

Abstract Submitted  
for the MAR09 Meeting of  
The American Physical Society

**Carbon nanotubes nucleate the growth of graphitic layers during carbonization of electrospun poly(acrylonitrile) nanofibers.** SABINA PRILUTSKY, YACHIN COHEN, EYAL ZUSSMAN, Technion, Israel — Hybrid nanofibers with varying concentration of multiwalled carbon nanotubes (MWCNTs) in polyacrylonitrile (PAN) were fabricated using the electrospinning technique and subsequently carbonized. The morphology of the fabricated carbon nanofibers (CNFs) at different stages of the carbonization process was characterized by high-resolution transmission electron microscopy (HRTEM) and Raman spectroscopy. In-situ morphological changes during heating were followed by HRTEM using a heated stage. The polycrystalline nature of the CNFs was shown, with increasing content of ordered crystalline regions having enhanced orientation with increasing content of MWCNTs. The results indicate that MWCNTs embedded within the PAN nanofibers nucleate the growth of graphitic layers during PAN carbonization.

Sabina Prilutsky  
Technion, Israel

Date submitted: 20 Nov 2008

Electronic form version 1.4