Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Aligned Carbon Nanotubes Embedded in Elastic Polymer as Stretchable Conductors YINGYING ZHANG, Los Alamos National Laboratory, QUANXI JIA, CENTER FOR INTERGRATED NANOTECHNOLOGY TEAM — Stretchable electronics enable new applications in a wide range of fields. Carbon nanotube (CNT) ribbons, composed of bundles of aligned millimeter-long CNTs, represent a unique opportunity for high performance stretchable conductors. In this work, we embedded CNT ribbons in elastic poly(dimethylsiloxane) (PDMS) film (or CNT/PDMS films) and systematically investigated the dependence of film resistance on the tensile strains. The CNT/PDMS films fabricated by this approach are flexible, transparent, and show constant resistance under strains in the range of 0%-100%. We believe that the unique stretchability of CNT ribbons reported here will open new potential applications of CNTs in the next generation intelligent electronics.

Yingying Zhang
Los Alamos National Laboratory

Date submitted: 08 Dec 2010 Electronic form version 1.4