

#### **418d Electrospun Polyaniline/Nylon-6 and Polyaniline/Poly (Vinylidene Fluoride) Nanowires**

*Praveen Meduri and Edward A. Evans*

Polyaniline, a conductive polymer, has a wide range of electrical and optical properties coupled with good stability making it an attractive material for applications in electronics, solar cells, batteries, etc. In this work, polyaniline nanowires having diameters spanning in a range of 150-250 nm were produced by the technique of electrospinning. Polyaniline was doped fully using dopants such as camphorsulfonic acid (CSA), dodecyl benzene sulfonic acid (DBSA) and then blended with polymers like nylon-6 and poly (vinylidene fluoride) (PVDF). The morphology of the nanowires was studied using Scanning electron microscope (SEM) and Transmission electron microscope (TEM). These nanowires were further characterized for their surface properties such as surface energies and surface roughness as well as the semi-conducting/conducting properties. Polyaniline nanowires were then treated in RF plasma to enhance the properties such as wettability, conductivity and also the bonding in polymer composites. They were treated with nitrogen, oxygen, and argon plasma and the effect of different gases, powers and pressures were investigated. X-Ray Photoelectron Spectroscopy was used to determine the efficiency of plasma treatment and also the surface compositions of different functional groups.