WHAT'S NEXT; Unlike Viruses, Bacteria Find a Welcome in the World of Computing
New York Times
June 1, 2000
Anne Eisenberg

"CAN living cells be transformed into computers? A number of researchers are betting that the answer is yes. They are trying to use DNA, in and out of actual living cells, that can add, subtract, store results and run programs.

If they succeed, silicon and the microchips it made possible may one day be replaced by bacteria that can handle computing. Such biological computers could be able to handle very large numbers of analytical steps simultaneously, a process called parallel computing, and might be able to do that cheaply."

Swallow, and say 'cheese'
June 5, 2000
Henry Fountain

"They haven't figured out how to squeeze Raquel Welch into it, but scientists with an Israeli company have made a pill-size video camera that takes a fantastic voyage of its own, traveling through the digestive tract and transmitting pictures along the way."
The coolness of tiny things
The Economist
May 25, 2010

"NANO-THIS. Nano-that. Nano-the-other. A nanometre is the name given by the scientific-measurement system to a billionth of a metre, and the idea that making things so small you measure their dimensions in nanometres will unlock advantages denied to larger objects has been around for well over a decade. Long enough, in other words, for sceptics to wonder when something useful will actually come of it."

New method makes field-effect transistors
May 25, 2010

"HOUSTON, May 25 (UPI) - U.S. scientists say they've made thin films of nanotubes with ink-jet printers to create field-effect transistors - the basic element in integrated circuits.

While the scientists admitted their technique doesn't exactly scale down to the levels required for modern microprocessors, the Rice University researchers said it will be useful to inventors wishing to print transistors on materials, especially flexible substrates."

Also noted by Nanowerk.

Tapping Carnival Tech, Researchers Create Nanofibers Inspired by Cotton Candy
Popular Science
May 25, 2010
Clay Dillow

"Rarely do the worlds of nanotech and carnival cuisine overlap, but when they do the results can be pretty sweet. A team of engineers has created a technology for fabricating nanofibers that's half high-speed centrifuge, half cotton candy machine, spinning and stretching out ultra-thin nanofibers that measure just 100 nanometers in diameter."
Like most technologies prefixed with 'nano,' this one has a wide range of applications in fields ranging from textiles to air filters to biotech. Moreover, it could drastically reduce the cost and complexity of nanofiber manufacture, making the tiny threads a cost effective option in countless products."

Also noted by AzoNano.

Science funding: Science for the masses
Nature News
May 26, 2010
Corie Lok

"Research-funding agencies are forever trying to balance two opposing forces: scientists' desire to be left alone to do their research, and society's demand to see a return on its investment . . .

[The US National Science Foundation (NSF) . . . will not even consider a proposal unless it explicitly includes activities to demonstrate the project's 'broader impacts' on science or society at large . . .

[There have been some successes. At Rensselaer Polytechnic Institute in Troy, New York, for example, the NSF's Nanoscale Science and Engineering Center for Directed Assembly of Nanostructures sponsors the Molecularium project, which has produced teachers' materials on nanoscience and an animated three-dimensional IMAX film called Molecules to the Max."

Russia Takes a Big Step Into Technology
New York Times (DealBook blog)
May 26, 2010

"A group of Silicon Valley venture capitalists who bet on companies like Skype and Facebook are taking a look at another long-shot proposition - that Russia can diversify its economy away from oil.

The Russian president, Dmitri A. Medvedev, has elevated diversification to a centerpiece of his economic policy and is building a sprawling technology park outside Moscow referred to as Russia's Silicon Valley, Andrew Kramer reports in The New York Times."

Finding a Badly Needed New Generation of Nano Workers, In Unlikely Places
Popular Science
"In the next five years, the world will need a hundred-fold increase in nano workers - the people who will build nanomaterials and develop new uses for them. In Colombia, some of these workers might very well come from the slums. At least according to one nano educator.

Tom Levesque, general manager of a Chicago firm called NanoInk, is in the business of teaching students that the next big thing will be very small. His curriculum program NanoProfessor, released in 2009, aims to get students involved in nano-fabrication projects as part of science classes."

"Sometimes the things we do when we are afraid don't make much sense. Just ask the parents of kids now getting, or even dying of, measles, because a little known UK doctor suggested that the MMR vaccine might be associated with autism. Parents of autistic kids, hungry for some explanation for their tragedy, exploded that hint into worries that have spread around the world about vaccines of all kinds. Diseases once nearly eradicated are resurgent."

