



Lightweight, flexible electronic networks of carbon nanotubes



by [Stanislav P. Abadjiev](#) | 23 July 2008 17:00 GMT — Votes (3)

Free K-12 School at Home

Connections Academy. Get a Free Catalog Today.
www.ConnectionsAcademy.com

Carbon Nanotubes

High quality, low cost single-wall (SWCNT) & multi-walled (MWCNTs)
www.helixmaterial.com

Flex Circuit Mfg.

Flex Circuit Fabrication & Assembly RoHS
 Technology, ISO 9001:2000
www.gcaero.com

Ads by Google

The ability to form integrated circuits on flexible sheets of plastic enables attributes in electronic devices that are difficult or impossible to achieve with technologies that use semiconductor wafers or glass plates as substrates. Organic small-molecule and polymer-based materials represent the most widely explored types of semiconductors for such flexible circuitry. Although these materials and those that use films or nanostructures of inorganics have promise for certain applications, existing demonstrations of them in circuits on plastic indicate modest performance characteristics that might restrict the application possibilities.

A paper in the current issue of Nature reports improvements in the electrical performance of integrated circuits through the engineering of webs of carbon nanotubes onto bendable plastics.

A team of scientists report implementations of a comparatively high-performance carbon-based semiconductor consisting of sub-monolayer, random networks of single-walled carbon nanotubes to yield small- to medium-scale integrated digital circuits, composed of up to nearly 100 transistors on plastic substrates. Their devices show excellent electronic properties, with superior subthreshold characteristics, operating voltages, power consumption and switching speeds.

The authors expect that their approach will expand the range of potential applications as well as reducing their cost. Possibilities unattainable with conventional wafer-based electronics could include paper-like displays, wearable personal health-monitoring devices and intelligent food packages.

Source: [Nature](#)

10 Rules of Flat Stomach

Cut Off 9 lbs of Stomach Fat every 11 Days by Keeping these 10 Rules.
FatLoss4Idiots.com

Elicarb™ SW

Single-wall carbon nanotubes Commercial supplies
www.thomas-swan.co.uk

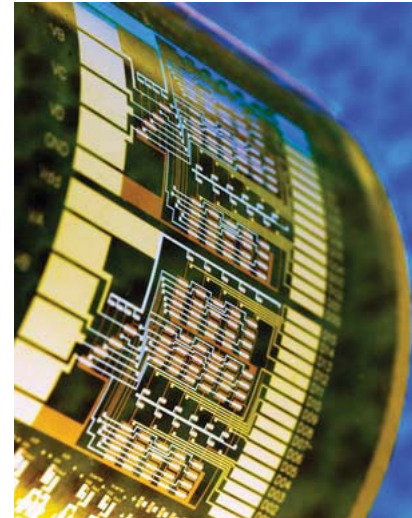
semiconductor patents

Computer and Semiconductor Patents Quality Patent Prosecution
www.patent-ip.com

Carbon Nanotubes studies

Photoluminescence + Raman systems for Carbon Nanotubes analysis
JobinYvon.com/Nanotubes

Ads by Google



Webs of carbon nanotubes provide high performance semiconductor material for flexible electronics. Integrated circuits as shown here could be used in personal health monitors, flexible displays, and other areas. (c) Beckman Institute, University of Illinois

T a g s

[circuits](#), [devices](#), [electronic](#), [materials](#), [nanotubes](#), [plastic](#), [semiconductor](#)

[LATEST](#) | [MOST E-MAILED](#) | [ARCHIVE](#)

Scientists search for answers from the carbon in the clouds
 Mustard - hot stuff for natural pest control
 Plasma DNA level is a reliable marker of recurrent oesophageal cancer
 Case study in chip scale review features two-chip stacked package
 Gummy bears that fight plaque
 Giving an additional early vaccination may reduce measles outbreaks
 Population policy needed for the UK in order to combat climate change
 Mindfulness meditation slows progression of HIV
 Make your own microfluidic device with new kit
 Scientists disprove long-standing belief about HIV treatment
 Study shows why cigarette smoke makes flu, other viral infections worse
 Hubble finds large sample of very distant galaxies

[More](#) recent stories...

Cumulative radiation exposure shows increased cancer risk for emergency department patients
 Dye-coated glass to channel energy into solar cells
 Intestinal bacteria promote - and prevent! - inflammatory bowel disease
 Protein on 'speed' linked to ADHD
 Fish scales show ocean fate of Atlantic salmon
 Mast cells play a role in assisting immune system to combat tularemia
 Joint replacement may improve osteoarthritis symptoms in older adults
 Experimental agent blocks prostate cancer in animal study
 Drug may prolong organ life in noncompliant kidney transplant patients
 Ipilimumab works to stimulate the body's