

# **Luttinger liquid in Carbon Nanotubes**

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Single Walled carbon nanotubes provide the ideal platform to explore Luttinger liquid physics due to the strong one-dimensional quantum confinement. I will discuss out combined electrical and optical studies to correlate the unusual electron tunneling and plasmon excitations of a Luttinger liquid. I will also show that distinctly different plasmon behavior in electrically gated metallic and semiconducting carbon nanotubes, which are described by the linear Luttinger liquid and nonlinear Luttinger liquid, respectively.