

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Dielectric Dispersion Effects in Liquid Crystals.¹ OLEG LAVRENTOVICH, Liquid Crystal Institute, Kent State University, YE YIN, MINGXIA GU, SERGIJ SHIYANOVSKII — As the switching speed in practical LC devices is pushed from the currently common 10 ms to sub-millisecond levels, it is important to take into account the effects associated with the finite rate with which the electric displacement changes in the external electric field. We discuss two important general consequences of the dielectric relaxation phenomenon: (1) Non-local time relationship between the electric displacement and the electric field [1]. In a quickly changing electric field, orientation of the liquid crystal depends not only on the instantaneous value of the electric field, but also on the previous values of the field and previous orientations of the material. (2) Dielectric heating. [1] Y. Yin, S.V. Shiyanovskii, A.B. Golovin, and O. D. Lavrentovich, *Phys. Rev. Lett.* **95**, 087801 (2005) .

¹Work partially supported by NSF DMR0315523

Oleg Lavrentovich
Liquid Crystal Institute, Kent State University

Date submitted: 30 Nov 2005

Electronic form version 1.4