"A group of visiting U.S. fund managers heard a pitch Wednesday from Rusnano chief Anatoly Chubais, who sought to convince them that he could turn nanotechnology into a $30 billion industry by 2015.

Russian officials have been wooing foreign investment as part of their drive to modernize the economy through the development of new industries and innovative technologies. On Tuesday, President Dmitry Medvedev addressed the same group, saying Russia was ripe for investment because of its liberal financial regulation."
Chubais - an economic liberal best known in the West for his work on the country’s privatizations - won polite endorsement from the delegation, which described the target of $30 billion in revenue as ambitious.

SAFETY AND HEALTH: A hard look at nanotech - More studies required before public use products containing the 'wonder' ultra fine particle

The Malay Mail
May 27, 2010
S. Param

"LATELY, I noticed several cosmetics products in the market using nanoparticle-sized ingredients which manufacturers claim would enhance their benefits more effectively.

It is interesting to note that even our local herbal cosmetic manufacturers have embraced nanotechnology alongside beauty products like facial-cum-skin creams, anti-aging creams and serums.

Local response to them appears to be very encouraging and we can expect manufacturers of other consumer products to do the same. It must be pointed out, however, that concerns about health and safety of these nanoproducts are emerging elsewhere."

Scientists Oppose Nano-Dispersant for Gulf

AOL News
May 28, 2010
Andrew Schneider

"The massive Gulf of Mexico oil spill has already hemorrhaged anywhere from 18 million to 40 million gallons of oil into the water, leaving federal and state emergency response officials desperate for any way to capture the spreading raw crude and protect the U.S. coastline.

But this week, scientists in the U.S., Canada, South America and elsewhere pleaded with the government not to approve one option: a dispersant that contains unidentified and possibly untested nanoparticles."

EPA Moves to Close Key Chemical Safety Loophole

AOL News
"After years of allowing corporations to withhold vital safety information, the Environmental Protection Agency screamed 'stop' on Thursday. In the Federal Register, the agency said it will no longer permit the obstruction of safety evaluations by allowing firms to hide behind age-old claims of business secrecy.

EPA Administrator Lisa Jackson had told Congress earlier this year that the heavily lobbied for 'confidential business information' protection was keeping the agency's risk assessors from obtaining vital health and safety data on chemical substances awaiting approval. Thousands of chemicals were not properly evaluated because of the withheld information, she told lawmakers."

"Clathrin, a protein found in every cell of the human body, could become a self-assembler of future information processing systems that are smaller, faster and cheaper than today's computer circuitry, according to a company investigating the technology. Boston-based ExQor Technologies said it has demonstrated that the material can be formed into nano-sized biolasers suitable for transmitting information. It expects the technology will initially be used in medical applications. The precision of clathrin's self-assembly process, and ultra-small size also could be used to improve solar cells and batteries with nanoscale electronic and photonic properties not possible with silicon."

"Since the dawn of the industrial Revolution, manufacturers have been building things by a process that is now known as 'heat, beat, and treat.' That meant starting with a raw material and using enormous amounts of energy to heat it, heavy machinery to twist it
into shape, and toxic chemicals to maintain its design, strength, and durability. Now, spurred by advances in technology, rising energy costs, and the move toward doing business in ways that don't burn so much energy, engineers and scientists from some big companies and research institutions are taking a new tack: they are looking to the natural world to find inspiration for new products, and to learn how to build in a way that is more efficient, lower-cost, and friendlier to the environment. The field, known as biomimicry, brings together biologists, engineers, and designers in an attempt to solve some of the world's thorniest manufacturing challenges."

Nanotechnology set to lead obesity battle

GulfNews.com

May 29, 2010

"Abu Dhabi: Are you sacrificing your favourite food to avoid fat and sugar which causes obesity or diabetes? In future you will be able to eat whatever you want without fear - thanks to nanotechnology. The technology will be able to help cut the fat and sugar content in food without compromising the taste, a top official told Gulf News on Wednesday. 'The nanotechnology will address food-based obesity', said Dr Abdul Latif Eldaw Yousuf, manager of the Specialised Food Inspection Section at Abu Dhabi Food Control Authority (ADFCA). His remarks were especially relevant in the wake of a recent World Health Organisation (WHO) report which said cases of obesity and diabetes are growing among Emiratis."

