

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Broadband Wavelength Spanning Holographic Polymer Dispersed Liquid Crystals KASHMA RAI, SAMEET SHRIYAN, ADAM FONTECCHIO, Drexel University — Broadened interaction wavelength of holographic polymer dispersed liquid crystals (HPDLCs) have extensive applications in beam steering for instrument clusters, hyperspectral imaging, wavelength filtering and construction of lightweight optics. A novel simultaneous time and spatial multiplexing formation configuration is proposed here, to increase narrow wavelength reflecting notch to broad range wavelength spanning device. HPDLC films have electro-optic controllability by applying field. No moving parts, light weight, small footprint compared to prisms and lenses, high color purity make the broadband wavelength HPDLCs desirable for the above applications. Varying the incident laser beam exposure angles using motorized rotating stage, during formation is the key step here for their formation in a single medium. The fabricated broadband wavelength sensitive HPDLCs are characterized for the uniformity of the reflected peak and electro optic response. Their output wavefront is analyzed using wavefront analysis technique.

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Date submitted: 05 Dec 2007

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