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材料物理和化学

HAN-IPS液晶盒的引流效应

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摘要：根据Erickson-Leslie流体动力学理论,研究了混合排列向列相-共面转换液晶盒的引流效应。在强锚定边界条件下,经过理论推导,得出液晶指向矢与流速的关系方程,进一步通过数值计算得出指向矢分布与时间的关系。发现引流效应加快了指向矢达到平衡态的速度,而且破坏了指向矢分布的瞬态对称性,特别在加电压的初始几毫秒这种现象非常明显。

关键词：混合排列向列相 共面转换 引流效应 指向矢分布

Backflow in HAN-IPS Liquid Crystal Cell

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Abstract: Based on the Erickson-Leslie continuum theory, the hybrid aligned nematic in-plane switching (HAN-IPS) liquid crystal cell is investigated with considering the backflow effect. The relation of liquid crystal director and flow velocity is obtained under the condition of strong surface anchoring. The results of computer simulation show that the backflow effect speeds up achieving equilibrium state and breaks the symmetry of the director configuration. The phenomenon is very obvious especially in the initial milliseconds after switching on the applied voltage.

Keywords: hybrid aligned nematic in-plane switching backflow effect distribution of director

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