Experts in UAE to assess risks of nano foods

Khaleej Times (United Arab Emirates)

May 30, 2010

Martin Croucher

"Nanotechnology can make foods tastier, give them a longer shelf life or add more nutrients but worries that it could damage DNA and pose health risks remain.

Imagine a tasteless, odourless drink that, once bombarded with microwaves, could taste like coke, orange juice or ginger beer according to the preference of the customer.

Several years ago, that was an example raised by a company about 'programmable
foods', to demonstrate the potential that nanotechnology could have for the food industry. These days, the company is largely silent on the issue as nanofoods have become a subject of debate."

**Toxic cities mock 'healthy' cycle riding**
*Times of London*
May 30, 2010
Jonathan Leake

"CYCLING to work may seem the healthy option, but a study has shown that people riding in cities inhale tens of millions of toxic nanoparticles with every breath, at least five times more than drivers or pedestrians.

The research involved fitting cyclists with devices that could count the particles, mostly emitted by car exhausts, in the air they were breathing."

**Scientist attempt to make test-tube gut**
*BBC News*
June 1, 2010

"Scientists are developing a "test-tube gut and liver" as an ethical alternative to animal testing for the nanotechnology industry.

Experts working on the project, called InLiveTox, will be at an international nanotoxicology conference at Edinburgh Napier University on 2-4 June.

The three-year £2m project involves experts from around the world.

**New, more sensitive, PSA test developed**
June 2, 2010

"CHICAGO, June 2 *(UPI)* - U.S. scientists say they have developed an ultra-sensitive nanoparticle PSA test that can accurately predict a return of prostate cancer after surgery.

Researchers at Northwestern University's Feinberg School of Medicine and the University International Institute for Nanotechnology said their PSA (prostate-specific antigen) test uses nanoparticle-based technology that might be able to definitively predict after surgery if prostate cancer is cured or if it will recur."

*Also noted by the Daily Mail (U.K.), Reuters, among others.*
As millions of us who play and work under the bright sun dutifully slather our bare skin with creams, oils and sprays, consumer safety activists continue to blast the government for failing to ensure the safety of these sunscreens.

The latest target of concern is the use by sunscreen manufacturers of nanosized particles of titanium dioxide and zinc oxide. A new report based on several preliminary studies says these atom-sized additives have the potential to cause serious harm.

The Indian Army plans to induct new-age gadgets such as micro audio bugs and video devices to keep a watch on terrorist hideouts and their meeting places and activities, apparently taking a leaf out of James Bond flicks.

U.S. President Barack Obama announced Thursday that he intends to nominate Subra Suresh, dean of the MIT School of Engineering, to serve as the next director of the National Science Foundation . . .

[Suresh] has most recently done extensive work on the red blood cell and its nanobiomechanical properties as they influence a variety of diseases. Suresh has made significant advances and created a range of new experimental methodologies to unravel the inner workings of such diseases as malaria.

You can already find nanotechnology in ski wax, skin cream, tennis rackets and even your khaki pants.

So it's not too hard to imagine this tech bringing us a foldable iPad next.
A team of Duke University chemists say they've perfected a way to mass produce copper nanowires, a technology that could have a wide impact on the electronics industry. The wires are bendable, which means they could be used to produce flexible screens for devices like televisions and even iPads.

**Clean emissions with nanotech**

Financial Express (India)
June 7, 2010
BV Mahalakshmi

"Nanotechnology, the manipulation of matter at the scale of atoms and molecules, seems to be the buzzword among the Indian public sector, private enterprises and the research community these days. Research is in top gear at over 100-odd companies in the public and private domain and there are 50 universities to harness the potential of this technology. Areas of applications with immediate impact could be seen in the areas of drug delivery to treat tumour or cancer, solar energy, display technologies, opto-electronic devices and semiconductor devices in nanoelectronics."

**Safety first as Europe and China get together**

*Shanghai Daily*
June 7, 2010
Tan Weiyun

"THE Chinese Academy of Inspection and Quarantine and the European Commission's Joint Research Centre have joined forces to share their expertise in consumer protection.

They signed a memorandum of understanding yesterday at a food safety seminar in the EU Pavilion. Both institutions provide technical support for policy makers and will cooperate in scientific research to ensure the safety of consumer products."

