

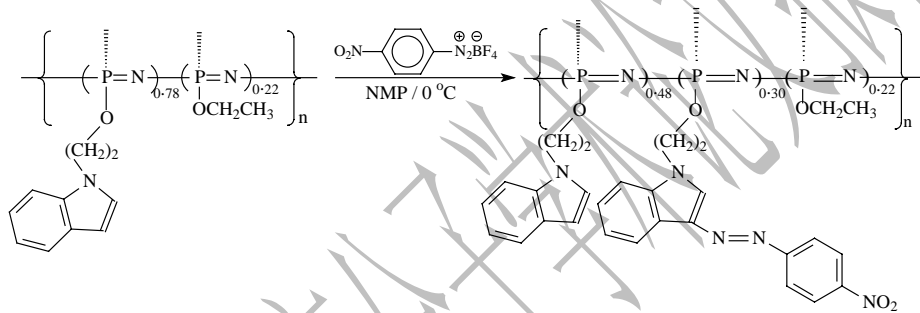
新型二阶非线性光学高分子材料的探索

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关键词: 二阶非线性光学, 合成, 构性关系

二阶非线性光学高分子材料(包括电光材料和光折变材料)由于在远程通讯、数据存储、相位共轭等方面具有巨大的应用前景,从而吸引了众多科学家的研究兴趣和热情。其中,结构明确、性能稳定的键合型高分子材料更是备受瞩目。而目前设计、合成键合型的二阶非线性光学高分子材料仍然具有较大的挑战性。在此,我们将汇报本研究组最近发展的合成新型二阶非线性光学高分子材料的几种新方法,并讨论其结构与性能之间的关系。其中一种高分子的结构如下:



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本组近期发表的部分相关论文:

1. Zhen Li, Cheng Huang, Jianli Hua, Jingui Qin*, Zhou Yang, Cheng Ye, *Macromolecules*, 2004, 37, 371-376.
2. Zhen Li, Jingui Qin*, Shaojun Li, Cheng Ye, Jie Luo, Yong Cao, *Macromolecules*, 2002, 35, 9232-5.
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5. Zhen Li, Jingui Qin*, Shaojun Li, Cheng Ye, *Synthetic Metals*, 2003, Vol.135-136, 467-468.
6. Zhen Li, Jingui Qin*, Zhou Yang, Cheng Ye, *Journal of Applied Polymer Science*, 2004, 94 (2): 769-774.
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New Second Order Nonlinear Optical Polymeric Materials

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In the past decades, second order nonlinear optical (NLO) polymers, including electro-optical (EO) and photorefractive (PR) polymers, have attracted much attention. Many NLO polymers were prepared and studied due to their potential applications in photonics such as holographic data storage, real-time image processing and optical switching. They possess a number of advantages (for example, the superior chemical flexibility, processability, and low cost) over single crystals.

While the traditional carbon-chain polymers have been studied more thoroughly and encountered some problems, polymers with inorganic backbones have attracted more and more interest recently due to their special properties and some advantages over the former ones. Herein, we would like to report our recent progress in the new NLO polymeric materials with inorganic backbones.