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Ferromagnetic Resonance in a Height Modulated Permalloy Film JOSEPH SKLENAR, Northwestern University, SEONGJAE LEE, Hanyang University, PHILLIP TUCCIARONE, University at Buffalo, ROK-JUN LEE, DANIEL TICE, IVAN NEVIRKOVETS, Northwestern University, OLLE HEINONEN, Argonne National Laboratory, JOHN KETTERSON, Northwestern University — We have performed ferromagnetic resonance experiments on permalloy films that are deposited on a colloidal crystal template. The colloidal crystal substrates we used consisted of polystyrene spheres that were hexagonally close packed with sphere diameter varying between 100-300 nm. On a single substrate only one sphere diameter was used. When sputtered onto the colloidal crystal the permalloy film is no longer uniform and obtains a periodic height modulated perturbation from the underlying spheres. When performing FMR experiments we varied the in-plane magnetic field and observed two main anisotropic modes with an angular dependence obeying an expected six-fold symmetry from the underlying perturbations. To explain the origin of these modes we will also present micromagnetic simulations.

> Joseph Sklenar Northwestern University

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