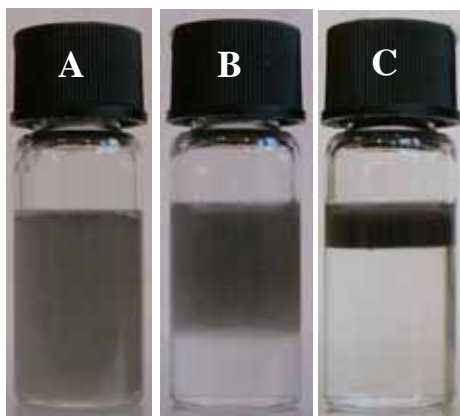
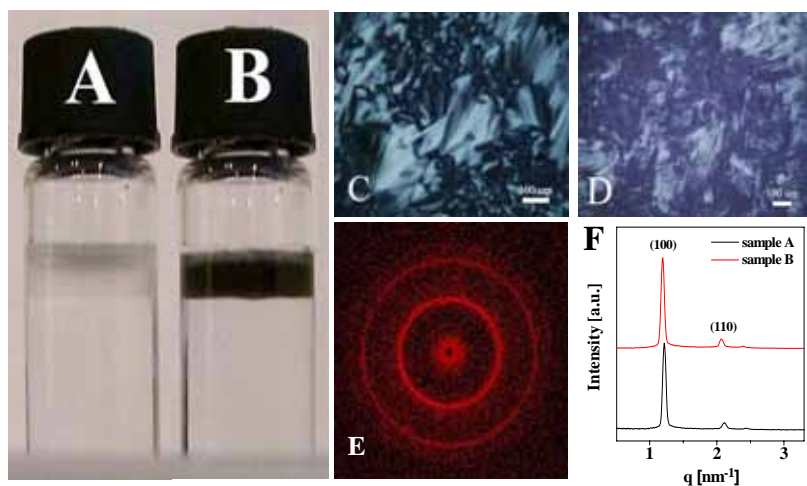


# Incorporation of CNTs into LLC phase induced by phase separation

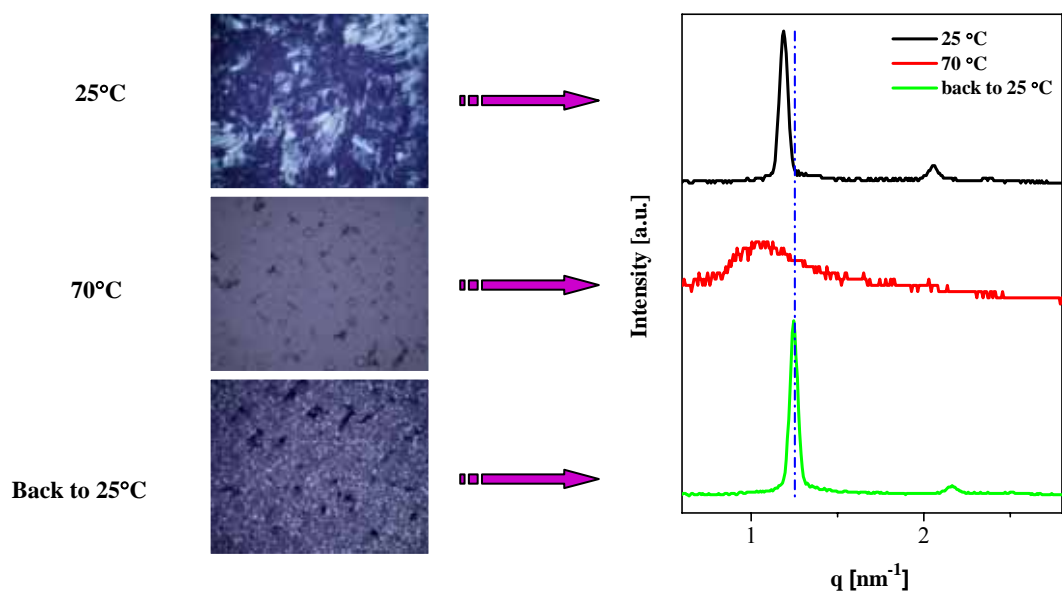
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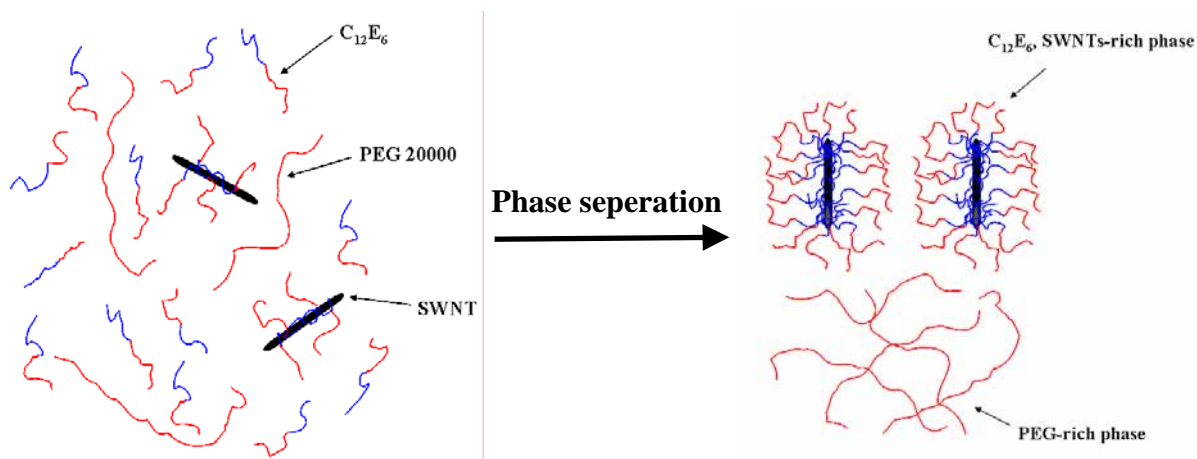
**Fig. 1** Phase separation process during preparation of CNTs/LLC hybrid. (A) Homogeneous solution after addition and dissolution of PEG to preformed CNTs dispersion. (B) Two hours after  $C_{12}E_6$  was added. (C) Final sample after phase separation.



**Fig. 2 Left:** 10 wt%  $C_{12}E_6$ /20 wt% PEG/ $H_2O$  system after phase separation without (A) and with (B) 0.05 wt% SWNTs incorporated. **Top right:** Typical polarized micrographs of the upper  $C_{12}E_6$ -condensed phase of sample A (C) and sample B (D) at 25°C. **Bottom right:** 2-D SAXS image of sample B (E) and SAXS diffraction patterns of sample A and B (F).



**Fig. 3** Typical polarized micrograph of the upper  $C_{12}E_6$ -condensed phase of sample B in Figure 2 after heating to 70 °C and then cooling back to 25°C and SAXS diffraction patterns of sample B in Figure 2 at 25°C (a) and heated to 70 °C (b) and then cooled back to 25°C (c).



**Scheme 1.** Schematic representation of the phase separation process in a four component mixture of the surfactant  $C_{12}E_6$ , PEG 20000, SWNTs and water.