

Non-equilibrium Gaps generated in Graphene-based materials : Electron-phonon coupling in Nanotubes- Laser excitation in Graphene

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The occurrence of non-equilibrium dynamical gaps in transport properties of graphene related materials will be discussed, with a particular focus on inelastic transport in carbon nanotubes under high bias voltage, and graphene nanoribbons and two-dimensional graphene under laser illumination. The transport methodology based on the Landau-Büttiker multichannel methods, and extended in the Fock space or the Floquet space will be shown to be highly convenient to unravel non-perturbative and non-equilibrium phenomena.

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[2] H. Calvo et al, App. Phys. Lett. 101 (2012) 253506

[3] L. E. F. Foa Torres and S. Roche, Phys. Rev. Lett. 97 (2006) 076804