**On Deck**

What Local Sources are Reporting

**Nanotech creates innovative solutions for cancer treatment**

Medill Reports (Northwestern U.)
May 25, 2010
Elizabeth Bahm

"Nanotechnology may offer the next frontier in treating cancer with greater success and fewer side effects."
Though treatments may be several years away, a recent study highlights the possibilities for innovative treatments in the field.

Researchers at the California Institute of Technology successfully used nanoparticles, tiny particles that can package treatments, to target cancerous cells and attack them with a process known as RNA interference, according to a study published in a recent online edition of the journal Nature.

Nanotechnology opportunities exist despite recession
Allentown (PA) Morning Call
May 26, 2010
Spencer Soper

"The recession has dealt a severe blow to investments in nanotechnology, but opportunities still exist for companies creating the right products.

Those were the take-aways from a nanotechnology symposium today that drew 100 people to Lehigh University."

Nanotech and the oil spill
Twin Cities Daily Planet
May 26, 2010
Ben Lilliston

"As BP and government agencies struggle to stem the devastating flow of oil now hitting the Louisiana coast, there is growing desperation to find a solution - and fast. Green Earth Technologies, Inc. (GET) is seeking approval from the Environmental Protection Agency (EPA) to disperse manufactured nanoparticles in the Gulf of Mexico to remedy the oil spill. IATP and more than a dozen other organizations think this is a bad idea."

Sunscreen under Scrutiny
Keene (NH) Sentinel
May 26, 2010
Julie Deardorff

"CHICAGO - Peggy Lim has a healthy respect for the sun's powerful ultraviolet rays, and on a recent shopping trip she agonized over choosing a sunscreen for her three children."
'I've always heard the higher the SPF (sun protection factor) the better, until you get to SPF 45,' said Lim, who finally bought whatever happened to be in front of her. 'Now my husband says the SPF doesn't matter as much as how much you use. What's the right amount? Do I have to apply it under their clothes? And how bad of a mother am I if I forget to reapply it?' "

**Looking at nanotech through the lens of religion**

Medill Reports (Northwestern U.)
May 26, 2010
Elizabeth Bahm

"Scientific advances and religious beliefs have clashed repeatedly in recent years over issues such as stem cell research and evolution. As nanotechnology becomes a greater part of Americans' daily lives, researchers have asked whether it will face similar opposition. Experts say that the answer lies in finding solutions to the larger challenges of communicating between science and religion.

In 2008, University of Wisconsin researchers found a link between a higher incidence of religious belief and distrust of nanotechnology. They found greater acceptance of the science in Europe countries where religiosity ranked lower compared with a greater distrust among American citizens who reported that religion played a significant role in their lives."

**UB explores new approach against the flu**

WBFO
May 30, 2010

See link for text.

**Wanted: Nano-Cops**

*New Haven (CT) Independent*
June 1, 2010
Jim Motavalli

"Experts on the cutting edge of revolutionary new technology aren't waiting for the government to watch over their booming new industry. They want to band together to start policing themselves.

At least some of them do.

They put out a call for nano-cops - people to get in front of the potential health and
environmental dangers of nanotechnology, the development of medical, environmental and consumer super-products from tiny particles with surprisingly powerful properties."

**Microscopically thin research is a big deal**
*Press-Enterprise* (Riverside, CA)
June 5, 2010
Mark Mukenfuss

"Two years ago, it was hard to get Robert Haddon to talk about much of anything other than carbon nanotubes.

These days, it's all about graphene.

Both materials are constructed primarily of carbon atoms. Both are microscopically thin. Thinner than that, actually. They are made from a single layer of atoms, about 100,000 times thinner than a human hair."

**Money Scarce For Renewable Energy Fixes**
*New Haven (CT) Independent*
June 7, 2010
Jim Motavalli

"DENVER - The red-hot nanotechnology industry—the development of super-products from tiny particles with surprisingly powerful properties—gets a fair amount of grief from environmentalists concerned about its environmental health and safety.

Yet at a time when the Gulf oil spill has revived pressure for 'clean energy,' nanotech might also be generating some of the most promising hopes for jump-starting fossil-fuel alternatives like improved electric-car batteries and energy-efficient tires - *if* their inventors can find funding in new capital 'valleys of death.'

A new report from Lux Research sees a $29 billion clean-tech nanotech market in 2015."

