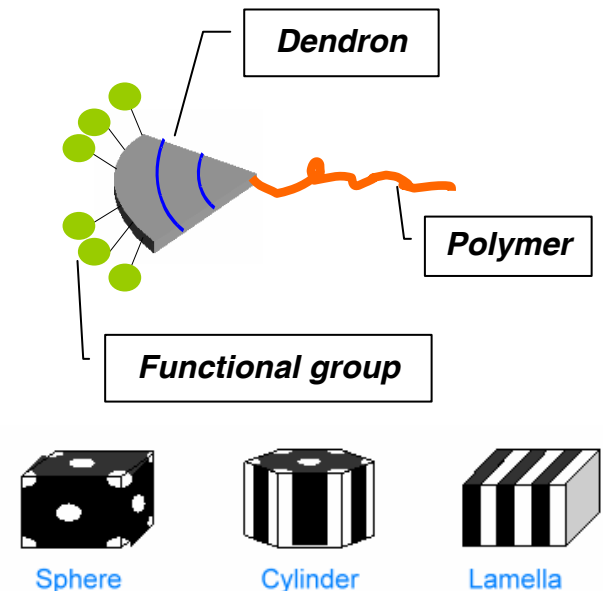


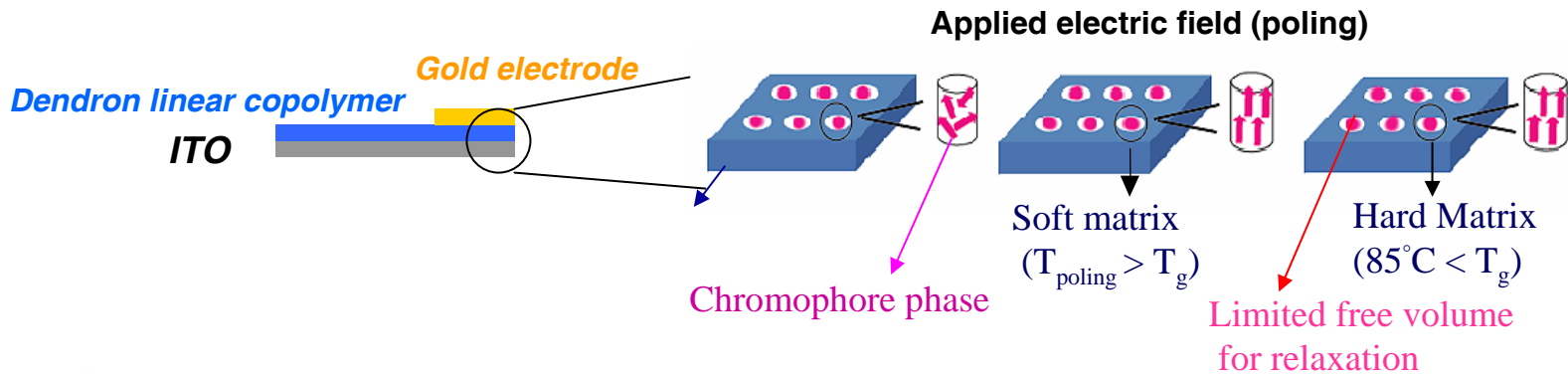
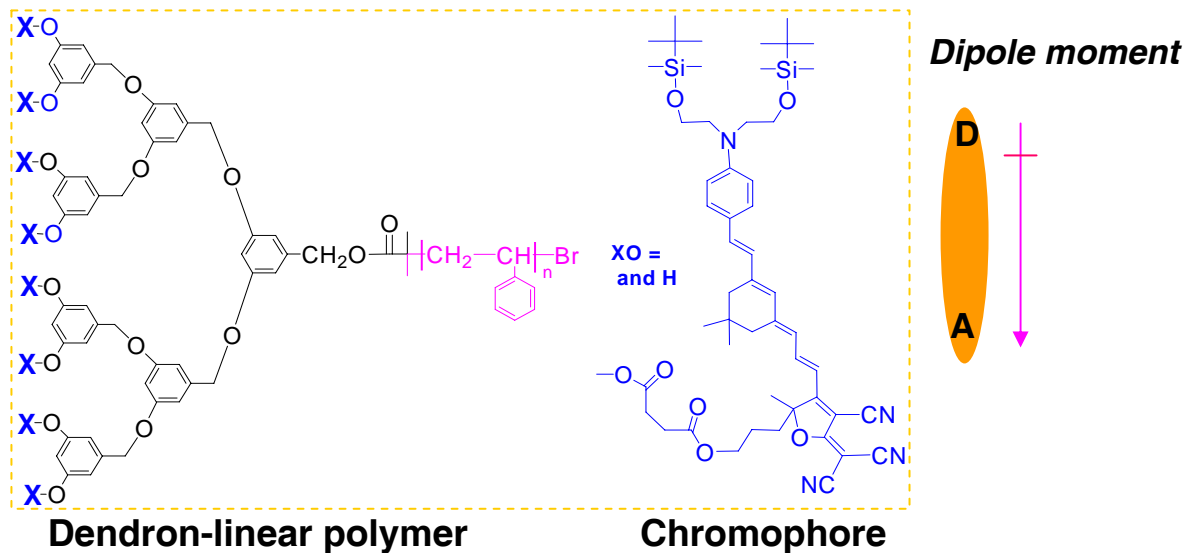
Novel Nanostructured Functional Dendron-linear Diblock Copolymers for Nanophotonics

