

Abstract Submitted  
for the MAR09 Meeting of  
The American Physical Society

**Highly Conductive Polymer Films by Post-Processing Solvent Annealing and Their Broad Applications in Organic Electronics** JOUNG EUN YOO, KWANG SEOK LEE, ENRIQUE GOMEZ, KIMBERLY BALDWIN, YANGMING SUN, CHANG SU KIM, HONG MENG, YUEH-LIN LOO, PRINCETON UNIVERSITY TEAM, UNIVERSITY OF TEXAS AT AUSTIN TEAM, DUPONT COLLABORATION, GOVERNOR LIVINGSTON HIGH SCHOOL TEAM — The electrical conductivity of polyaniline (PANI) that is template synthesized with a polymer acid of poly(2-acrylamido-2-methyl-1-propanesulfonic acid), PAAMPSA, is enhanced by more than two orders of magnitude with post-processing solvent annealing. Such solvent annealing allows the conducting polymer to rearrange from the globular structure that is arrested by strong ionic interactions during synthesis to the conformationally more favorable structure that dramatically enhances charge transport. This solvent annealing is general; we demonstrate conductivity enhancement with this process for at least two common classes of conducting polymers, including poly(3,4-ethylenedioxythiophene), PEDOT, as well as PANI. The treated conducting polymer films make efficient source and drain electrodes and anodes for organic thin-film transistors and organic solar cells, respectively.

Joung Eun Yoo

Date submitted: 17 Nov 2008

Electronic form version 1.4