Title:	Nanostructure Conjugated Polymers and Hybrid Photovoltaic Cells
Type:	Student
Awardee:	Michelle S. Liu
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Description:	The objective of this proposal is to develop highly efficient conjugated block copolymers for the fabrication of hybrid photovoltaic cells. Our planned work will address the following technical issues: (i) development of low band gap n-type (acceptor) conjugated polymers with high electron affinity and mobility; (ii) integration of these polymers with p-type (donor) conjugated polymers to construct donor/acceptor block copolymers with optimized nanostructured domains for change separation and transport; (iii) employment of suitable organic molecular thin films by evaporation as the exciton blocker to increase the efficiency of the devices (iv) fabrication and evaluation of hybrid photovoltaic cells. The fundamental study of the photoinduced charge transfer process at the interfaces will provide the insight for optimizing materials and device structures. By joining our strong material synthesis expertise with PNNL's excellent device fabrication and characterization capabilities, it will not only provide an excellent opportunity to develop cutting-edge discoveries in nanoscience and nanotechnology but offer a great environment for interdisciplinary training of graduate student.