PHOTOINDUCED REORIENTATION OF LIGHT-ABSORBING LYOTROPIC CHROMONIC LIQUID CRYSTAL

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S u m m a r y

We report on the new effect of photoinduced reorientation of the director in a light-absorbing lyotropic chromonic liquid crystal (LCLC). The liquid crystal is formed by self-assembled stacks of plank-like molecules that absorb light polarized parallel to the molecular plane (and thus perpendicular to the stack axis and the director). A linearly polarized laser beam realigns the director toward the direction of its polarization. The angle of the director reorientation depends on the light intensity, exposure time, thickness of the cell, and angle α between the initial orientation of the director with respect to the laser polarization. The maximal reorientation effect is observed for $\alpha = 90^\circ$ and small cell thicknesses. The effect can also be observed when the LCLC material itself is not light-absorbing but contains a small amount of an additive with the chromonic type of molecules that absorb light. The aligning effect of linearly polarized light is observed also when the LCLC is irradiated while it is in the isotropic phase. We attribute the effect to the photoinduced surface adsorption-desorption of light-absorbing chromonic molecules.