

9th International Workshop on Electrodeposited Nanostructures

Surface and microstructural characterization of electrodeposited Cu films

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We are using focused ion-beam (FIB) milling and electron backscatter diffraction (EBSD) to study the microstructure of Cu films deposited from an acid sulphate electrolyte with and without trace chloride. We are interested in correlating the grain size measured by FIB and EBSD with the size of surface features measured by atomic force microscopy (AFM), and present a novel method of getting depth dependent grain size information from an electrodeposited film. We also present a new method of analyzing surface orientation based on AFM data, and show that the interpretation of anomalous surface roughness scaling [1] in terms of the aspect ratio of surface features increasing is a reasonable one.

References:

[1] M. C. Lafouresse, P. J. Heard, and W. Schwarzacher, Phys. Rev. Lett. **98**, 236101 (2007).