

574a Nonlinear (Electro)Mechanical Properties of Carbon Nanostructures

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High-symmetry carbon nanostructures such as cones and tubes can have unusual nonlinear mechanical properties due to surface energies, lattice commensurations, and multiple degenerate conformations. These deformations can then couple to the low-energy electronic properties due to the sensitivity of the graphene Fermi points to symmetry-lowering deformations. Simulation results include models for constant-force springs, nanothermometers, and nanoactuators.