**Nano Press**
What nano-centered publications are reporting

**Nanotechnology, Nanomedicine and the Rational Design of New-Age Delivery Systems**
"Our team at The Nanomedicine Lab within the Centre for Drug Delivery Research wants to generate and disseminate fundamental knowledge in the emerging field of nanomedicine by bringing together biomedical engineering, pharmacology and nanotechnology and their translation to advanced, clinically-relevant therapeutics and diagnostics.

Our aim is the development of novel, viable and effective therapeutics based on the transformation of nanotechnology tools and materials and their use as either the 'drug' or the 'delivery system'. Such components include DNA, RNA, viruses, stem cells, radionuclides, liposomes, carbon nanomaterials and other nanomaterials (quantum dots, fullerenes, carbon nanohorns)."

"Packaging anti-cancer drugs into particles of chemically modified silica improve the drugs' ability to fight skin cancer in mice, according to new research. Results published May 3 in the *Journal of the American Chemical Society* online show the honeycombed particles can help anti-cancer antibodies prevent tumor growth and prolong the lives of mice.

'We are very excited by our preliminary results,' said biochemist Chenghong Lei of the Department of Energy's Pacific Northwest National Laboratory, part of the team of PNNL and University of Washington scientists. 'We plan to do some additional, larger studies with animals. We hope the results hold up well enough to take it to clinical trials somewhere down the road.'"

"Using nanoporous silicon particles, two teams of investigators have created drug delivery vehicles capable of ferrying labile molecular therapies deep into the body. Both groups believe their new drug delivery vehicles create new opportunities for developing innovative anticancer therapies."
Cheaper solar energy due to silicon nanosponges?
Nanowerk
May 25, 2010

"In principle, solar energy is unlimitedly available. If it is to get rid of its status as the most expensive and highly subsidized kind of renewable energy, researchers have to bring about basic innovations. Expectations are particularly high with regard to the use of nano materials. The research center Forschungszentrum Dresden-Rossendorf (FZD) coordinates an international team of researchers from science and industry investigating such third-generation solar cells."

Cell imaging: Reporting live on location
Nanowerk
May 26, 2010

"Visualizing the complex internal cellular processes within our bodies requires the use of photostable, optically active probes that can be tracked with special microscopy instruments. One technique, surface-enhanced Raman scattering (SERS), uses nanoscale tags that maintain emission intensity upon exposure to ultraviolet light - an advantage over conventional fluorescent probes. Now, a team led by Young-Tae Chang from the Singapore Bioimaging Consortium of A*STAR has developed a new approach to generate a library of dyes that can form SERS 'nanotags' upon binding with metal nanoparticle colloids ('Combinatorial synthesis of a triphenylmethine library and their application in the development of Surface Enhanced Raman Scattering (SERS) probes')."

Scaffold gradients: Finding the right environment for developing cells
Nanowerk
May 26, 2010

"People often have strong opinions on the 'right' firmness of mattresses for themselves, and, as it turns out, some cell types have similar preferences for their support structures. Now a research team from the National Institute of Standards and Technology (NIST) and the National Institutes of Health (NIH) has developed a way to offer cells a three-dimensional scaffold that varies over a broad range of degrees of stiffness to determine where they develop best. Their recently published technique ('The effect of 3D hydrogel scaffold modulus on osteoblast differentiation and mineralization revealed by combinatorial screening') is a way to rapidly optimize 3D cell growth media to meet the developmental needs of specific cell types for a wide variety of potential tissue-replacement therapies."
Nanocapsule delivers radiotherapy
PhysOrg
May 26, 2010

"'Hot' nanocapsules can deliver targeted radiotherapy to individual organs, new research has shown.

A team, including Ben Davis and Malcolm Green of Oxford University's Department of Chemistry, report in *Nature Materials* how they created a 'cage' out of a single-walled carbon nanotube and then filled this tube with molten radioactive metal halide salts.

Once the cage, and its cargo of salts, cooled the ends of the tube sealed to create a tiny radioactive nanocapsule with a 'sugary' outer surface that helps to improve its compatibility inside the body."

A new study shows that silver nanoparticles mitigate the cell damage caused by ethanol
Nanotechwire
May 27, 2010

"The cover story of the most recent edition of the Journal of the American Chemical Society (JACS) describes how nanoparticles formed by very small numbers of silver atoms can protect against the cell damage caused by ethanol. The study was led by researchers from the University of Barcelona and conducted in conjunction with the Magnetism and Nanotechnology laboratory of the University of Santiago de Compostela.

