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材料物理和化学

弯曲型向列相液晶研究进展

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摘要: 弯曲型向列相液晶是近年来新发现的一类具有特殊光电性能的液晶材料。这类液晶分子具有独特的弯曲形状, 表现出不同于棒状液晶的优良特性; 但这些弯曲型向列相液晶分子普遍存在着熔点高, 易出现宽温近晶相的问题。文章对以取代间苯二酚、萘环、噁二唑环等为中心环, 酯键、碳(氮)氮双键等为桥键的弯曲型向列相液晶化合物的分子结构、特性、研究进展以及侧位取代对液晶性能的影响做了简要概述。

关键词: 弯曲型 向列相 液晶

Progress of Bent-Core Nematic Liquid Crystals

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Abstract: The bent-core nematic liquid crystals discovered in recent years is a new kind of liquid crystals with special electro-optical property. The molecules have the unique bent shape, performing great characteristics which are different from rod-like liquid crystals. However, these molecules with bent-core nematic commonly have high melting point and wide temperature range of smectic phases. This paper overviews the current state of research in the field of bent-core nematic liquid crystals of molecular structures, properties and the research situation of bent-core molecules with nematic phases based on the substituted resorcinol, naphthalene, oxadiazole etc as the central units and ester group, C=N (N=N) etc as the bridge bonds, and the influence of lateral substitution on the liquid crystal behavior was given.

Keywords: bent-core nematic phases liquid crystal

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