

# The Nanogirl News~

**Source:** <http://sci.tech-archive.net/Archive/sci.nanotech/2004-10/0008.html>

---

**From:** Gina Miller ([nanogirl\\_at\\_halcyon.com](mailto:nanogirl_at_halcyon.com))

**Date:** 10/08/04

Date: 8 Oct 2004 00:34:31 GMT

The Nanogirl News

October 7, 2004

NSF funds nano-related coursework for grades 7-12. The National Science Foundation (NSF) has awarded a first-of-its-kind grant to a Northwestern University-led team to train teachers in nanotechnology and help them develop programs for middle and high schools. "This is different from previous (NSF-funded) centers, which focus on research but have also done part-time outreach activity," said Mike Roco, senior nanotech adviser at NSF and an architect of the National Nanotechnology Initiative. NSF this week is expected to officially announce the five-year, \$15-million award to Robert Chang, a professor in Northwestern's Department of Materials Science and Engineering. (27/04)

[http://www.smalltimes.com/document\\_display.cfm?document\\_id=8326](http://www.smalltimes.com/document_display.cfm?document_id=8326)

Autonomous Atom Assembly. The ability to use an STM to move and position atoms with lattice site precision provides us with a quantum workbench to study the effects of quantum confinement and the electronic structure of perfect nanostructures. So far, atomic manipulation has been performed manually, or with rudimentary computer assistance. We are working to extend this capability significantly by developing an Autonomous Atom Assembler (AAA). An autonomous atom assembler is an instrument capable of assembling a desired nanostructure from an unknown random collection of atoms without human intervention. (NIST 8/04)

[http://physics.nist.gov/Divisions/Div841/Gp3/Projects/STM/aaa\\_proj.html](http://physics.nist.gov/Divisions/Div841/Gp3/Projects/STM/aaa_proj.html)

(Event) Foresight Institute Conference Tackles Nanotechnology Applications and Public Policy. Foresight Institute, the leading nanotechnology education and public policy think tank, is sponsoring the 1st Conference on Advanced Nanotechnology: Research, Applications, and Policy, October 22-24, 2004 at the Crystal City Marriott Hotel, Washington DC area. This conference focuses on molecular nanotechnology and what it will mean for the environment, water purification, clean energy, medicine, national security, space exploration, international competitiveness, zero-waste manufacturing and overall societal impacts and other areas. (TMCnet 10/7/04)

<http://www.tmcnet.com/usubmit/2004/Oct/1080749.htm>

## sci.nanotech: The Nanogirl News~

High-tech tweezers enable nano-assembly lines. "This technique makes possible nano-assembly lines," said Chicago entrepreneur Lewis Gruber. "You can use it to put things together, twist them, rotate them, fix things in locations at the microscopic or atomic level. It makes possible, for the first time, a factory floor under the microscope capable of manufacturing components and assembling them into products at high throughput, just as is done in the industrial world." (Chicago Sun Times 10/5/04)

<http://www.suntimes.com/output/business/cst-fin-cia05arryx.html>

Buckyballs at Bat: Toxic nanomaterials get a tune-up. Over the past decade, the development of nanomaterials has progressed rapidly toward their eventual use in products ranging from solar cells to medicines. However, tests of possible toxic effects of these substances on human health and the environment have been slow to get under way. Recently, an experiment raised concern about the soccer-ball-shaped carbon molecules commonly known as buckyballs. Now, other chemists confirm that finding and report an innovation that might disarm potentially toxic buckyballs.

(Sciencenews 10/2/04) <http://www.sciencenews.org/articles/20041002/fob1.asp>

Nano AIDS shield given a boost. What could be the world's first nanotechnology-based protection against HIV has just been given a huge boost. The Australian biotechnology company Starpharma announced today it had been granted US\$5.4 million (A\$7.5 million) from the US National Institutes of Health (NIH) for its research on an anti-microbial gel which prevents HIV infection of cells.

