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Studies of Negative Refraction Without Absorption RENUKA RAJAPAKSE, University of Connecticut, SUSANNE YELIN, University of Connecticut, ITAMP — We study suitable systems for negative refractive index with minimal absorption. We suggest a modified level scheme of atoms, excitons or polar molecules to study negative refractive index without absorption. Quantum interference effects to suppress absorption and introduce negative refraction are discussed. The main limitations in systems introduced so far are the necessity of resonant electric and magnetic dipole transitions, and the necessity of very dense media. We suggest using four wave mixing and using a 'black box' system that would provide negative refraction for a range of optical frequencies while attempting to overcome the limitations discussed above.

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