Subject: [CNS-weekly-clips] CNS Weekly Clips--August 3-August 16, 2009
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Center for Nanotechnology in Society
University of California, Santa Barbara
www.cns.ucsb.edu
Weekly Clips
August 3, 2009 - August 16, 2009

In this issue...

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1) Nanotechnology Sniffing Out Kidney Diseases in Breath Samples
AZoNano.com | August 3, 2009
http://www.azonano.com/news.asp?newsID=12962

A carbon nanosensor "electronic nose" - first developed by Technion-Israel Institute of Technology researchers to detect cancer from breath samples - has been modified to identify chronic renal failure (CRF). The findings,

reported in the May 26, 2009 issue of ACS Nano, could lead to a non-invasive and fairly inexpensive way to detect kidney diseases in their earliest - and most treatable - stages...

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2) Plans for new Indian-Australian Research Academy released
Nanowerk | August 4, 2009
http://www.nanowerk.com/news/newsid=11995.php

Architects have unveiled the first glimpse of plans for the A$10 million collaboration between research giants Monash University and the Indian Institute of Technology, Bombay (IITB). The two internationally-respected institutions have joined forces to create the IITB-Monash Research Academy, which will train a new era of researchers focused on solving some of the major issues confronting society and industry in both nations...

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3) Conference brings together solar technology and nanoscience experts
Nanowerk | August 4, 2009
http://www.nanowerk.com/news/newsid=11997.php

Bringing lively discussions on technologies with life-changing potential, SPIE Optics and Photonics runs through Thursday in the San Diego Convention Center. Approximately 4,500 international attendees are expected to attend the technical presentations and panels, professional development courses, and exhibition...

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4) Plastics that convert light to electricity could have a big impact
Nanowerk | August 4, 2009
http://www.nanowerk.com/news/newsid=12007.php

Researchers the world over are striving to develop organic solar cells that can be produced easily and inexpensively as thin films that could be widely used to generate electricity. But a major obstacle is coaxing these carbon-based materials to reliably form the proper structure at the nanoscale (tinier than 2-millionths of an inch) to be highly efficient in converting light to electricity. The goal is to develop cells made from low-cost plastics that will transform at least 10 percent of the sunlight that they absorb into usable electricity and can be easily manufactured...

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5) A "Super Sensor" for Cancer and CSI's
Nanotechnology and Development News | August 4, 2009
http://www.merid.org/NDN/more.php?id=2053

Researchers at Tel Aviv University, Israel, have developed a device that can "sniff out" disease, heart attacks, poison and environmental pollution. The device, about the size of a stick of gum, is comprised of biological materials and an electrode, and is able to quickly and precisely detect pathogens and pollution in the environment. The researchers hope to make the device disposable and cost about US$1...

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6) A Beacon or Just a Landmark? Reflections on the RS/RAEng 2004 Report
Nanotechnology and Development News | August 4, 2009
http://www.merid.org/NDN/more.php?id=2054

The Responsible Nano Forum, United Kingdom, has released a report, "A Beacon or Just a Landmark? Reflections on the RS/RAEng 2004 Report", to mark the five year anniversary of the publication of the Royal Society and Royal Academy of Engineering's report "Nanoscience and Nanotechnologies: Opportunities and Uncertainties". The purpose of The Responsible Nano Forum's report is to reflect on the legacy of the report and lay out what still remains to be done...

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7) Agricultural Research Key to Food Security
Nanotechnology and Development News | August 4, 2009
http://www.merid.org/NDN/more.php?id=2055

Adel El-Beltagy, chair of the Global Forum on Agricultural Research (GFAR), an organization dedicated to improving the capacity of the agricultural research sector, especially for resource poor, small landholders in farming communities in the developing world, said recently that boosting agricultural research in the developing world is key to ensuring food security for the world's poorest. Food experts estimate that more than 960 million people lead lives marked by chronic hunger and malnutrition, an amount that has been increasing due to rising food prices...

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8) New NSF award funds polymer nanocomposites research
Nanowerk | August 4, 2009
http://www.nanowerk.com/news/newsid=12014.php

Eric Cochran, an associate scientist at the U.S. Department of Energy’s Ames Laboratory, has received a National Science Foundation CAREER award, the organization’s most prestigious award for junior researchers...

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9) New Photo Library Shows How Nanotechnology is Changing the Energy Consumption of the World
AZoNano.com | August 5, 2009
http://www.azonano.com/news.asp?newsID=12996

Industrial Nanotech, Inc. (Pink Sheets: INTK), a global nanoscience solutions and research leader and member of the U.S. Greenbuilding Council and the American Solar Energy Society, announced today that the Company has launched a "Green Projects Photo Gallery" on its website to educate consumers on the wide range of projects worldwide that have utilized the Company's patented Nansulate® line of energy saving and asset protection coatings to reduce energy consumption and show how nanotechnology provides the opportunity for widespread and affordable energy saving solutions. The project gallery can be found at:
http://www.nansulate.com/green_projects.htm...