(ABCnet 9/30/04) <http://abc.net.au/science/news/stories/s1210693.htm>

In Search of a Biosensing Biocide. Simple compound is eyed as a lead to a chemical/biological counteragent. Imagine this: a simple lipid molecule forms a bilayer, the bilayers curl up to form nanotubes, and bunches of nanotubes assemble into a "nanocarpet." Furthermore, the nanotubes respond to different substances by changing color, and they kill bacteria to boot! No need to imagine all this—such a molecule has been synthesized, and its remarkable capabilities have been explored by a team at the University of Pittsburgh led by Alan J. Russell, a professor of surgery and of chemical and bioengineering [J. Am. Chem. Soc., published online Sept. 24. (C&E News 10/4/04) <http://pubs.acs.org/cen/news/8240/8240notw2.html>

Researchers at Los Alamos National Laboratory, the University of Arizona and Cornell University, all in the US, have made a superhard phase of carbon by applying pressure to carbon nanotubes. The material was at least as hard as cubic diamond and retained its properties at room temperature even when the pressure was removed. (nanotechweb 8/23/04)

<http://nanotechweb.org/articles/news/3/9/14/1>

Nanotubes work like radio antennas to convert light into electricity. Radio aeriels have been around for over a century, and routinely receive information carried by radio waves into our homes. Now, finally, scientists have built an aerial that can do the same for light waves. The tiny antennas could be used in solar cells, or 'optical computers' that would move data round as light beams. (Nature news 8/20/04)

<http://www.nature.com/news/2004/040920/full/040920-1.html>

National Cancer Institute Symposium to be Part of NANO Week. The National Cancer Institute (NCI), part of the National Institutes of Health (NIH), will present a symposium on the role of nanotechnology in the diagnosis and treatment of cancer Oct. 27 as part of NANO Week. The program, "Overcoming Barriers to Collaboration," will be held at the InterContinental Hotel and MBNA Conference Center on The Cleveland Clinic Foundation campus. It is free to attend, but space is limited to 200 registrants. (Yahoo 9/21/04)

[http://biz.yahoo.com/prnews/040921/cltu089\\_1.html](http://biz.yahoo.com/prnews/040921/cltu089_1.html)

Physicists Create Artificial Molecule On A Chip. Using integrated circuit fabrication techniques, a team of researchers from Yale University has bound a single photon to a superconducting device engineered to behave like a single atom, forming an artificial molecule. It's the first experimental result in a field Yale professors Robert Schoelkopf and Steven Girvin have dubbed circuit quantum electrodynamics. (photonics 8/24/04)

<http://www.photonics.com/XQ/ASP/url.readarticle/artid.251/QX/readart.htm>

Researchers demonstrate nanoscale self-assembly. A new processing technique developed by Cornell University researchers promises to usher in lithographic-like self-assembly into single and multidimensional nanoscale structures. The technique enabled 10-nm precision lithography.

One-, two- and three-dimensional nanoscale structures self-assembled by combining a block copolymer with a "cascade molecule" called a dendrimer in which atoms are arrayed along a carbon backbone, the researchers said. (EETimes 9/9/04)

<http://www.eetimes.com/at/news/showArticle.jhtml?articleId=47101871>

Magic clusters double up. Theoretical physicists in Italy and France have discovered a new family of "magic" clusters using computer simulations. The clusters, which consist of a nickel or copper core surrounded by silver atoms, display high levels of structural, thermodynamic and electronic stability. The silver-nickel structures are also magnetic (G Rossi et al. 2004 Phys. Rev. Lett. 93 105503). (Physicsweb 8/7/04)

<http://physicsweb.org/articles/news/8/9/4/1>

Good Vibrations in the Nanoworld. Local defects tune the vibrational modes of carbon nanotubes. Accessing vibrational modes of molecular chains at the site of a specific atom in molecules is no longer a dream. Using a scanning tunneling microscopy technique, the vibrational modes of carbon nanotubes have been mapped with sub-nanometer spatial resolution. This allows the study of the role of local defects and demonstrates the crucial importance of nanotubes for the electronic and mechanical properties of nanotubes. (Max Planck Society 8/27/04)

<http://www.mpg.de/english/illustrationsDocumentation/documentation/pressReleases/2004/pressRelease20040924/ind>

