

Abstract Submitted
for the OSS05 Meeting of
The American Physical Society

Investigation of Electrospun Nanocomposite Polymer Nanofibers

MAX ALEXANDER, BRANDON BLACK, JENNIFER STUCKEY, CHYI-SHAN WANG, JACQUE HENES, HAO FONG — Electrospinning of polymers offers the ability to reproducibly manufacture sub-micron diameter fibers with desired morphologies. Conductive electrospun fibers offer new avenues to producing high surface area electrodes and membranes for a variety of applications. The goal of this work was to produce controlled nanostructured morphologies by the electrospinning of intrinsically conductive polymers, nanocomposites containing carbon nanotubes, and Nylon 6/layered silicate nanocomposites (NLS). Additionally, intentionally phase separated polymer nanofiber structures of intrinsically conductive polymer / polyurethane blends were also produced. The extremely high interfacial area of these fiber materials is of great interest for reinforced composites, chemical/biological filtration, protective clothing, and biomedical applications such as wound dressing. Of particular significance is for use in high surface area electrodes for hybrid organic-inorganic photovoltaic devices.

Max Alexander
WPAFB/AFRL

Date submitted: 18 Mar 2005

Electronic form version 1.4