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(57) Abstract :
The present disclosure provides a method (100) for nanoparticle film deposition facilitating preparation of vertically aligned liquid crystal display. The method (100) comprises steps of preparing a homogenous solution of nanoparticles dispersed in ethanol/deionized water, and filling in a confined volume of a cell with the homogenous solution. The method further includes steps of heating the homogenous solution at a predetermined temperature for a predetermined duration, evaporating the solvent completely and filling in the remaining unoccupied region of the cell with liquid crystal material. Physical interaction between the liquid crystals and the one or more layers of nanoparticles deposited on the Indium Tin Oxide coated glass substrates of the cell induce in spontaneous vertical alignment of the liquid crystals. The proposed method presents a time-saving, cost effective and scalable approach in fabrication of liquid crystal display that does not require complex surface treatment of the substrates and additional alignment layers.

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