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Modifying the interface structure between LC and polymer network to improve PDLC'S performance

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PDLC (polymer-dispersed liquid crystal) film can be switched from a scattering (haze) state to a transparent state (clear) by simple application of an alternating current field, leading to their promising applications as the light valves to construct the smart windows. Although there have many PDLC film products made by UV curing process, all of them have three key issues: (i) the weak adhesion between polymer networks with ITO surface; (ii) the high driving voltage; (iii) the narrow viewing angle. Therefore, in order to improve the quality of the practical PDLC film, the purposes of the present research work are to not only control the transmission and scattering by using the suitable components of monomers and LCs to form the suitable polymer network and LC droplets, but also use the UV curable reactive mesogen (RM) monomer to form the pretilt angle on the inside surface of polymer network to control LC director in the interface between LC and polymer network.

Biography:

Ruimao Hua has completed his PhD at Tokyo Instituted of Technology (Japan) in 1996, and he is now the professor of chemistry at Tsinghua University, Beijing, China.