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材料物理和化学

蓝相液晶光电特性研究

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摘要：蓝相液晶由于其特有的扭曲双螺旋结构,具有快速响应特性与宏观上的光学各向同性。通过聚合物稳定的方法,可以提升其热稳定性,但是也导致了驱动性能下降,磁滞效应增强等问题。文章通过研究手性掺杂和聚合物网络对蓝相液晶材料体系的作用以及不同温度下的磁滞效应,探索蓝相液晶器件光电特性的影响因子,为改善蓝相液晶材料的光电特性提供理论上的支持。

关键词：蓝相液晶 手性掺杂 科尔常数 磁滞效应

Electro-Optic Property Research of Blue Phase Liquid Crystals

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Abstract: Blue phase liquid crystals (BPLCs) show fast response time and macroscopic optical isotropy due to their double twist cylinder structure. With polymer stabilization, the thermal stability of BPLCs can be improved dramatically. However, it induces some problems to the electro-optic properties of BPLCs material such as high driving voltage, hysteresis and so on. In this paper, different concentrations of chiral dopant, polymer network of the BPLC, and temperature effect are investigated to improve the electro-optic properties of BPLCs and analyze the mechanism that affect the electro-optic properties of the BPLCs device.

Keywords: blue phase liquid crystals Chiral dopant Kerr constant hysteresis

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