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Magnetic switching behavior of magnetic multilayer deposited on nanospheres JIYEONG GU, RUSSELL GLEASON, XIAOYU ZOU, BRIAN FLORES, California State University, Long Beach — Magnetic properties of the nanostructure are determined by different aspects of the nanostructures, such as, size, shape, and curvature, since these affect the magnetic domain configurations and eventually contribute to the magnetic reversal mechanism. We prepared the monolayer of nanospheres on the Si substrate as a template and deposited magnetic layers on top of the nanospheres. The thickness of the magnetic layers on the nanospheres varies along the nanosphere surface (curved surface). If the layer thickness is much less than the nanosphere diameter the caps of material are isolated from each other. This will isolate magnetic domains and suppress magnetic exchange interaction between neighboring spheres. Magnetic switching behavior among samples with the same thickness of magnetic layer but deposited on the different substrates, either directly on Si substrate or nanospheres of different diameters, was studied by Magneto Optical Kerr Effect measurement. Magnetic switching behaviors of those samples were very different. Images of SEM, AFM, and MFM were taken to examine the morphology of these films. Also, we tried to model the magnetic switching behavior of the nanocap multilayer structure using micromagnetic simulations.

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