

Abstract Submitted  
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**Nonphotochemical Laser Induced Nucleation From a Supercooled Thermotropic Liquid Crystal** XIAOYING SUN, BRUCE GARETZ, Polytechnic University, Brooklyn, MICHELE MOREIRA, PETER PALFFY-MUHORAY, Liquid Crystal Institute, KSU, POLYTECHNIC UNIVERSITY TEAM, LIQUID CRYSTAL INSTITUTE TEAM — A nonphotochemical laser induced phase transition was studied in a supercooled 4'-n-pentyl-4-cyanobiphenyl(5CB, also referred to as PCB and K15 ) liquid crystal system, using linearly polarized ps pulses from a Nd:YAG laser at a wavelength of 532nm. The result shows that light could induce nucleation from the metastable supercooled isotropic phase to the nematic phase in the case of a slow cooling rate and high laser intensity. The director of the induced nematic phase tends to align along the direction of polarization of the light. At the intensities used, there is no observable reorientation of the director once it is in the nematic phase. These experimental results are consistent with a mechanism based on optical Kerr alignment.

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