



Carbon nanotubes were discovered in 1991 by Sumio Iijima. They are a one-atom thick sheet of graphite rolled into a tube with a diameter of one nanometer. Different properties emerge depending on how the nanotubes are rolled. Their properties include a large tensile strength and modulus, making them very stiff. Due to the structure of the nanotubes, their electrical and thermal conductivity is greatly increased and even surpasses the conductive properties of metals.

Graphene is the name given to a single layer of carbon atoms densely packed into a benzene-ring structure, and is widely used to describe properties of many carbon-based materials, including graphite, large fullerenes, nanotubes, etc. (e.g., carbon nanotubes are usually thought of as graphene sheets rolled up into nanometer-sized cylinders). Planar graphene itself has been presumed not to exist in the free state, being unstable with respect to the formation of curved structures such as soot, fullerenes, and nanotubes.

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