

Abstract Submitted
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Life Time of Charge Carriers in Double Walled Carbon Nanotubes.¹ IOANNIS CHATZAKIS, ARIFA HABIB, Kansas State University, MIKHAIL ZAMKOV, University of Illinois, Urbana , IGOR LITHVINUK, PATRICK RICHARD, Kansas State University — We investigate the nature of low-energy excitations in double walled carbon nanotubes, DWNT, by pumping the states using fs IR pulses. The temporal evolution of the population is examined by ionizing the resulting population with delayed fs UV pulses. The electron time of flight of the ionized electrons is recorded for a range of energies above E_F to investigate the relaxation dynamics of the charge carriers. The initial, fast relaxation is attributed to the internal thermalization of the electronic system, and is primarily driven by electron-electron (e-e) scattering processes. After the system returns to a Fermi-Dirac distribution it continues to decay with a slower rate associated with electron gas cooling electron-phonon (e-ph) interactions. We specifically want to see if the (e-e) scattering in DWNT follow a Fermi-liquid behavior, as observed in our previous study of MWNT¹. 1. Zamkov, M.; Woody, N.; Shan, B.; Chang, Z.; Richard, P. *Phys. Rev. Lett.* **2005**, 94, 056803.

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