Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Electrospinning Technique for Organic Semiconductive Polymers Composites Coaxial Nanofibers for Electronic Devices[1] WILLIAM SERRANO GARCIA, SYLVIA THOMAS, University of South Florida - Tampa — This work is motivated by the need of new 1D structures for organic flexible electronic devices that does not rely on silicon. Formation of organic semiconductors coaxial p-n junctions and sensors using the electrospinning technique will be studied. Actual progressions in coaxial fibers lead to an advance in the usage of fibers in many fields, but, for the first time, two organic semiconductor polymers will form a p-n junction in a coaxial nanofiber structure, expecting functional diodes in the 100 nm range in diameter. Semiconducting polymers as P3HT and BBL, p- and n-type respectively, will be studied under the presence of UV radiation and organic gases. Is been shown in recent research on single fiber and fibrous electrospun p-n junctions shows an ideality factor of 2 and less when rectifying signals. Also, with high surface area to volume ratio can serve not only as a single fiber sensor but as a yarn sensor enhancing the sensitivity of the device. 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 flexible nanodevices.

[1]NSF Florida Georgia Louis Stokes Alliance for Minority Participation (FGLSAMP) Program

William Serrano Garcia
University of South Florida - Tampa

Date submitted: 11 Nov 2016 Electronic form version 1.4