

**MOLECULAR TEMPLATE BY IMPRINTING OF LIQUID CRYSTAL ALIGNMENT ON
POLYMER LAYERS DURING PHOTO-POLYMERIZATION**

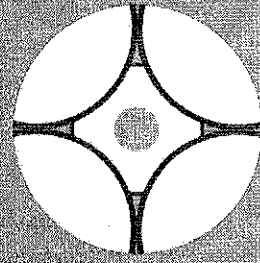
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The formation of highly oriented liquid crystals (LCs) is of great importance for a basic understanding of interfacial phenomena as well as device applications of LCs. A properly treated solid interface can be used effectively to align LCs in their mesophase. Rubbing is the most common method used in commercial mass production. It is believed that the oriented polymer chains at the surface by rubbing process act as a molecular template in aligning LC molecules. In this work, we developed a new alignment method using molecular template by imprinting of LC molecular alignment on polymer layers during photo-polymerization process. By application of electric field during UV exposure, the photopolymerized polymer chains are formed along the long molecular axis of LC aligned by the field. The aligned polymer chains align LC molecules after removing the field. Using this method, we successfully fabricated two-domain twisted nematic structures.

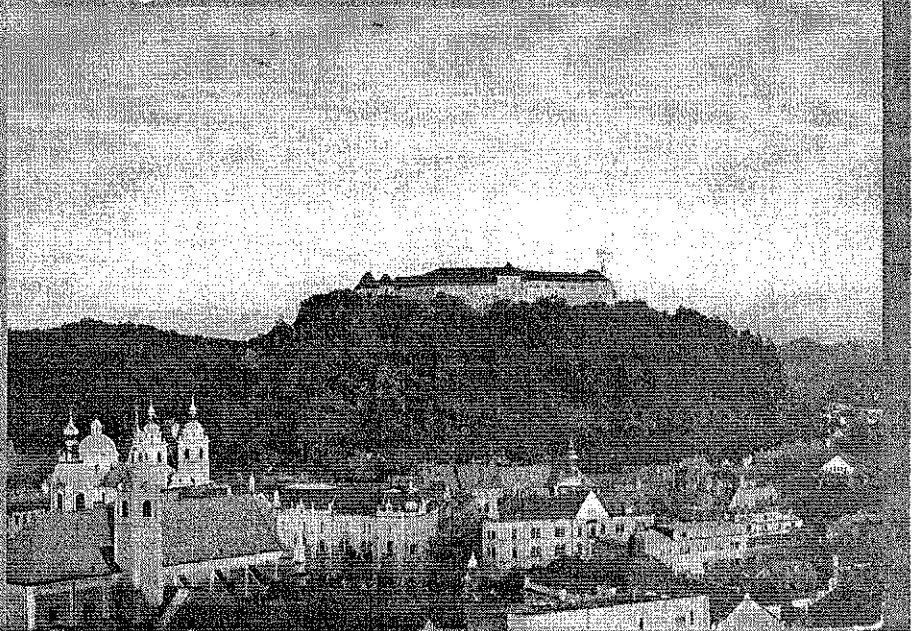
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