

Study of Nano-Structural Arrangement in Supramolecular Liquid Crystals

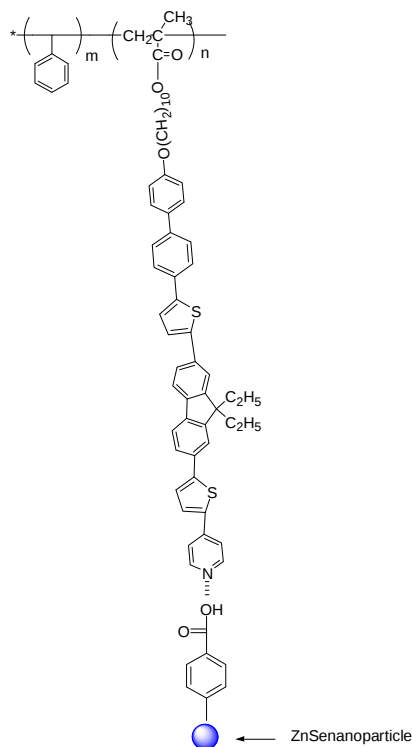
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We plan to investigate the optical property of the diblock copolymer by UV and PI spectroscopy. Focussing on the overlap of the UV and PI of the PF-Py and triphenylamine expected there is an energy transfer from triphenylamine to PF-Py. The T_g and the crystallization temp can be studied by DSC measurement. It is expected that the presence of the fluorine and triphenylamine will give electroluminescent property which can be studied with device fabrication (ITO/PEDOT: PSS/copolymer/Ca/Ag). In this we want to attract substantial attention to the microphase separation of the co-polymer with spatial assembly of ZnSe nanoparticle to the pyridine moiety, and hope to be a transfer of energy. The AFM and TEM will be used to study the phase separation and the morphology of the diblock copolymer. The ZnSe nanoparticle barrier on this copolymer interphase doesn't affect the property of the copolymer rather increase the thermal stability and the luminescent property.

annealing time and temp we can study the thermal stability of the copolymer. From the broadening of the peaks we can estimate the particle size.

In our polymer we expect individual's peak in the copolymer which is an indication of noninterference of individuals' property in copolymer. As the use of nanoparticle in polymer is concerned so there is need of study of features to investigate the particle size ZnSe crystal sizes (D) which can be obtained by using Scherrer's equation, $D = 0.89\lambda/(\beta\cos\theta)$, where λ is the X-ray wavelength ($0.775 \text{ \AA}$), β is the half-width of the diffraction peak, and θ is the Bragg diffraction angle. By calculating the XRD.



The anomalous dispersion when applied to the SAXS region, small-angle X-ray scattering (SAXS), contrast variation that is useful for the characterization of nanostructured materials. From XRD study by annealing at different temp it will show different inner and outer reflection which shows the phase separation and the intermolecular spacing respectively. Depending on the