

Multifunctional thin films fabricated by the photopolymerization of uniaxially oriented lyotropic chromonic liquid crystal reactive monomers

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A multifunctional optical thin film (abbreviated as MOTF) from the newly designed and synthesized perylene-based reactive mesogen (abbreviated as PBRM) is fabricated by the simple coating with eco-friendly water solvents and subsequent photopolymerization at room temperature. [1,2] Based on the spectroscopic results combined with morphological observations, it is found that nematic liquid crystal (NLC) is aligned parallel to the molecular long axis of PBRM due to not only the physical anchoring and steric effects but also the chemical interactions between alignment layer and NLC molecules. From the electro-optical properties of LC test cells fabricated with the PBRM MOTF, it is clearly demonstrated that the PBRM MOTF can work as the planar LC alignment layer as well as the in-cell coatable polarizer. The coatable PBRM MOTF from lyotropic chromonic reactive mesogens can pave a new way for the flexible optoelectronic devices.

References

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Speaker Biography

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