Subject: [CNS-weekly-clips] CNS Weekly Clips--July 20-August 2, 2009
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Center for Nanotechnology in Society
University of California, Santa Barbara
www.cns.ucsb.edu
Weekly Clips
July 20, 2009 - August 2, 2009

In this issue...

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1) Easy fabrication of carbon nanoscrolls could speed their use in nanotechnology applications

Nanowerk | July 20, 2009
http://www.nanowerk.com/spotlight/spotid=11723.php

Carbon nanotubes have long been recognized as a promising material for the storage of hydrogen (read for background: "New carbon nanotube hydrogen storage results surpass Freedom Car requirements"). Back in 2003, researchers first synthesized carbon nanoscrolls – another carbon nanomaterial similar to multi-walled carbon nanotubes – that was reported to be promising for hydrogen storage...

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2) Nanotechnology and the environment: A mismatch between claims and reality

Nanowerk | July 20, 2009
http://www.nanowerk.com/news/newsid=11736.php

Nanotechnologies are presented as providing unprecedented technological solutions to many environmental problems including climate change, pollution and clean drinking water. Proponents claim that it enables economic growth through better products and new markets while dramatically reducing our ecological footprint. However there is emerging evidence these claims do not provide the whole picture, with serious environmental risks and costs being trivialised or ignored...

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3) Berkeley Lab award winners promise cost-competitive solar cells and a 3-D look at nanoscale matter
Nanowerk | July 20, 2009
http://www.nanowerk.com/news/newsid=11742.php

Four of R&D Magazine's prestigious R&D 100 Awards for 2009, which recognize the 100 most significant proven technological advances of the year, have gone to researchers at the U.S. Department of Energy's Lawrence Berkeley National Laboratory and their colleagues.

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4) Novel nanoparticle technique could revolutionize therapeutic drug discovery
Nanowerk | July 21, 2009
http://www.nanowerk.com/news/newsid=11751.php

Understanding the structure of proteins is a vital first step in developing new drugs, but to date, researchers have had difficulty studying the large number of proteins that are normally embedded in the cell membrane, a family of proteins that includes those involved in cancer-related signaling processes. However, using nanoparticles, scientists from the University of Birmingham in the United Kingdom have found a way to preserve membrane proteins intact, enabling detailed analysis of their structure, molecular functions, and interaction with potential anticancer agents...

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5) Nanoparticles Could Improve Breast Cancer Diagnosis Via MRI
Health News Digest | July 21, 2009
http://www.healthnewsdigest.com/news/Cancer_Issues_660/Nanoparticles_Could_Improve_Breast_Cancer_Diagno

Emory researchers have developed tools for improving the diagnosis of breast cancer by attaching onto iron oxide "nanoparticles" a molecule that binds specifically to breast cancer cells...

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6) Portugal-based lab aims to advance in nanomedicine field
PharmaTimes | July 21, 2009
http://www.smartbrief.com/news/snm/storyDetails.jsp?issueid=915F0C4D-CC34-4C04-A031-441A927345E5&cop

The recently opened International Iberian Nanotechnology Laboratory in Braga, Portugal, is on the lookout for potential partners in the drug and biotechnology industries to advance nanomedicine research. "We want to connect R&D to the real economy, health care and society," INL Director José Rivas said. Possible research areas to be explored at INL, which is a partnership between the governments of Portugal and Spain, include the use of nanotechnology for drug delivery and selective targeting of tumor cells, as well as for diagnostic imaging...

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7) Electronic nose can detect skin vapors in real time
Nanowerk | July 21, 2009
http://www.nanowerk.com/news/newsid=11767.php

A team of researchers from the Yale University (United States) and a Spanish company have developed a system to detect the vapours emitted by human skin in real time. The scientists think that these substances, essentially made up of fatty acids, are what attract mosquitoes and enable dogs to identify their owners...

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8) New approach to biomedical imaging with magnetically responsive gold nanostars
Nanowerk | July 21, 2009
http://www.nanowerk.com/news/newsid=11771.php

Purdue University researchers have created magnetically responsive gold nanostars that may offer a new approach to biomedical imaging. The nanostars gyrate when exposed to a rotating magnetic field and can scatter light to produce a pulsating or "twinkling" effect. This twinkling allows them to stand out more clearly from noisy backgrounds like those found in biological tissue...

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9) Better water purification possible by substituting a single atom in a molecule
Nanowerk | July 21, 2009
http://www.nanowerk.com/news/newsid=11773.php

By substituting a single atom in a molecule widely used to purify water, researchers at Sandia National Laboratories have created a far more effective decontaminant with a shelf life superior to products currently on the market...

