

Abstract Submitted
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Plasmon-induced magnetization of metallic nanostructures IGOR SMOLYANINOV, CHRISTOPHER DAVIS, University of Maryland, VERA SMOLYANINOVA, DAVID SCHAEFER, Towson University, JILL ELLIOTT, ANATOLY ZAYATS, The Queen's University of Belfast — Plasmon-induced magnetism of nanostructured metallic samples has been studied. Magnetic force microscopy measurements show that magnetization of a nanohole array can be achieved by illumination of the structure at the wavelengths corresponding to various surface plasmon excitations. This second-order nonlinear optical effect appears to affect propagation of light through an array of such nanoholes in a gold film as observed by spectroscopic measurements in external magnetic field. This effect can find applications in magneto-optical data storage and optical communication and computing.

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