

## Applications in Carbon Nanotubes

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Nanoscience and nanotechnologies cover a wide range of fields (physics, chemistry, biology, medicine, engineering and electronics. Two principle factors cause the properties of nanomaterials (with size 100 nm down to the atomic level) to differ significantly from other materials: increased relative surface area and quantum effects. Nanotechnologies have been used for decades (semiconductors) and in some cases considerably longer (chemicals). However, developments in tools used to understanding

of the behavior and properties of matter at very small size scales increase knowledge of the relationship between the structure and properties of nanomaterials, enable the production of materials and devices with higher performance and increase functionality. The most tools used in nanometrology are electron beam technique, scanning probe techniques and optical tweezers.

Carbon Nanotubes (CNTs) have considered an important role in the context of nomaterials because of their novel chemical and physical properties. hey are mechanically very strong, their Young`s modulus is over 1 terapascal, aking CNTs as stiff as diamond, flexible about their axis and can conduct electricity extremely well. All of these remarkable properties give CNTs a range of potential applications: for example, in reinforced composites, sensors, anoelectronics and display devices.

*The behavior of some nanomaterials is well understood, hereas others present greater challenges for experts as well as or new scientists.*

### **References**

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**Useful websites:**

<http://www.cientifica.eu>

<http://nanotechweb.org>

<http://www.oxonica.com>

<http://www.nanoscience.com>

<http://www.nanotec.org.uk>

<http://www.vega.org.uk/video/programme/3>