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10) Nanologica Shortlisted as Top 5 Most Interesting Material Development Company in the World
AZoNano.com | July 22, 2009
http://www.azonano.com/news.asp?newsID=12708

Nanologica is shortlisted as the top 5 most interesting material development company in the world by the World Technology Network in association with TIME, Fortune, and Science magazine. The World Technology Network, consists of approximately 1,000 members from 60 countries. The theme for this year's nominations is "How to save the future". The purpose of the ceremony is to reward the world's most innovative individuals and companies. At this year's World Technology Summit & Awards Nanologica was nominated in the category: Materials (corporate). Past winners in this class are Dow Chemical, IBM, Molecular Inprints and Nanosys...

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11) How to turn your mobile phone into a fluorescence microscope
Nanowerk | July 22, 2009
http://www.nanowerk.com/news/newsid=11778.php

Researchers at the University of California, Berkeley, are proving that a camera phone can capture far more than photos of people or pets at play. They have now developed a cell phone microscope, or CellScope, that not only takes color images of malaria parasites, but of tuberculosis bacteria labeled with fluorescent markers...

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12) RUSNANOPRIZE 2009 in nanotechnology shared by Russian and American physicists
Nanowerk | July 22, 2009
http://www.nanowerk.com/news/newsid=11779.php

The board of the international award RUSNANOPRIZE-2009 has decided to award this year's prize to academician Leonid Keldysh (Russia) and professor Alfred Y. Cho (USA) for their research and development of "Semiconductor superlattices and technology of molecular beam epitaxy (MBE)". In addition, the French company RIBER, one of the world leading suppliers of MBE products and services, will also receive a recognition...

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13) Europe Takes the Lead on Nanotechnology
Businesswire | July 22, 2009
http://ca.sys-con.com/node/1044662

Paving the way for nanotechnology research across the globe, the International Iberian Nanotechnology Laboratory (INL) was officially inaugurated Friday, pushing Europe to the forefront of the field. Among those in attendance were the King of Spain, Juan Carlos I; the president of Portugal, Aníbal Cavaco Silva; the president of the Government of Spain, José Luis Rodríguez Zapatero; and the Prime Minister of Portugal, José Sócrates...

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14) Cell Membranes Applied To Manufactured Surfaces Could Lead To New Class Of Self-assembling Materials
ScienceDaily | July 25, 2009
http://www.sciencedaily.com/releases/2009/07/090722123749.htm

Applying biological molecules from cell membranes to the surfaces of artificial materials is opening peepholes on the very basics of cell-to-cell interaction. Two recently published papers by a University of Oregon biophysicist and colleagues suggest that putting lipids and other cell membrane components on manufactured surfaces could lead to new classes of self-assembling materials for use in precision optics, nanotechnology, electronics and pharmaceuticals...

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15) Fuel Cell Catalysts Go Sub-Nano
Nanotechnology and Development News | July 22, 2009
http://www.merid.org/NDN/more.php?id=2043

Researchers in Japan have created sub-nano scale platinum clusters, the smallest of which contain just 12 atoms, that have high catalytic activity. The clusters could be used in fuel cell applications and, because of their diminutive size, could help conserve the planet's limited supply of platinum. Commercial platinum nanoparticles contain hundreds or even thousands of atoms, but the Japanese team found that as they decreased the size of the clusters, the catalytic activity for reduction of oxygen increased, and the catalytic current produced by their clusters was 13 times that of commercial platinum nanoparticles...

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16) Molecules mean more Moore
Nanowerk | July 23, 2009
http://www.nanowerk.com/news/newsid=11808.php

Silicon is at the heart of an electronics revolution that has buoyed the civilized world for decades. But as time goes

on and technology advances, it's becoming apparent that silicon could use a little help. A Rice University laboratory is manipulating molecules that might just be the ticket to extending Moore's Law, the theory that dictates the number of transistors that can be placed on an integrated circuit doubles about every two years...

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17) OECD nano chief predicts debate will become "more balanced"
Chemical Watch | July 24, 2009
http://chemicalwatch.com/2504

The OECD's head of nanotechnology believes the conference held last week by his organisation will help brings advocates of the technology and their opponents closer together and help them see both sides of the argument. Policy makers, regulators, academics, industry and civil society groups attended the OECD-hosted conference in Paris from 15 to 17 July on the potential environmental benefits offered by nanotechnology...