'The results of the study show that these clusters of small numbers of silver atoms catalyze ethanol oxidation at similar concentrations to those found in the blood of alcoholics and at values of membrane potential and pH that are compatible with those exhibited by mammalian cells', explains Gustavo Egea, a professor with the Department of Cell Biology, Immunology and Neurosciences of the Faculty of Medicine at the UB and an affiliated researcher for the Institute of Nanosciences and Nanotechnology (IN2UB) and the August Pi i Sunyer Miomedical Research Institute (IDIBAPS)."

Microbubble scavengers can remove carbon nanotubes from the body
Nanowerk
May 27, 2010

"The toxicity concerns surrounding carbon nanotubes (CNTs) are highly relevant for two reasons: Firstly, as more and more products containing CNTs come to market, there is
a chance that free CNTs get released during their life cycles, most likely during production or disposal, and find their way through the environment into the body."

**Nano-Bio-Chip Checks for Oral Cancer**
PhysOrg
May 28, 2010

"The gentle touch of a brush on the tongue or cheek can help detect oral cancer with success rates comparable to more invasive techniques like biopsies, according to preliminary studies by researchers at Rice University, the University of Texas Health Science Centers at Houston and San Antonio and the University of Texas M.D. Anderson Cancer Center. A new test that uses Rice’s diagnostic nano-bio-chip was found to be 97 percent ‘sensitive’ and 93 percent specific in detecting which patients had malignant or premalignant lesions, results that compared well with traditional tests.

The results of this study, which was led by John McDevitt, were published in the journal Cancer Prevention Research. Oral cancer afflicts more than 300,000 people a year, including 35,000 in the United States alone. The five-year survival rate is 60 percent, but if oral cancer is detected early, that rate rises to 90 percent."

**Liquid method: pure graphene production**
PhysOrg
May 30, 2010

"In a development that could lead to novel carbon composites and touch-screen displays, researchers from Rice University and the Technion-Israel Institute of Technology today unveiled a new method for producing bulk quantities of one-atom-thick sheets of carbon called graphene.

The research is available online in the journal *Nature Nanotechnology*.

When stacked together, graphene sheets make graphite, which has been commonly used as pencil lead for hundreds of years. It wasn't until 2004 that stand-alone sheets of graphene were first characterized with modern nanotechnological instruments. Since then, graphene has come under intense scrutiny from materials scientists, in part because it is both ultrastrong and highly conductive."
From butterflies' wings to bank notes - how nature's colors could cut bank fraud

PhysOrg
May 30, 2010

"Scientists have discovered a way of mimicking the stunningly bright and beautiful colours found on the wings of tropical butterflies. The findings could have important applications in the security printing industry, helping to make bank notes and credit cards harder to forge.

The striking iridescent colours displayed on beetles, butterflies and other insects have long fascinated both physicists and biologists, but mimicking nature's most colourful, eye-catching surfaces has proved elusive.

This is partly because rather than relying on pigments, these colours are produced by light bouncing off microscopic structures on the insects' wings."

Also noted by Nanowerk, Christian Science Monitor; Daily Telegraph, Kingston Whig-Standard (U.K.), UPI, among others.

Faster computers with nanotechnology
Nanowerk
May 31, 2010

"The silicon transistors in your computer may be replaced in ten years by transistors based on carbon nanotubes. This is what scientists at the University of Gothenburg are hoping - they have developed a method to control the nanotubes during production.

Silicon is subject to certain limitations, and industry is looking for a replacement. The electronics industry has net annual sales of over USD 200 billion, and this means that the development is being fuelled by powerful forces."

Also noted by The Hindu.

Bottom-up fabrication of carbon nanosystems by trapping single metal atoms
Nanowerk
May 31, 2010

"Among the various production methods for carbon nanotubes (CNT) and graphene, currently only chemical vapor deposition techniques demonstrate a significant opportunity for mass production of CNT material. Using the CVD process, which is based on the catalytic action of
metals, manufacturers can combine a metal catalyst such as iron with reaction gases such as hydrogen to form carbon nanotubes inside a high-temperature furnace. This process creates CNTs that are subsequently deposited in a collection environment and harvested into the desired end-product structural form.

In order to optimize the synthesis process, a detailed understanding of the interaction between nanotubes or graphene and metal atoms is required - something that has been missing so far. Another area where specific knowledge of metal-carbon interfaces in electrical contacts is required is the fabrication of nanoelectronic devices."

