Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Electroluminescence Spectral Shape in Carbon Nanotube Field Effect Transistors under High Bias Conditions MEGUMI KINOSHITA, Stony Brook University, VASILI PEREBEINOS, MATHIAS STEINER, PHAEDON AVOURIS, IBM THOMAS WATSON RESEARCH CENTER TEAM — In carbon nanotube field effect transistors, electroluminescence excited by intra-nanotube impact excitation at high source-drain bias reveals strongly broadened electronic transitions (FWHM ∼150 to ∼300 meV for the lowest energy peak observed) in the E_{11} to E_{22} energy range. Through the bias and polarization dependence of the spectra, we investigate the production mechanism of these states and consider possible causes for their bias-dependent broad lineshapes, including exciton-exciton annihilation, and high electron and phonon temperatures.

Megumi Kinoshita
Stony Brook University

Date submitted: 21 Nov 2008 Electronic form version 1.4