Abstract Submitted
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Novel Nanostructured Materials and Properties by Pulsed Laser Deposition JAGDISH NARAYAN, GOPINATH TRICHY, North Carolina State University — Pulsed laser deposition has been used to create novel nanostructured materials either as layered or nanodot structure. By controlling thin-film growth kinetics during island growth, we are able to create three-dimensional self-assembled nanodot structures of Ni and ordered L10 FePt in a given matrix. Epitaxial growth and Integration of Ni and FePt on Si(100) substrate was achieved via domain matching epitaxy which facilitated epitaxial growth across the misfit scale. Magnetic properties can be varied by controlling the orientation and coercivity higher than 1.2 Tesla achieved. These results on ordered L10 FePt will be compared with those Ni with practical implications of information storage (1,2). (1) H. Zhou, D. Kumar, A. Kvit, A. Tiwari, J. Narayan, J. Appl. Phys. 94, 4841 (2003). (2) G.R. Trichy, D. Chakraborti, J. Narayan, J. T. Prater, J. Phys. D: Appl. Phys 40, 7273 (2007).

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