

INFLUENCE OF LIGHT-BEAM CONFINEMENT
ON THE HYSTERESIS AT THE FRIEDERICKSZ
TRANSITION IN A NEMATIC LIQUID
CRYSTAL CELL

M.F. Ledney, O.S. Tarnavskyy

Physics Faculty,
Taras Shevchenko National University of Kyiv
(4, Prosp. Academician Glushkov, Kyiv 03680, Ukraine;
e-mail: Ledney@univ.kiev.ua)

S u m m a r y

The influence of the shape and the finite transverse size of an incident light beam on the hysteresis at the light-induced Friedericksz transition in a homeotropically oriented nematic liquid crystal cell has been considered. The cases of light beams confined in one and two dimensions have been examined. The orientational instability threshold and the jump of a director deviation angle at the transition, as well as their dependences on the transverse size of the incident light beam, were found in the regimes of incident light intensity growth and reduction. Conditions, under which the width of the hysteresis loop is maximal, have been determined.