## Abstract Submitted for the OSF05 Meeting of The American Physical Society

Novel monomer-liquid crystal mixtures for homeotropically aligned, PSLC films with high optical contrast and fast response times LUANA TORTORA<sup>1</sup>, SABRINA MANFREDI, ROBERTA CASSANO, NEVIO PICCI, GIUSEPPE CHIDICHIMO, Department of Chemistry, University of Calabria, P. Bucci-15c, 87036 Rende (CS), ITALY — Composite systems consisting of polymers and low-molecular-weight liquid crystals have attracted increasing interest over the last years, opening a new field of liquid crystal science and technology research. Liquid crystal-polymer composites include standard polymer-dispersed liquid crystals (PDLCs) and polymer stabilized liquid crystals (PSLCs); macroscopically oriented PSLCs films, also defined as anisotropic gels, are of great interest for electro-optical applications [1-6]. They are prepared by in situ photo-polymerization of a liquid crystal monomer with reactive end groups in an oriented state, in the presence of a non reactive nematic liquid crystal. The orientation is induced by orientational layers applied to the cell surfaces, due to the presence of an electric or a magnetic field. In this work we present results on new liquid crystal-acrylate monomers mixtures used to realize homeotropically aligned polymer-stabilized liquid crystal films (PSLCs) with high transparency and fast electro-optical response times. A detailed investigation of the electro-optical performance and a morphological analysis were performed to explain the correlation between the polymerization condition, the matrix composition and the film properties. **References** [1] GAU-TIER, P., BRUNET, M., GRUPP, J., NOIREZ, L., and ANGLARET, E., 2003, Phys. Rew. E, 68, 011709. [2] KOSSYREV, P.A., QUI, J., PRIEZJEV, N.V., PELCOVITS, R.A., and CRAWFORD, G.P., 2002, Appl. Phys. Lett., 81, 2986. [3] Liquid Crystals in Complex Geometries, edited by G.P. Crawford and S. Zumer (Taylor and Francis, London, (1996) [4] HIKMET, R.A.M., and BOOTS, H.M.J., 1995, Phys. Rew. E, 51, 5824. [5] HIKMET, R.A.M., and HOWARD, R., 1993,
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