Turkish Journal of Physics

Turkish Journal

of

Physics

Change of Birefringence in Dye-Doped Nematic Liquid Crystals Under Laser Illumination

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Keywords
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Abstract: Birefringence property of E7 nematic liquid crystal is investigated via voltage dependent transmittance spectrums. Measurements are performed at wavelength 632.8 nm, which is the absorbance peak of our sample including anthraquinone derivative Disperse Blue 14. Results of dye-doped samples are compared with those undoped for dark and laser illuminated cases. It was observed that birefringence is dependent on laser illumination for dye-doped samples, up to a threshold voltage after which it is constant.

Key Words: Dye-doped liquid crystals; Transmittance; Birefringence; Molecular reorientation

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Turk. J. Phys., **27**, (2003), 279-284.
Full text: pdf
Other articles published in the same issue: Turk. J. Phys.,vol.27,iss.4.