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Title:	Photoswitchable Bent-Core Nematic Liquid Crystals with Methylated Azobenzene Wing Exhibiting Optic-Field-Enhanced Fréedericksz Transition Effect
Authors:	Begum, N. (/jspui/browse?type=author&value=Begum%2C+N.) Kaur, Supreet (/jspui/browse?type=author&value=Kaur%2C+Supreet) Mohiuddin, G. (/jspui/browse?type=author&value=Mohiuddin%2C+G.) Pal, S.K. (/jspui/browse?type=author&value=Pal%2C+S.K.)
Keywords:	New series Molecules Unsymmetrical
Issue Date:	2019
Publisher:	American Chemical Society
Citation:	Journal of Physical Chemistry C
Abstract:	We have investigated two new series of unsymmetrical four-ring bent-core molecules with methylated azobenzene wings exhibiting nematic mesophase. The difference between the two series was in the relative position of the methyl ( $-CH_3$ ) substituent with respect to the azo ( $-N=N-$ ) linkage in the molecule. Single-crystal X-ray diffraction analysis unravels significant insights into the spatial molecular arrangement and molecular stacking interactions of these bent-core systems. The materials were able to show photoswitching behavior and photomasking effect in the liquid-crystalline state via nematic to isotropic (order to disorder) transition when illuminated with UV light. In solid state, the materials exhibit photochromism upon UV light exposure. One of the representative compounds (2/12) was studied to observe the optically enhanced Fréedericksz transition (FT) effect stimulated by UV light intensity. A prototype of phase grating has also been devised based upon the observed FT-enhanced effect that has a prospect in certain photonic devices of dynamic and reversible light manipulation.
Description:	Only IISERM authors are available in the record.
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