

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Single molecule fluorescence investigates the heterogeneity of liquid crystal matrix. YU-TSU CHUANG, JUI-HUNG HSU, National Sun Yat-sen University — Liquid crystals are attracted for their existence of unique meso-phase between solid state and liquid state. We perform the single-molecule (SM) fluorescence investigation on the thermotropic liquid crystal matrix. Using the nm size fluorescent quantum dots as a probe, it allows us to investigate the local structural and dynamic heterogeneity in the liquid crystal matrix. Controlling the temperature allows us to probe how the local behaviors differ at different meso-phases. Fluorescence correlation spectroscopy (FCS) as well as the intensity time trace analysis indicate the much more heterogeneity in the liquid crystal phase than the other phases.

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Date submitted: 30 Nov 2005

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