

Single Wall Carbon Nanotubes Optical Properties revealed by Single Nanotube Microscopies

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Abstract:

Current methods for producing single-walled carbon nanotubes (SWNTs) lead to heterogeneous samples containing mixtures of metallic and semiconducting species with a variety of lengths and defects. Optical detection at the single nanotube level offers the possibility to examine these heterogeneities, which is fundamental for accessing the intrinsic optical properties of the nanotubes.

I will present some of our recent studies which aimed at probing the intrinsic luminescence and absorption properties of chirality identified SWNTs by single molecule microscopies, revealing how environmental effect can affect these properties.

References

Cognet et al *Science*, 316 (2007) 1465 - 1468
Cognet et al *Nanoletters*, 8, 2 (2008) 749
Santos et al, *Phys. Rev. Lett.*, 107 (2011) 187401
Cambré, et al, *ACS Nano*, 6, (2012) 2649
Crochet et al *Nano Letters*, 12, 10 (2012) 5091
Duque et al *JACS* 135 (2013) 3379
Oudjedi et al *submitted*.