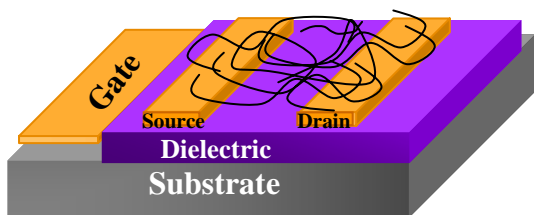

Charge Transport in Conjugated Polymer Nanowires

Amit Babel

UIF Fellow

Chemical Engineering

March 2005



Objectives

- (i) Fabricate high quality nanowires / nanofibers from **conjugated polymers** and their blends
- (ii) Study the effect of one-dimensional confinement on the optical and electrical properties
- (iii) Explore novel phenomena such as *ambipolar charge transport* (both holes and electron)

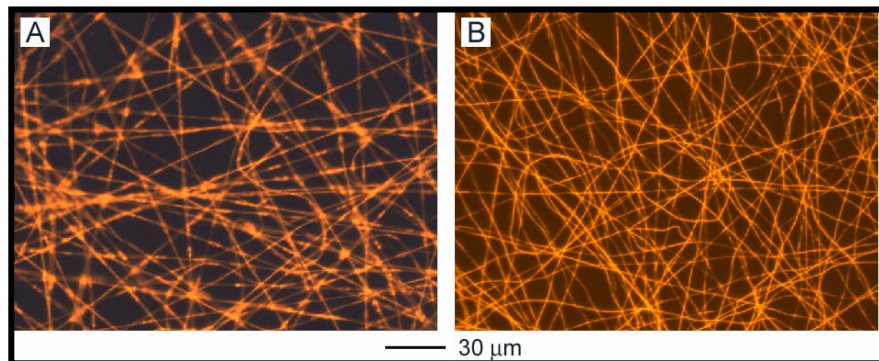
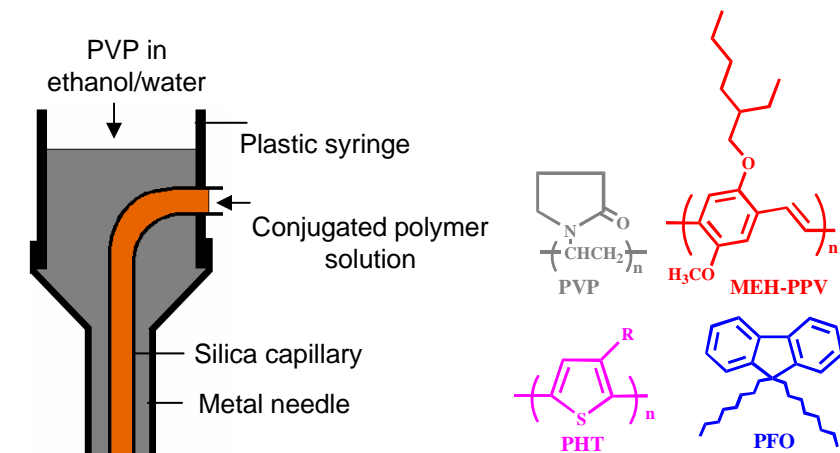


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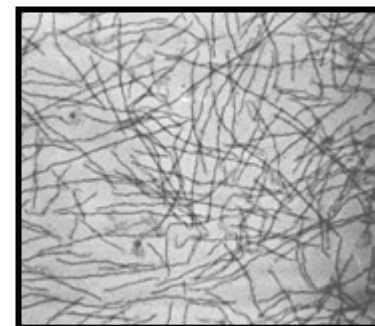
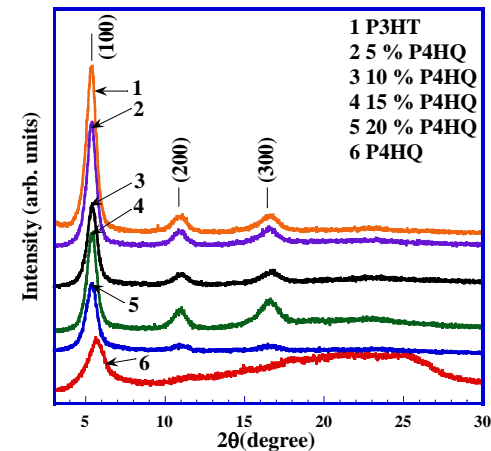
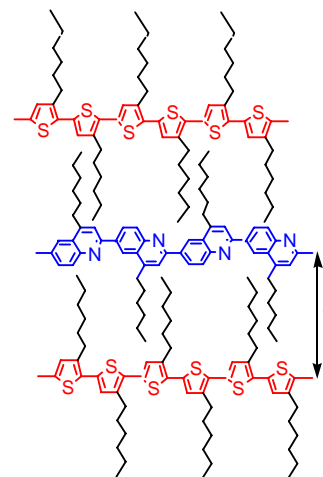
Research Approaches

