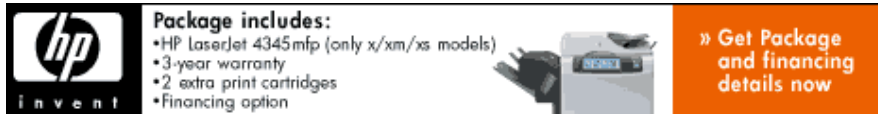


[View UK websites](#)[Register](#) | [Update details](#)[HOME](#) | [NEWS](#) | [REVIEWS](#) | [DOWNLOADS](#) | [FORUMS](#) | [JOBS](#) | [BLOGS](#)[Business](#) | [Business hardware](#) | [Business software](#) | [Communications](#) | [Employment & Skills](#) | [Public sector](#) | [Security](#) | [More...](#)


**Package includes:**

- HP LaserJet 4345 mfp (only x/xm/xs models)
- 3-year warranty
- 2 extra print cartridges
- Financing option

» [Get Package and financing details now](#)

All articles

Search

[Site map](#)[RSS](#)[PDA](#)

**The information you want - and no spam.**  
 vnunet.com **RSS** [Register for a free Newsgator account today](#)

[vnunet.com](#) > [News](#) > [Chips & Components](#)
 Print : 
  Reprint: 
  Discuss : 
  Send to friend

## Microbes pave way for 'nanowires'

Scientists promise organically-based nanotech applications

Robert Jaques, [vnunet.com](#) 29 Jun 2005

### RELATED CONTENT

#### Similar articles

- [Experts champion 'unreliable computing'](#)
- [Scientists Fret over nanotech breakthrough](#)
- [Nanotech to turbocharge PC and mobile data](#)
- [More stories](#)

#### News centre

- [News](#)
- [Analysis](#)
- [Comment](#)
- [Features](#)
- [Special reports](#)
- [The past seven days' news](#)
- [News on your PDA](#)
- [Forums](#)
- [Email newsletters](#)
- [XML](#) [RSS feeds](#)

#### More from vnunet.com

- [Oracle shows no sign of weakness in SAP war](#)
- [Sendo on its way to bankruptcy](#)
- [BT trials TV over broadband](#)

US scientists have discovered a process by which micro organisms create tiny biological structures that are highly electrically conductive, paving the way for organically-based nanotechnology applications.

According to researchers at the University of Massachusetts Amherst, the conductive structures, known as "microbial nanowires", are produced by a micro organism known as Geobacter.

Microbiologist Derek R. Lovley who lead the research team that found nanowires, explained that the microbes' structures are only 3-5 nanometres in width (20,000 times finer than a human hair) but quite durable and more than a thousand times as long as they are wide.

"Such long thin conductive structures are unprecedented in biology," said Lovley. "This completely changes our concept of how micro organisms can handle electrons, and it also seems likely that microbial nanowires could be useful materials for the development of extremely small electronic devices."

Dr Aristides Patrinos of the US Department of Energy, which funds the Geobacter research, added: "The remarkable and unexpected discovery of microbial structures comprising microbial nanowires may enable a microbial community in a contaminated waste site to form mini-power grids.

"These could provide new approaches to using microbes to assist in the remediation of DOE waste sites, to support the operation of mini-environmental sensors, and to nano-manufacture in novel biological ways."

Geobacter microbes are the subject of intense investigation because they are useful agents in the bioremediation of groundwater contaminated with pollutants such as toxic and radioactive metals or petrol.

ADVERTISEMENT



KONICA MINOLTA

**FREE 2 Year Extended Warranty**

For you on any of the following A4 colour laser printers

ADVERTISEMENT



They also have the ability to convert human and animal waste or renewable biomass into electricity. To carry out these processes, Geobacter must transfer electrons outside the cell onto metals or electrodes.

Previous studies in Lovley's laboratory demonstrated that Geobacter produces fine, hair-like structures, known as pili, on just one side of the cell.

Lovley's team speculated that the pili might be miniature wires extending from the cell that would permit Geobacter to carry out its unique ability to transfer electrons outside the cell onto metals and electrodes.

[Permalink to this story](#)



Want to use this article? [Click here for options!](#)  
© 2005 VNU Business Publications

---

## READER COMMENTS

[Post your comment](#) What is this?

---

## MARKETPLACE

### Ads by Google

#### Conductive Polymer ?

We develop innovative processes for interconnect manufacturing  
[www.invint.com](http://www.invint.com)

#### Explore Nanotechnology

Stanford Nanotechnology courses. Latest research. Leading experts.  
[scpd.stanford.edu](http://scpd.stanford.edu)

#### 3-D MEMS and microdevices

New from MOSIS and Microfabrica 20-layer prototypes for just \$5000  
[www.efabaccess.com](http://www.efabaccess.com)

#### MIT Short Course

Learn precision engineering design and technologies at MIT  
[professional.mit.edu](http://professional.mit.edu)

#### Nanotechnology

AE Information Center: What is Nanotechnology?  
[americanelements.com](http://americanelements.com)

---

### Showcase

Find and evaluate companies with a click

- CRM Solutions
- Computer Recycling
- Content Management Solutions
- Data Storage Solutions
- Disaster recovery
- Document Management Solutions
- eCommerce Solutions
- ERP - Accounting Software
- IT Consulting
- IT Security
- IT Solutions
- IT Support
- IT Training/eLearning
- Phone Systems & Services
- Public Relations
- Software Development

---

### Sponsored links

- Hardware solutions - UK directory
- Need help with publicity - find PR companies fast!
- The i-kew: upgrade your tech intelligence

---

## FEATURED JOBS

### System Engineer (MCSE)

**United Kingdom | Avanade UK Ltd**

We are currently looking for Systems Engineer who will be responsible for the input into design and build of scalable solutions for complex mission-critical engagements. Your background will stem from System Engineering Consultancy, using methodology based... [more >](#)

### Network Specialist £15,973per annum to £19,073per annum

**Winchester | University College Winchester**

We are looking to recruit an experienced Network Specialist to provide technical support for the College

network. University College Winchester has approximately 5,000 students and 500 staff and the IT infrastructure is both large and complex.... [more >](#)

**Technical Analysts - Up to £35,000 plus pension, private healthcare and fre  
Bristol | Orange**

CLICK THE IMAGE TO VIEW THE AD The role These roles will focus on a range of applications and infrastructure supporting both Orange's customer facing products and services as well as Orange's internal IT services.... [more >](#)

**C# and .NET Solutions Architect  
United Kingdom | Avanade UK Ltd**

Experience: • 8+ years development in a Microsoft development environment • A thorough understanding of Microsoft technologies. • Solid understanding of methodology based system development • 2+ years in a consultancy/enterprise environment.... [more >](#)

[More job opportunities](#)

Useful links: [About vnu network](#) | [Privacy policy](#) | [Terms & conditions](#)  
[Access keys](#) | [Top of page](#) | [Feedback](#)

 **vnu business publications**

© 1995-2005 All rights reserved  
*part of* **vnu.net europe**