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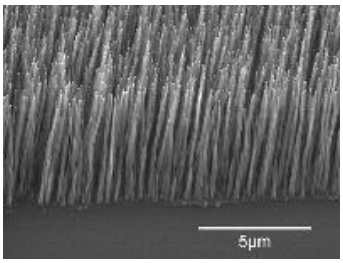
New Method of Growing Carbon Nanotubes



A new method of growing carbon nanotubes is predicted to revolutionise the implementation of nanotechnology, as well as the future of electronics and other technologies.

Researchers at the University of Cambridge have successfully grown nanotubes at a temperature which allows more efficient production as well as permitting their integration into present CMOS technology.

Thus far the growth of nanotubes has been carried out at very high temperatures, and growth below 500°C was believed impossible. A group of researchers at the Department of Engineering at the University of Cambridge, led by Mirco Cantoro, Stephan Hofmann, Andrea Ferrari and John Robertson, in collaboration with colleagues at the Cambridge Hitachi Laboratory and the Department of Materials Science, University of Cambridge, succeeded in growing single-wall carbon nanotubes at temperatures as low as 350 ºC.

These nanotubes, grown by thermal Chemical Vapour Deposition (a chemical process often used in the semiconductor industry), are promising candidates for integration into existing nanoelectronic devices.

This result also sheds new light on the possible mechanisms that occur during carbon nanotube growth. Previously, the assumption that the catalyst has to be liquid often dominated carbon nanotube growth model considerations, but at these lower temperatures evidence has been found of a solid catalyst. These findings extend to the catalytic growth of other nanostructures in general.

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