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Home > News > Now print batteries on a paper with 'nanotut

November 17th, 2007

Now print batteries on a paper with 'nanotube ink'

Abstract:
Nanotechnology researchers at the University of California
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to print batteries onto surfaces like paper.

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HARDWARE UPGRADE

November 17, 2007

Printable carbon nanotube batteries

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Science Daily - Science - 2/12/2007

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Nanotech powers printable batteries
10 Nov 2007, 0220 hrs IST, AGENCIES

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Batteries that can be printed onto a surface with "nanotube ink" have been demonstrated by US researchers, who say the technique will fit well within the growing field of printed electronics, which still use conventional power sources.

The batteries were created by George Gruner and colleagues at the University of California in Los Angeles, US, and use the same zinc-carbon chemistry as ordinary non-rechargeable batteries. Being able to print flexible batteries onto different surfaces should prove handy for powering disposable devices such as long-range RFID tags or small displays, the researchers say.

The batteries are made from two layers containing carbon nanotubes and a third layer of zinc foil, and are less than a millimetre thick. A sheet many carbon nanotubes can be packed into sheets layers. They then connecting many sheets in the battery simultaneously, without transferring the electrochemical probes that generate power.

To make the battery, a layer of nanotubes is first deposited in the form of "nanotube ink" onto a surface. This layer acts as the charge collector, which removes current from the battery. Next, a layer of nanotubes mixed with manganese oxide powder and electrolytes, which carries charge within the cell, is applied on top. The layer acts as the cathode. Finally, a piece of zinc foil—the anode—is applied.

"The batteries are similar to conventional batteries," Gruner told newsfirstcall.com, "with the electrically conducting nanoscale networks replacing conventional metals and electrodes."

He added that the designs should make it possible to get more power than a conventional design would from the same materials, "an important factor for portable electronics applications."

Special Reports
Technology
Nanotube tangles power printable batteries
17:37 18 November 2007
NewScientist.com news service
Tom Simonite

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The batteries are made from two layers containing carbon nanotubes and a third layer of zinc foil, and are less than a millimetre thick. They are made by depositing a layer of nanotubes in the form of "nanotube ink" onto a surface. The layer acts as the charge collector, which removes current from the battery. A layer of nanotube ink is then mixed with manganese oxide powder and electrolytes, which carries charge within the cell and is applied on top acting as the cathode. Finally, a piece of zinc foil is applied, which acts as the anode.

"The batteries are similar to conventional batteries, with the electrically conducting nanoscale networks replacing conventional metals and electrodes," New Scientist quoted Gruner as saying.

Although the batteries were only tested at low power Gruner says his research team is working to increase power output and to demonstrate suitability of the designs for industrial production. The devices can be fabricated using a roll-to-roll or inkjet printing process, the essentials of what can be described as "printed power."

Possible applications include powering disposable devices, such as long-range RFID tags or small displays, the researchers say.

Professor Gruner is also Chief Technical Officer of Unidym Inc a company he funded in 2005 which focuses on nano-structured materials applications for flexible/transparent electronics. His awards include the Guggenheim and Alexander von Humboldt awards, together with the "Technology Pioneer Award", given by the World Economic Forum. Dr. Gruner is the inventor of over 30 patents and applications.

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03 Dec 2007
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Printed power for printed electronics

Printed electronics still use conventional sources of power but this may change in the future with the newly developed printable batteries printed onto a surface with "nanotube ink" from the chemicals used in an ordinary battery.

Professor George Gruner and his team of researchers from University of California Los Angeles have developed printable batteries which are less than a millimetre thick. They are made by depositing a layer of nanotubes in the form of "nanotube ink" onto a surface. The layer acts as the charge collector, which removes current from the battery. A layer of nanotube ink is then mixed with manganese oxide powder and electrolytes, which carries charge within the cell and is applied on top acting as the cathode. Finally, a piece of zinc foil is applied, which acts as the anode.

"The batteries are similar to conventional batteries, with the electrically conducting nanoscale networks replacing conventional metals and electrodes," New Scientist quoted Gruner as saying.

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Batteries on paper with nanotube ink

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Gratis muziek downloaden is de norm
Patentenjager Antonio Perra
De Ingenieur
TECHNOLOGIETIJDSCHRIFT

ACCU MET PRINTER PRODUCEERBAAR
DUNNE NANOBATERIJ

Amerikaanse wetenschappers van de University of California, Los Angeles hebben een zeer dunne batterij gemaakt, die met relatief eenvoudige printtechnologie te produceren is. De accu zou onder meer breukbaar zijn voor de energieoverziening van identificatiechips of compacte mobiele apparatuur.

De nanobatterij is minder dan 1 mm dik.

De samenstelling van de energiedrager is vergelijkbaar met die van conventionele knoopcel-trinkbatterij. De accu is echter niet opgebouwd uit drie dunne lagen. Het eerste laagje bestaat uit koolstof nanobuisjes, die wilkkierung zijn gerangschikt. De tweede laag fungeert als kathode en bestaat uit een mengsel van koolstof nanobuisjes en manganoxide. Aan de bovenzijde bevinden de onderzoekers een vinkbiede aan, die als anode dient dient. Voor de wilkkierung aangebrachte ring van de buisjes zorgt een elektrische geleidend network, dat dezelfde functie vervult als de metalen geleiden en elektroden in conventionele batterijen', aldus projectleider George Gruner.

De batterijen zijn met bestaande printtechnologie aan te brengen, waarvoor de buisjes in een vloeistof worden opgelost. Volgens de onderzoeker lieten de materialen zich bij kamertemperatuur verwerken, zodat producte-goed combineerbaar is met andere fabricageprocessen. De dunne batterij is onder meer geschikt voor de energieoverziening van rfid-chips (Radio Frequency Identification, meent Gruner. Voor andere toepassingen, zoals mobiele apparatuur, is het vervangen van de dunne accu vooralsnog niet toereikend. De onderzoekers bekijken hoe het verangen en de capaciteit te verhogen is.

www.ucla.edu

Print me up a po

Now print batteries on a paper with 'nanotube ink'
From our ANI Correspondent

Washington, November 18: Nanotechnology researchers at the University of California have made "nanotube ink" from the chemicals used in an ordinary battery, thereby making it possible to print batteries onto surfaces like paper.

Lead researcher George Gruner has revealed that he uses the same zinc-carbon chemistry in his batteries as are used in ordinary non-rechargeable batteries.

He believes that the technique to print flexible batteries onto different surfaces may prove helpful in powering different surfaces like long-range RFID tags or small displays.

Yahoo! News

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