

# Carbon Nanotube Based Mass Sensor Using Atomic Resolution Nanomechanical Resonators

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## Abstract

The objective of this paper is to design and simulate carbon Nano-Tube (CNT) based mass sensor that determines extremely low measures of molecules using COMSOL Multiphysics® software. The ultimate goal of this nanomechanical resonator sensor is that it allows detection at single molecular level. The change in the mass from the resonator can cause a shift in the resonant frequency. The fundamental frequency of cantilever/bridge-based CNT's are in the range of 10GHz to 1.5THz that gives unique property to the material depending on the diameter and length of the nanotube. It is used in wide range of applications during the fabrication of vacuum microelectronic devices and nanosensors.