

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Electrospun Composite Nanofibers of Semiconductive Polymers for Coaxial PN Junctions WILLIAM SERRANO, SYLVIA THOMAS, University of South Florida at Tampa — The objective of this research is to investigate the conditions under P3HT and Activink, semiconducting polymers, form 1 dimension (1D) coaxial p-n junctions and to characterize their behavior in the presence of UV radiation and organic gases. For the first time, fabrication and characterization of semiconductor polymeric single fiber coaxial arrangements will be studied. Electrospinning, a low cost, fast and reliable method, with a coaxial syringe arrangement will be used to fabricate these fibers. With the formation of fiber coaxial arrangements, there will be investigations of dimensionality crossovers e.g., from one-dimensional (1D) to two-dimensional (2D). Coaxial core/shell fibers have been realized as seen in a recent publication on an electrospun nanofiber p-n heterojunction of oxides (BiFeO_3 and TiO_2 , respectively) using the electrospinning technique with hydrothermal method. In regards to organic semiconducting coaxial p-n junction nanofibers, no reported studies have been conducted, making this study fundamental and essential for organic semiconducting nano devices for flexible electronics and multi-dimensional integrated circuits.

William Serrano
University of South Florida at Tampa

Date submitted: 06 Nov 2015

Electronic form version 1.4