# Article information:

Carbon nanotube wires and cables: Near-term applications and future perspectives - Nanoscale (RSC Publishing)  
<https://pubs.rsc.org/en/content/articlelanding/2011/NR/c1nr10814j>

# Article summary:

1. Carbon nanotubes (CNTs) offer opportunities for integration into wires and cables for both power and data transmission due to their unique physical and electronic properties.

2. CNT materials possess several unique properties which may offer advantages over metallic conductors, such as flexure tolerance and environmental stability.

3. Recent developments in manipulation of CNT materials have shown progress towards improving bulk conductivity, as well as methods for contacting bulk CNT materials to metals.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is generally reliable and trustworthy, providing a comprehensive overview of the potential applications of carbon nanotube wires and cables in near-term applications and future perspectives. The authors provide evidence to support their claims, such as the reduction in cable mass per unit length (mass/length) up to 50% in some cases, the observation that CNT wires were observed to withstand greater than 200,000 bending cycles without increasing resistivity, and the fact that CNT wires exhibit no increase in resistivity after 80 days in a corrosive environment (1 M HCl). Additionally, the authors provide detailed information on recent developments in manipulation of CNT materials (e.g. type enrichment, doping, alignment, and densification), as well as methods for contacting bulk CNT materials to metals (e.g. mechanical crimping and ultrasonic bonding).

The article does not appear to be biased or one-sided; it presents both sides of the argument equally by discussing both the potential benefits of using carbon nanotubes for wiring applications (e.g., reduced resistance, mass, susceptibility to fatigue) as well as potential drawbacks (e.g., lower electrical conductivity compared to metals). Furthermore, all claims are supported with evidence from experiments or studies conducted by other researchers or institutions; there is no promotional content or partiality present in the article. The article also mentions possible risks associated with using carbon nanotubes for wiring applications; however, these risks are not explored in detail nor are any counterarguments presented regarding these risks.

# Topics for further research:

* Carbon nanotube wiring safety
* Carbon nanotube wiring cost
* Carbon nanotube wiring durability
* Carbon nanotube wiring scalability
* Carbon nanotube wiring environmental impact
* Carbon nanotube wiring applications in industry

# Report location:

<https://www.fullpicture.app/item/d098fc72a66531d8f531605b1457ed20>