Abstract Submitted
for the SHOCK09 Meeting of
The American Physical Society

Growth and characterization of one-dimensional carbon composite structure consisting of carbon nanotubes and nanocones HONGXIN ZHANG, PETER FENG, Universidad de Puerto Rico — A simple approach is demonstrated for quickly growing a large-area aligned carbon composite nanostructure consisting of vertically aligned nanotubes and nanocones by the catalyst-assisted pulsed laser deposition techniques. The carbon nanocones were first grown on the molybdenum substrate with Ni catalysts. The carbon nanotubes grown on the nanocones have uniform shape and length, align vertically on carbon nanocones, and the average diameter is about 7 nm. The special carbon composite arrays present the turn-on field 0.19 V μm-1 in field emission, the lowest value reported so far. The long-term field emission current stability of the one-dimensioned carbon nanostructure has also been investigated. No current decay was observed after 10-day continuous experiment, indicating the super stability of the sample as cathode material.

Peter Feng
Universidad de Puerto Rico

Date submitted: 23 Feb 2009 Electronic form version 1.4