

# Investigating Chemical Disorder Strength in Carbon Nanotubes : Magnetic Tuning of Quantum Transport Regimes

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We have studied the various transport regime that develop in nitrogen doped metallic carbon nanotubes under magnetic fields [3]. By combining *abinitio* and *semi-empirical* models [1], a scaling analysis of the Landauer conductance has been performed and characteristic transport length scales extracted from phenomenological laws.

A quantitative analysis of the relationship between energy-dependant elastic mean free path and localization length has been done, and an external magnetic field applied perpendicularly to the nanotube axis is shown to induce a shift in energies of quasibound states, a phenomenon that results in giant magnetoconductance fluctuations under Fermi level shift.

## References

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