

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Magnetocaloric effect in heterostructures of $\text{Ni}_x\text{Cu}_{(1-x)}$ alloys¹
C.A. BAUER, P.B. JAYATHILAKA, R.V. RUPANI, D.D. BELYEA, CASEY W. MILLER, University of South Florida — We used 99.9% compound targets to co-sputter $\text{Ni}_x\text{Cu}_{(1-x)}$ thin film multilayers composed of sub-layers with differing alloying compositions on silicon and oxidized silicon substrates. Each system had a Ta underlayer and capping layer. XRD was used to determine structural properties, showing a (111) preferred orientation for all $\text{Ni}_x\text{Cu}_{(1-x)}$ layers. In-Plane XRD was used to check polycrystallinity. Energy-dispersive X-ray scattering is used to determine the relative concentrations of Nickel and Copper, with XRD data corroborating the EDX results from Vegard's law. The magnetic properties of the systems are characterized and the magnetic entropies are calculated near the relevant critical temperature.

¹Supported by NSF-CAREER.

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Date submitted: 23 Dec 2010

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