

Abstract Submitted
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Exciton Dynamics in (6,5) carbon nanotubes ANDY WALSH, JUDE SCHNECK, Boston University, ALEX GREEN, MARK HERSAM, Northwestern University, SIDNEY REDNER, LAWRENCE ZIEGLER, ANNA SWAN, Boston University — Single color (E22) pump-probe data on a solution of (6,5) nanotubes reveal that use of pulses shorter than the dephasing time scale precludes the formation of multiple excitons on a single nanotube. Subsequent relaxation dynamics of the single exciton exhibits stretched exponential behavior, and data from low to saturation fluence, and over 3 order of magnitude of time delay, is described by the same model. The stretched exponential model with its implication of a distribution of decay rates is attributed to a distribution of length-dependent effective lifetimes due to end-quenching via diffusion. Results give values for the dipole moment, E22 dephasing time and E11 diffusion coefficient.

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