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Electro-Optic Films for Transmission-Mode Wavelength Demultiplexing Applications KASHMA RAI, ANNA FOX, ADAM FONTECCHIO, Drexel University — Applications for a thin-film switchable wavelength sensing device include spectral detection of telecom signals as well as chemical or biological sample identification through absorption or emission spectroscopy. The proposed device consists of configurations of holographically formed polymer dispersed liquid crystal (H-PDLC) thin film gratings for transmission-mode spectral filtering. H-PDLC films have the unique ability to selectively transmit a particular wavelength as a function of bias applied across the film. The initial configuration includes a serial wavelength sensing device formed by stacking layers of H-PDLC films. A second configuration includes parallel sensing of the spectral content by fabrication of an H-PDLC grid within a single film. The films fabricated for this study were made of a thiolene based monomer syrup with grating notches formed in the near infrared. Results of both switchable wavelength sensing systems are compared and evaluated.

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