Biorefinery concept shows a way out of a world dominated by petrochemicals
Nanowerk
June 1, 2010

"Developing chemicals, molecular precursors, and industrial products from petroleum resources is a conventional practice. Plastics, detergents, even pharmaceuticals are derived from petrochemicals. With an increasing focus on the economic and environmental issues associated with the processing of petroleum-based chemicals, scientists are seeking for alternative routes to develop molecules from naturally available plant or crop-based raw materials.

While 'green production', 'green chemistry', and environmentally sound and renewable fuel sources are all the rage these days, it seems quite ironic that we could see the chemical industry coming full circle on its raw material sources: In the early parts of the 20th century, most non-fuel industrial products such as medicines, paints, chemicals, dyes, and fibers were made from vegetables, plant and crops. During the 1970s, petroleum based organic chemicals had largely replaced those derived from plant materials, capturing more than 95% of the markets previously held by products from biological sources."

Titanium dioxide powers light-driven micro- and nanomotors
Nanowerk
June 2, 2010

"For nanotechnology researchers, movement at the nanoscale is a challenging problem and there is much to be learned from nature's motor systems. There are various approaches to creating self-propelled micro- and nanosized motors and one promising approach rests on catalytic conversion of chemical to mechanical energy - a process that is ubiquitous in biology, powering such important and diverse processes as cell division, skeletal muscle movement, protein synthesis, and transport of cargo within cells . . .

Self-propelled motion of synthetic materials can be useful in applications such as bottom-up assembly of structures, pattern formation, drug delivery at specific locations, etc. Researchers have now presented a novel and versatile light-driven catalytic micromotor system, which is the cleanest and simplest of its kind."

New Supplement for Health Care Features Nano Onion-Like Solid Fullerenes
Azonano.com
"Nanotechnology has made its way into the health care arena and is now being applied to an important supplement called Nanoxynalpha found at www.nanoxyn.com. For those seeking an accelerated way to enhanced health, Nanoxynalpha is an innovative supplement that quickly demonstrates proven results. Based upon years of scientific research, Nanoxynalpha has been derived from dry olive pits and developed through a dry chemical process."

IFIC 2010 Survey Includes U.S. Consumers' Perceptions of Nanotechnology
Azonano.com
June 3, 2010

"The International Food Information Council (IFIC) 2010 'Consumer Perceptions of Food Technology' survey found that consumers support the use of food biotechnology when they consider its potential benefits for reducing the impact of food and food production on the environment, and for improving sustainability. The 14th IFIC Food Technology Consumer Survey (formerly the IFIC Survey of Consumer Attitudinal Trends toward Food Biotechnology) explored U.S. consumers' perceptions of various aspects of plant and animal biotechnology, as well as sustainability and new and emerging technologies such as nanotechnology. This year, consumers responded most positively to benefits of biotechnology for the environment and sustainability."

Nanomedicine in The Netherlands - new report
Nanowerk
June 4, 2010

"Nanotechnology promises employment, sustainability and health. The Dutch government invests heavily in it. But how do we achieve these promises? In preparation for a parliamentary debate about nanotechnology on 21 April 2010, the Rathenau Institute initiated a working visit of MPs to one of the most promising areas of its application: healthcare. The note Nanomedicine in the Netherlands (pdf) sets out the promises, challenges and issues surrounding 'nanomedicine'."

Nanotechnology and Risk Assessment
Azonano.com
June 7, 2010
Dr. Lang Tran

"The management of health risk is a complicated process. The method for risk management consists of two fundamental elements

1. The steps to be taken (to achieve the specific objectives); and
2. the rationale which justifies the choice of the steps in (1)."
In this short article, we will outline the method for managing the potential health risks arising from exposure to engineered nanoparticles (ENP).

Risk to health is a product of both the intrinsic Hazard of a material, and the level of Exposure. We will describe the processes involved in Hazard and Exposure assessment in order to undertake an assessment of risk. Finally, we will outline one possible approach for managing risk.

Nanotechnology for a Brighter and More Sustainable Future
Azonano
June 7, 2010
Professor Javier Garcia-Martínez

"Nanotechnology, with its unprecedented control over the structure of materials, can provide us with superior materials that will unlock tremendous potential of many energy technologies currently at the discovery phase. The quest for more sustainable energy technologies is not only a scientific endeavor that can inspire a whole generation of scientists, but the best way to establish a new economy based on innovation, better paid jobs, and care for the environment."