Multi-domain Alignment for Liquid Crystal by Replication of Directionally Polymerized Reactive Mesogen

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The reactive mesogen (RM) mixed on an alignment layer is aligned parallel to the molecular direction of the liquid crystal (LC) and the directionally polymerized RM exactly coincides with the LC directors.[1] Introducing the patterned electrode in a vertical alignment LC mode mixed with RM, the multi-domains were achieved by applying a voltage and the pretilts corresponding to the multi-domains were produced on the alignment layer by the directional polymerization of the RM through ultra-violet exposure.[2] Such alignment layer with the directional polymerized RM would act as a replication mold for generating the multi-domain alignments without complicated processes. Using such replicated stamp, we easily fabricate patterned alignment layer for the multi-domain alignment and demonstrate the multi-domain display devices.

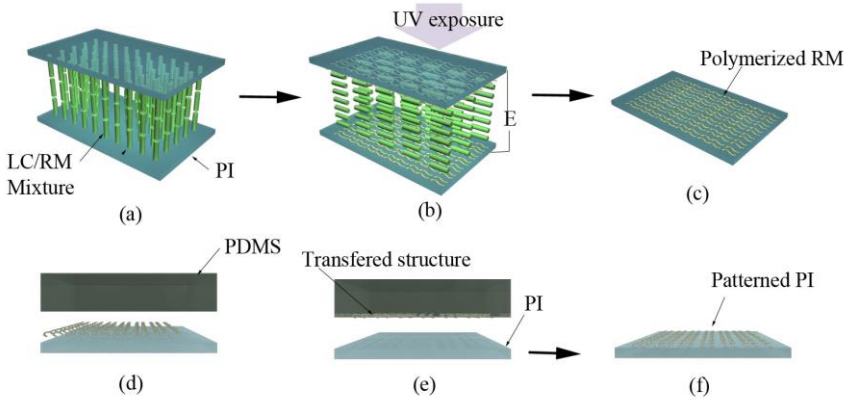

Figure 1. Fabrication process of the replication from the directionally polymerized RM.

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References:
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