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**Probing the Free Carrier Doping Effects in Individual Carbon Nanotubes by Optical Spectroscopy** KAIHUI LIU, XIAOPING HONG, FENG WANG, Department of Physics, UC Berkeley, FENG WANG GROUP TEAM — The free carrier (electron or hole) doping in carbon nanotubes will shift their Fermi level, which has dramatically effects in the nanotube electrical transport properties. At the same time, the free carrier doping will also significantly modify the nanotube optical properties. Here we report the development of a new optical spectroscopy method to measure the field-induced change of optical transitions in individual semiconducting and metallic nanotubes. We will discuss the important role of electron-electron interactions to explain our results.

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