

Supporting Information

Electric field-induced circularly polarised luminescence switching in chiral nematic liquid crystal with negative dielectric anisotropy

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Experimental

General methods

MBBA was purchased from Tokyo Chemical Industry Co., Ltd. (Tokyo, Japan). The indium tin oxide (ITO) cell and the devices (KSSZ-10/B107P1NSS05) required for electric field control were purchased from EHC Co., Ltd. (Tokyo, Japan).

Photoluminescence (PL) and circularly polarised luminescence (CPL) spectroscopic analyses of N*-LC-MBBA/CPDI

The PL and CPL spectra of the liquid crystal (LC) samples were recorded at 25 °C using a JASCO CPL-300 spectrofluoropolarimeter (Tokyo, Japan) at a scattering angle of 0°. The samples were excited using unpolarised monochromatic light. For the LC analysis, the excitation and emission bandwidths were set to 10 nm. The scan speed and photomultiplier tube time constant were set to 50 nm/min and 8 s, respectively, for voltage application, and to 200 nm/min and 2 s, respectively, for heating. The LC excitation wavelength was set to 480 nm. An electric field was applied using an ADCMT 6241A DC voltage/current source/monitor.

Characterisation of the LC textures

The optical textures of the LC phases were observed using an Olympus BX53 microscope (Tokyo, Japan) equipped with a high-tech hot stage. The LC materials were inserted into the ITO cell and the filled cells were observed using polarised optical microscopy under an applied electric field.