Electrospinning



in collaboration with **Prof. Younan Xia**

Self-Assembly



200 nm



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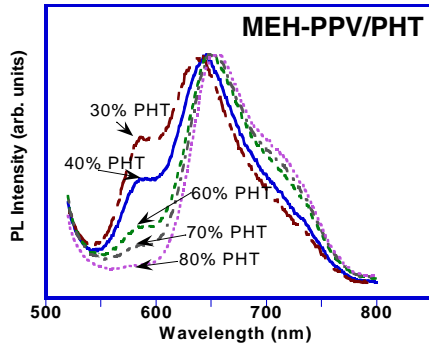
UNIVERSITY OF
WASHINGTON

Accomplishments

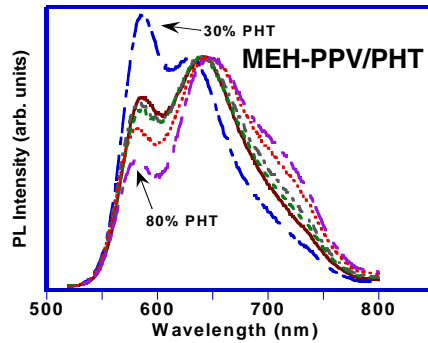
Electrospinning

Photoluminescence Spectra

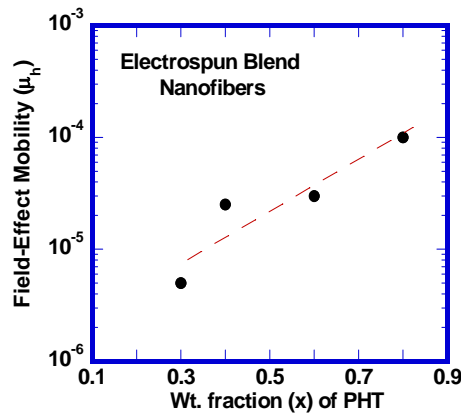
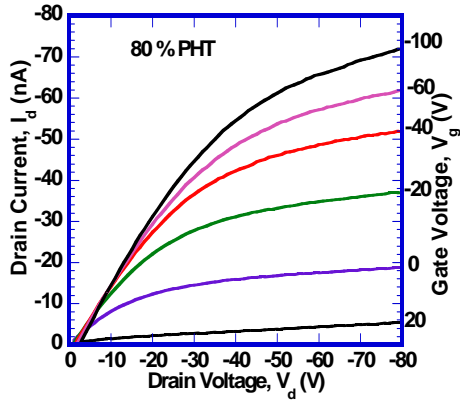
Polymer Blend Nanofibers



Polymer Blend Thin Films

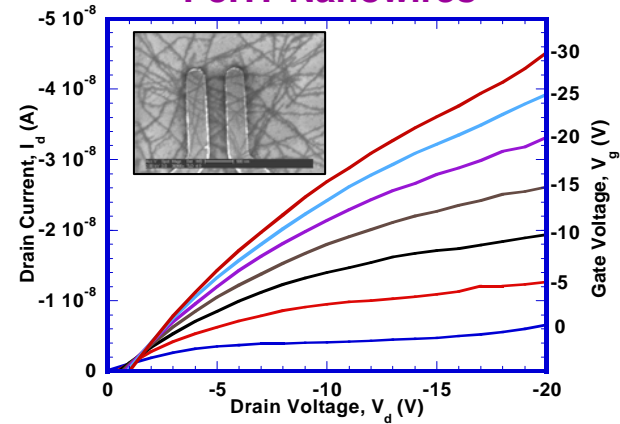


Polymer Blend Nanofiber Based Field-Effect Transistors



Self-Assembly

Field-Effect Transistors Based on P3HT Nanowires



Ambipolar charge Transport in Polymer Blend Nanowires

