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Angular resolution of orthogonal polarizations using inhomogeneous control field SHUBHRANGSHU DASGUPTA, PARDEEP KUMAR, Indian Institute of Technology Ropar — The control of propagation direction of light by another light through their interaction with the medium has created a new avenue of research, with a special focus on the beam deflection in a homogeneous medium subjected to external fields. The key requirement for such a deflection is the spatial modulation of the refractive index of the medium induced by an inhomogeneous field. Beam deflection has been previously studied inside a medium, where electromagnetically induced transparency (EIT) or active Raman gain (ARG) [C. Zhu *et. al.*, Phys. Rev. A **88**, 013841 (2013)] plays the crucial role. Here, we present a theoretical analysis to demonstrate the polarization-dependent light deflection of a weak probe field in a weakly birefringent medium in tripod configuration. We show that by changing the incidence angle of a control field as well as its transverse intensity profile, one can induce quite large (~ 100 mrad) angular divergence to different polarization components of the probe field. We identify that it is the coherent population oscillation (CPO) [S. Kumar *et. al.*, Phys. Rev. A **88**, 023852 (2013)] that leads to negligible absorption of the polarization components, contrary to the proposals which rely upon EIT and ARG.

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