

Optical characterization of novel PDLC systems

By Petti, Lucia

Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | Thermo- and Electro-Optical Analysis of Polymer Dispersed Liquid Crystal systems | The objective of this research was to prepare PDLCs systems with improved liquid crystal/polymer composition for thermo- and electro-optical performance. Two thermosetting matrices based on an unsaturated polyester resin and a bifunctional epoxy resin, respectively, are employed to realise PDLCs. At a second step, different dopants are used in order to prepare dye-doped PDLC (D-PDLCs) epoxy based films. The dyes contribute to an increase in light absorption, thus reducing remarkably the power necessary to induce nonlinear optical effects. A complete optical, thermo-optical and electro-optical characterisation, a morphological study, and finally an analysis of some nonlinear optical effects in these materials is performed. A comparison of the optical properties between D-PDLCs and undoped PDLCs is presented. Linear and nonlinear effects occurring in these materials, such as self-transparency, thermally induced optical bistability and optically induced light modulation, are studied. This work confirms that PDLCs with optimised optical properties can be considered for the design of a range of different important optical devices. | Format: Paperback | Language/Sprache: english | 223 gr | 156 pp.





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