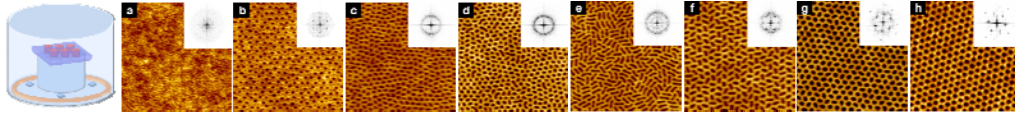


# Research in Prof. Russell's Group

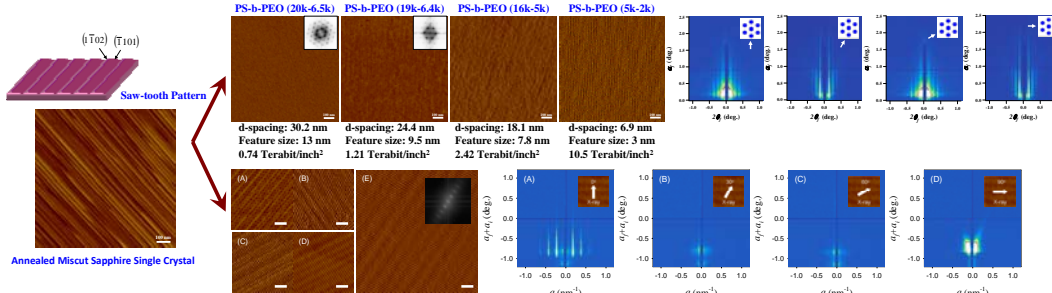
## Directed Polymer Self-assembly

### Long-range Order

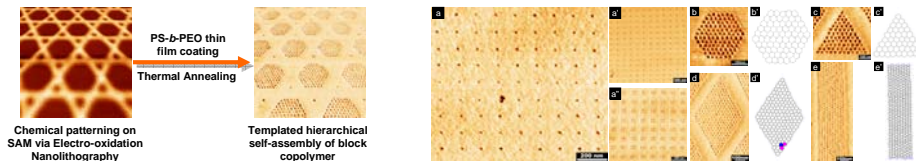
#### Solvent Induced Orientation and Ordering



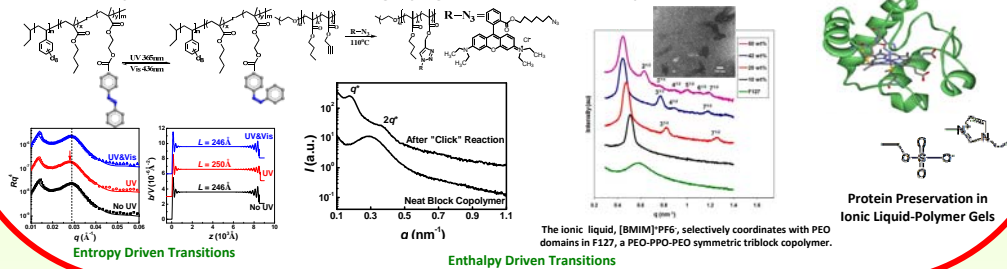
#### Topographic Surfaces



#### Chemically Heterogeneous Surfaces



#### Thermodynamics – Enhanced Ordering by light, heat, and ionic liquids



## Confinement in Polymer Films

### Confined Geometries

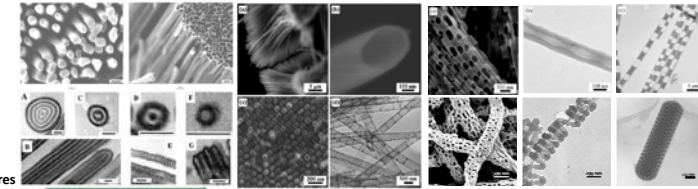
#### Homopolymers

- Chain Configuration
- Chain Dynamics
- Nanorods
- Gels

#### Polymer Mixtures

#### Block Copolymers

- Novel Morphologies
- Hierarchical Nanostructures



### Nanoparticles at Interfaces

#### Assembly

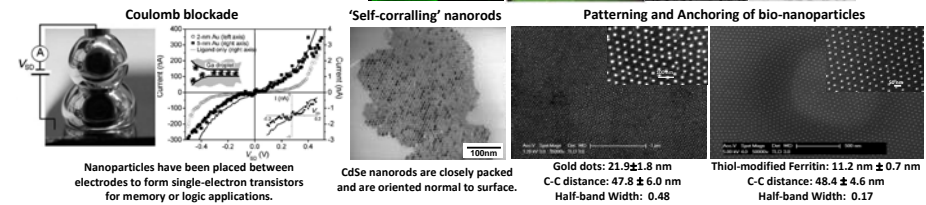
#### Dynamics

#### Interfacial Chemistry

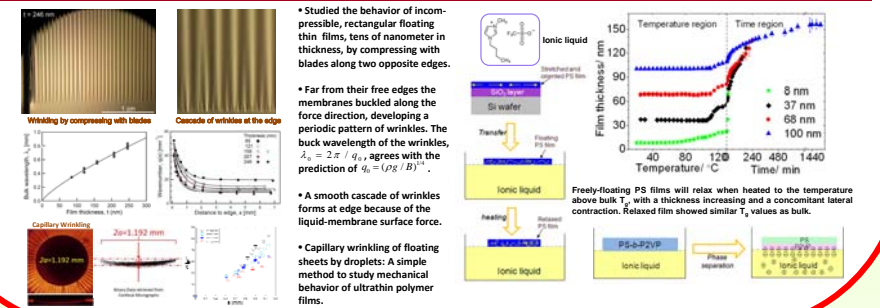
#### Cross-linked Sheets

#### Devices

#### Biological Nanoparticles

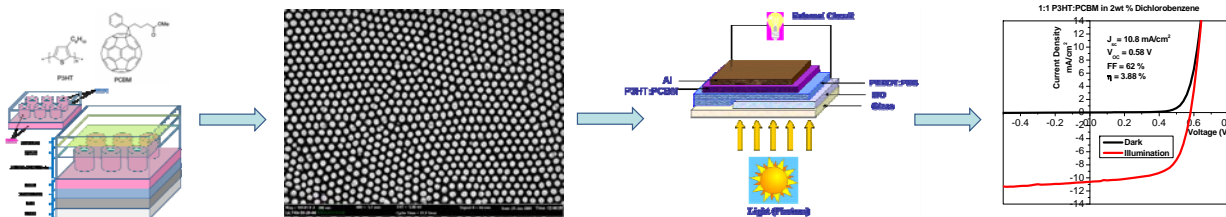


### Wrinkling, Relaxation and Glass Transition of Floating Polymer Thin Films



## Photovoltaic Applications

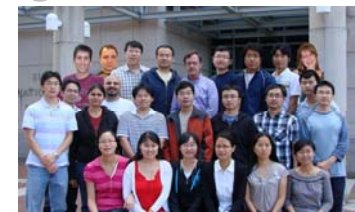
Directed polymer self-assembly of ordered nanostructures as templates and scaffolds for photovoltaic devices



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Web: <http://www.pse.umass.edu/trussell/>  
E-mail: [russell@mail.pse.umass.edu](mailto:russell@mail.pse.umass.edu)