Nanotechnology research funding list now live at Sandia/LANL CINT website. Shortcut to funding sources now available. Nanotech researchers can shorten their search for funding by visiting the Center for Integrated Nanotechnologies (CINT) Internet site ([www.sandia.gov/cint](http://www.sandia.gov/cint)) or

## sci.nanotech: The Nanogirl News~

www.lanl.gov/cint). There, a searchable database of federal government nanotechnology funding sources is supplied as a service to the nanoscience community by CINT, a joint project of Sandia and Los Alamos national laboratories supported by the U.S. Department of Energy's Office of Science. (Sandia 9/30/04)

<http://www.sandia.gov/news-center/news-releases/2004/micro-nano/database.html>

Get set for nanotech. Nanotechnology is being called many things: A massive investment opportunity; an incredibly promising next generation electronics technology, and even a threat to humanity. For the electronics sector, fabrication of chips with nanoscale (nm) features is becoming routine. Yet while semiconductor manufacturing is dealing in nanometres, it too is still to be affected by true nanotechnology – or more accurately "molecular nanotechnology". Molecular nanotechnology (referred to as nanotechnology for the rest of this article) means constructing materials and devices virtually one atom at a time. (Ferret 9/27/04)

<http://www.ferret.com.au/articles/ba/0c0278ba.asp>

(ETC again) Nanotech 'threatens markets for poor nations' goods'. The introduction of nanotechnologies could threaten markets for goods from developing countries, according to a presentation made yesterday at the 4th World Conference of Science Journalists in Montreal, Canada.

The claim was made by Pat Mooney, executive director of the ETC Group, a Canadian organization that researches the socio-economic impacts of new technologies. Highlighting the lack of regulation for emerging technologies, Mooney called for a United Nations convention to evaluate their impacts, not only on health and the environment but also on society at large. (SciDev 10/7/04)

<http://www.scidev.net/news/index.cfm?fuseaction=readnews&itemid=1647&language=1>

Kurzweil's Quest For Eternal Youth Sets Group Abuzz. Inventor Ray Kurzweil takes 250 nutritional supplements a day in his quest to live long enough to reap the benefits he expects from biotechnology. He says he's trying to reprogram his body, as he would his computer...And health is a theme Kurzweil returned to repeatedly; it is the subject of his latest book, "Fantastic Voyage: Live Long Enough to Live Forever," co-authored with medical doctor Terry Grossman. But it was his broader vision of how biology, nanotechnology and information science are merging that set the backdrop for the conference, which brought together nearly 1,000 scientists and executives from various disciplines to peer into the future. (Washington Post 10/7/04)

<http://www.washingtonpost.com/wp-dyn/articles/A11564-2004Oct6.html>

\$10 million to establish a multidisciplinary research program in cancer nanotechnology. The National Institutes of Health (NIH) has awarded scientists from Emory University and the Georgia Institute of Technology two new collaborative research grants, totaling nearly \$10 million, to establish a multidisciplinary research program in cancer nanotechnology and to develop a new class of nanoparticles for molecular and cellular imaging.

(News-Medical.net 10/6/04) <http://www.news-medical.net/?id=5380>

Rice Finds 'On-Off Switch' For Buckyball Toxicity. Researchers at Rice University's Center for Biological and Environmental Nanotechnology (CBEN) have demonstrated a simple way to reduce the toxicity of water-soluble buckyballs by a factor of more than ten million. The research will appear in an upcoming issue of the journal Nano Letters, published by the American Chemical Society, the world's largest scientific society. One of the first toxicological studies of buckyballs, the research was published online by the journal on Sept. 11. (Sciencedaily 10/6/04)  
<http://www.sciencedaily.com/releases/2004/10/041006083717.htm>