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18) 145 Scholarships And Fellowships Awarded To Groom Promising Young People For R+D Sector
AZoNano.com | July 24, 2009
http://www.azonano.com/news.asp?newsID=12774

This year, 124 scholars will receive the National Science Scholarships (NSS) or A*STAR Graduate Scholarships (AGS) to pursue their Bachelor and PhD studies at world-class universities and laboratories locally and overseas. This is 35 more than the number last year...

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19) Fuel Cells, energy conversion, and mathematics
Nanowerk | July 24, 2009
http://www.nanowerk.com/news/newsid=11839.php

Concerns about dwindling fossil fuel resources, current levels of petroleum consumption, and growing pressure to shift to more sustainable energy sources are among the many factors prompting the transition from our current energy infrastructure to one that uses less carbon and requires the efficient conversion of energy. This necessitates collecting energy from ambient sources including wind, solar, and geothermal power, and converting it into appropriate forms for distributing electricity. While it is possible for this electric power to be distributed efficiently, conversion is necessary for use in automobiles and large-scale storage is problematic...

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20) Cellular toxicity of titanium dioxide nanotubes and nanowires
Nanowerk | July 27, 2009
http://www.nanowerk.com/spotlight/spotid=11851.php

One of the complications of nanotoxicology is that the toxicity of a specific nanomaterial cannot be predicted from the toxicity of the same material in a different form. For instance, while the toxicity of inert systems such as iron oxides, gold, or silver has been investigated for nearly isotropic particles (i.e., with a low aspect ratio), the toxicity of these materials in nanofilament form cannot be predicted from their known toxicity as nanoparticles. Fully understanding the toxic mechanisms of nanoscale materials is an essential prerequisite in being able to design harmless nanomaterials whose interactions with biological cells is non-lethal...

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21) Exploiting electricity-producing materials for powering nanotechnology devices

Nanowerk | July 27, 2009
http://www.nanowerk.com/news/newsid=11864.php

Much like humans, materials are capable of some pretty remarkable things when they're placed under pressure. In fact, under the right conditions, materials can even produce electricity. Driven by the vision of our society one day being basically self-propelled, a team of University of Houston scientists has set out to both amplify and provoke that potential in materials known as piezoelectrics, which naturally produce electricity when literally subjected to strain. The goal is to use piezoelectrics to create nanodevices that can power electronics, such as cell phones, MP3 players and even biomedical implants...

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22) Basque centres and Berkeley University develop nanosensor to detect diseases
EiTB | July 27, 2009
http://www.eitb.com/news/technology/detail/202787/basque-centres-and-berkeley-university-develop-nanosensor-to

The science journal NanoLetters, published by the American Chemical Society and the most highly regarded publication in the field of nanotechnology, has picked up on this joint venture for the manufacture of both optical and electrochemical nanosensors. The achievement of the research team and the reason that the article came to the attention of NanoLetters lies in the fact that the sensor they have developed uses only one nanotransistor, whose cable is a simple carbon nanotube. This means that it is possible to detect DNA waves without having to modify them to increase the system's sensitivity...

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23) Do worm-like structures cause tooth decay?
Gaea Times | July 28, 2009
http://blog.taragana.com/n/do-worm-like-structures-cause-tooth-decay-123657/

For years, scientists have debated the exact nature of the worm like structures inside a human tooth. The structures are not worms, but what they are is still in question. Micro-images in a dissected molar suggest they caused tooth decay...

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24) Artificial Golgi may provide new insight into key cell structure
Nanowerk | July 29, 2009
http://www.nanowerk.com/news/newsid=11907.php

Scientists in New York and North Carolina are reporting assembly of the first functioning prototype of an artificial Golgi organelle. That key structure inside cells helps process and package hormones, enzymes, and other substances that allow the body to function normally. The lab-on-a-chip device could lead to a faster and safer method for producing heparin, the widely used anticoagulant or blood thinner, the researchers note...

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25) A beacon or just a landmark? Reflecting on a seminal nanotechnology report
Nanowerk | July 29, 2009
http://www.nanowerk.com/news/newsid=11913.php

This week marks the fifth anniversary of the publication of the Royal Society/Royal Academy of Engineering report, "Nanotechnology and Nanoscience: Opportunities and Uncertainties". A landmark report, the publication formed the first comprehensive review of the potential risks of nanotechnology. To mark the five year anniversary SAFENANO has collated some commentary and links to newly available opinion from key players in the field...

Part 1.2	**Content-Type:** text/plain **Content-Encoding:** 7bit