Ching-Yi Chen
UIF Fellow
Materials Science & Engineering
March 2005

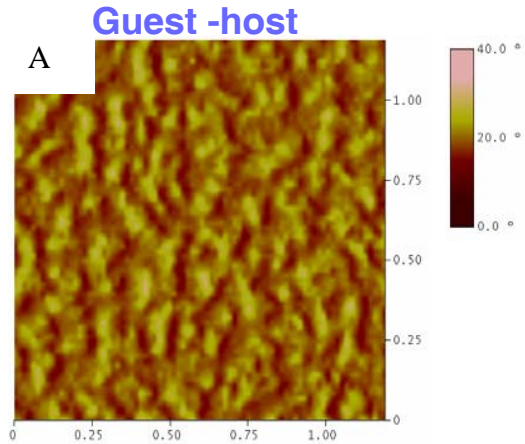
- Design and synthesize novel functional block copolymers as new generation electro-optical (E-O) materials
- Different dendron generations and different degrees of polymerization (n) for generating different shape and size of nanostructures
- Utilize the nanostructures from the block copolymers to enhance the E-O coefficient (r_{33}) and retain good thermal stability, simultaneously



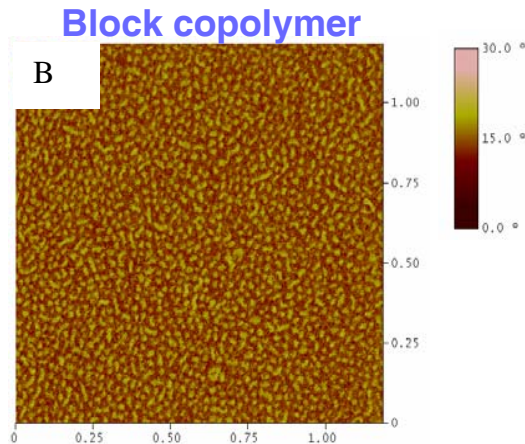
Research Approaches



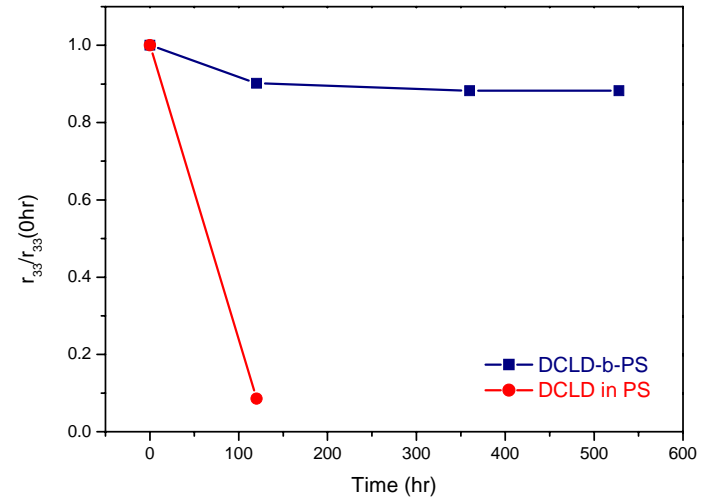
Accomplishments



Rough surface
Isolated chromophores



Smooth surface



Sample	η^a (%)	Poling temperature ($^{\circ}\text{C}$)	r_{33}^b (pm/V)	Holding time (h)	$r_{33}/r_{33}(0hr)$ (%)
DCLD- <i>b</i> -PS	14	125	56	528	88
DCLD in PS	14	90	37	120	8

^a Chromophore loading in weight fraction; ^b E-O coefficient was measured at $1.3 \mu\text{m}$ with an electric field of $125\text{V}/\mu\text{m}$