Carbon Nanotechnologies Inc. — CNI — Announces the Issue of a U.S. Patent for Composites Containing Single-Wall Carbon Nanotubes. Carbon Nanotechnologies, Inc (CNI) announced today the issue of U.S. Patent 6,790,425 B1 for both pure and composite materials containing derivitized single-wall carbon nanotubes in substantial alignment with one another. This patent paves the way for commercial products with superior performance characteristics, such as plastics with electrical conductivity, improved fibers for bullet-proof vests, plastic parts that are stronger and longer lasting, and flat panel TVs and displays which are brighter, longer lasting, and consume less energy. This technology is part of the intellectual property developed by Nobel-Prize winning scientist Dr. Richard Smalley and licensed exclusively to CNI by Rice University in 2001. (BusinessWire 9/5/04)

[http://home.businesswire.com/portal/site/google/index.jsp?ndmViewId=news\\_view&newsId=20041005006176&news](http://home.businesswire.com/portal/site/google/index.jsp?ndmViewId=news_view&newsId=20041005006176&news)

Nanomaterials break out of laboratory into marketplace. Miniature medical machines that can bring sight to the blind and computers that work at the speed of light are no longer the stuff of futuristic novels. Argonne National Laboratory researchers are creating nanomaterials and nanotechnology to make these and other innovations possible, and collaborating with industry to bring new technologies to the marketplace. (nanotechwire 10/4/04) <http://nanotechwire.com/news.asp?nid=1166>

Gates Backs Education for Tech Growth. Microsoft mogul Bill Gates told hundreds of engineering students Friday that the future of technology could open the door for much more innovative applications than those of the past decade, but the key to further advancements lies in the strength of higher education. In Zellerbach Hall, Gates said that while the last 20 years have seen vast advances in personal computing and communications technology, we can expect to see more developments intertwined with other fields in the future, such as biotechnology and nanotechnology. (The Daily Californian 10/4/04) <http://www.dailycal.org/article.php?id=16337>

Presidential Candidates Speak Out on Science Policies. With the exception of the debate over stem-cell research, science remains a background topic in the current campaign. Democratic candidate John Kerry has occasionally highlighted US science policy and used it against President Bush, charging that the administration has put politics and ideology ahead of science. "Let scientists do science again," a headline on the Kerry election website says. Bush has responded, primarily through his science adviser, John Marburger, by pointing to the 44% increase in federal R&D since fiscal year 2001 and

the record \$132 billion in the administration's FY 2005 R&D budget. "Kerry ignores President Bush's record science investments," reads a headline on the Bush reelection website. Kerry answers by noting that most of the R&D money is going for weapons systems and defense spending related to the war in Iraq, not basic science programs. Marburger and other administration officials point to several R&D initiatives, including new nanotechnology centers, the Moon/Mars space initiative, and the program to develop hydrogen fuel technology.

(Physics Today 10/3/04) <http://www.physicstoday.org/vol-57/iss-10/p28.html>

Tiny battlefield in the war on disease Devices as small as genes detect, fight illnesses. To the incredibly tiny gold particles doctors send to search a blood sample for signs of illness, human cells would seem as big as mountains. But the particles' mission is to hunt down something more their size: prostate specific antigen, or PSA, a signal that prostate cancer may be on its way to returning – long before it actually does. Welcome to the new frontier of nanotechnology, where scientists are learning how to make super-small devices – as small as genes and proteins – to diagnose diseases that remain unseen with present equipment and to provide treatments tailored to affect individual cells. "The particles go into a blood sample, and if there are as few as 10 molecules of PSA present they will find them," said Chad Mirkin, director of Northwestern University's Institute for Nanotechnology. "The current test would need 10 million molecules of PSA to record a positive reading." (Monterey Herald 10/1/04)

<http://www.montereyherald.com/mld/montereyherald/news/nation/9809270.htm>

Gina "Nanogirl" Miller

Nanotechnology Industries

<http://www.nanoindustries.com>

Personal: <http://www.nanogirl.com/index2.html>

Foresight Senior Associate <http://www.foresight.org>

Nanotechnology Advisor Extropy Institute <http://www.extropy.org>

Tech-Aid Advisor <http://www.tech-aid.info/t/all-about.html>

Email: [nanogirl@halcyon.com](mailto:nanogirl@halcyon.com)

"Nanotechnology: Solutions for the future."