

Abstract Submitted  
for the MAR05 Meeting of  
The American Physical Society

**Electro-optic Modulation Using a DAST Single-crystal Film in a Fabry-Perot Cavity** S.P. KUTTY, M. THAKUR, Auburn University — In this paper, we report a multiple-pass electro-optic modulator using a single-crystal film of 4'-dimethylamino-N-methyl-4-stilbazolium tosylate (DAST) placed inside a Fabry-Perot cavity. The single-crystal film was prepared using the modified shear method. Electro-optic modulation was achieved at 633 nm using field-induced birefringence in the cross polarized geometry including the Fabry-Perot cavity. The modulation due to the electro-optic effect was recorded as a function of phase while the phase was controlled by moving one of the mirrors in the cavity. The observed modulation was high (80 percent) for a low field (0.5V/micron) applied along the charge transfer axis on the film. Similar modulation using the Fabry-Perot cavity with a lower modulation depth was observed involving electroabsorption at 633 nm. Electroabsorption in the DAST film has been recently reported [1]. These are important results considering applications in photonics. [1] "Electroabsorption in single-crystal film of a second-order optical material," R. K. Swamy, S. P. Kutty, J. Titus, S. Khatavkar, and M. Thakur, APL, Vol. 85, 4025, (2004).

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Date submitted: 06 Dec 2004

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