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Negative Refraction in a Raman Chiral System DANIEL SIKES, DENIZ YAVUZ, University of Wisconsin-Madison — We propose a new scheme to achieve negative refraction in an atomic system using laser-induced magnetoelectric cross-coupling. Our scheme uses a combination of one photon and Raman transitions to coherently drive the electric and magnetic responses for a probe beam according to a chiral approach for negative refraction. The energy level structure of this scheme has an advantage over other proposed schemes in that it does not require the existence of electric and magnetic dipole transitions at the same resonant frequency. This proposed scheme is a promising new approach to negative refraction at optical wavelengths with low absorption in an atomic system.

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