

Abstract Submitted  
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**Area Determination of Electrodeposited Ni, Co, and NiCo Thin Films**<sup>1</sup> MATTHEW GIRA, KEVIN TKACZ<sup>2</sup>, JENNIFER HAMPTON, Hope College — The surface area of electrodeposited thin films of Ni, Co, and NiCo was evaluated using electrochemical double-layer capacitance, electrochemical area measurements using the  $[\text{Ru}(\text{NH}_3)_6]^{3+}/[\text{Ru}(\text{NH}_3)_6]^{2+}$  redox couple, and topographic atomic force microscopy (AFM) imaging. The methods were compared to each other for each composition separately and for all the samples regardless of composition. Double-layer capacitance measurements were found to be positively correlated to the roughness factors determined by AFM topography. Electrochemical area measurements were less correlated with measured roughness factors and applicable only to two of the three compositions studied. The results indicate that *in situ* double-layer capacitance measurements are a practical, versatile technique for estimating the accessible surface area of a metal sample.

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