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"Rectifying" reflection from a magnetic photonic crystal SHIYANG LIU, WANLI LU, ZHIFANG LIN, Fudan University, S.T. CHUI, University of Delaware — When an oscillating line source is placed in front of a special mirror consisting of an array of flat uniformly spaced ferrite rods, half of the image disappeared at some frequency. We believe that this comes from the coupling to photonic states of the magnetic surface plasmon band. These states exhibit giant circulations that only go in one direction due to time reversal symmetry breaking. Possible applications of this "rectifying" reflection include a robust one-way waveguide, a 90° beam bender and a beam splitter, which are shown to work even in the deep subwavelength scale.

> S.T. Chui University of Delaware

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