 10 minutes. The x-ray diffraction results failed to show epitaxy for these copper films.

¹This research was supported by the Rickey Endowment.

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Date submitted: 19 Mar 2014

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