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Electromagnetically-induced transparency using cylindrical vector beams FREDRIK FATEMI, GUY BEADIE, Naval Research Laboratory — Cylindrical vector beams (CVBs), which have an azimuthally varying polarization profile, are ideal for investigating polarization-dependent effects in a single measurement. In this work, we demonstrate EIT with a uniform pump field that is probed by the CVB in a warm vapor of Rb85. The CVB can be formed containing either all linear polarizations or all degrees of ellipticity. The presence of EIT is recorded by a CCD camera so that the effects of different polarizations can be distinguished simultaneously. The polarization dependence of EIT results in strong spatial modulation of the transmitted probe intensity. We discuss our technique for generating the CVBs, interpret the images based on the relevant coupling strengths, and discuss future CVB experiments and applications.

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