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10) View of rhodium-based catalyst for hydrogen-fuel system offers ideas for improvement
Nanowerk | August 5, 2009
http://www.nanowerk.com/news/newsid=12023.php

To use hydrogen as a clean energy source, some engineers want to pack hydrogen into a larger molecule, rather than compressing the gas into a tank. A gas flows easily out of a tank, but getting hydrogen out of a molecule requires a catalyst. Now, researchers reveal new details about one such catalyst. The results are a step toward designing catalysts for use in hydrogen energy applications such as fuel cells...

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11) Bringing solar power to the masses
Nanowerk | August 5, 2009
http://www.nanowerk.com/news/newsid=12027.php

On a 104-degree Friday in July when sunlight bathed The University of Arizona campus, doctoral student Dio Placencia sat before a noisy vacuum chamber in the Chemical Sciences Building trying to advance the renewable energy revolution.
As a member of UA professor Neal R. Armstrong's research group, Placencia conducts research aimed at creating a thin, flexible organic solar cell that could power a tent or keep a car charged between trips to work and back home again.

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12) Nanotechnology Coatings
Nanotechnology News | August 6, 2009
http://www.nanotech-now.com/columns/?article=336

Nano-enabled coatings have been widely championed over the last decade with applications ranging from UV protection through to abrasion resistance and self-cleaning surfaces. However, to-date, applications commercialised successfully have been small volume, high added value. Although this is usual of new technology introductions, the time has arrived for the breakthrough into large volume, mass applications, although several obstacles still need to be overcome before this goal can be achieved...

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13) Controlled Positioning of Nucleic Acids on Gold Nanoparticles Creates New Possibilities for Bottom-Up Nanotechnology
AZoNano.com | August 6, 2009
http://www.azonano.com/news.asp?newsID=13036

Metal nanoparticles have radically different electronic, optical and magnetic properties from their larger states, which makes them useful as materials in new, ultra-small devices such as biological sensors. Constructing such devices, however, is difficult because, unlike atoms, nanoparticles lack directional bonds that allow them to be arranged precisely. One strategy to overcome this limitation is to attach oligonucleotides—single strands of molecules that constitute DNA—to nanoparticle surfaces, and then, through Watson–Crick base pairing of the nucleic acids, join the nanoparticles together. However, manipulating the number and positions of oligonucleotides on the nanoparticles has been impossible...

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14) Nano Korea Symposium 2009
Nanotechnology and Development News | August 7, 2009
http://www.merid.org/NDN/more.php?id=2062

The Nano Korea Symposium will be held in Ilsan, Gyeonggi-do, Korea, from August 26-28, 2009. The symposium, now in its seventh year, is the second largest nanotechnology event in the world. This year's theme is "Orienteering for Nano Convergence" and the event will showcase cutting edge nano- and micro-technologies and present ideas for converging with other industries and ways to foster new trends for convergence...

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15) Oxides, as well as metals, seem to be able to sprout carbon nanotubes
Nanowerk | August 10, 2009

http://www.nanowerk.com/news/newsid=12084.php

Carbon nanotubes - tiny, rolled-up tubes of graphite - promise to add speed to electronic circuits and strength to materials like carbon composites, used in airplanes and racecars. A major problem, however, is that the metals used to grow nanotubes react unfavorably with materials found in circuits and composites. But now, researchers at MIT have for the first time shown that nanotubes can grow without a metal catalyst. The researchers demonstrate that zirconium oxide, the same compound found in cubic zirconia "fake diamonds," can also grow nanotubes, but without the unwanted side effects of metal...

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16) NSF CAREER Award funds research on plastics that conduct electricity
Nanowerk | August 10, 2009
http://www.nanowerk.com/news/newsid=12087.php

Clemson chemistry assistant professor Rhett Smith will receive $598,000 in a National Science Foundation CAREER Award to study a new class of materials that conduct electrical currents and can be used in thin, lightweight and flexible plastic electronic devices...

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17) Tiny 'MEMS' devices to filter, amplify electronic signals
PhysOrg.com | August 10, 2009
http://www.physorg.com/news169134677.html

Researchers are developing a new class of tiny mechanical devices containing vibrating, hair-thin structures that could be used to filter electronic signals in cell phones and for other more exotic applications. The work is done inside a vacuum chamber sitting on top of a special vibration-absorbing platform critical to making the precise measurements...

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18) Microfluidics to Participate in POWREX Corporation's Annual New Pharmaceutical Technology and Engineering Conference
AZoNano.com | August , 2009
http://www.azonano.com/news.asp?newsID=13071

Microfluidics, a wholly owned subsidiary of Microfluidics International Corporation (OTCBB: MFLU), recently was invited to participate in POWREX Corporation's annual New Pharmaceutical Technology and Engineering Conference, which is among Japan's premier annual pharmaceutical events. Microfluidics Chief Technology Officer Thomai "Mimi" Panagiotou, Ph.D., delivered a presentation on production of nanomaterials for pharmaceutical applications using high shear fluid processors. Primarily Dr. Panagiotou featured innovative bottom-up Microfluidics Reaction Technology (MRT) for continuous crystallization, chemical reactions and process intensification...

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19) Measuring the quantum state of a semiconductor artificial molecule
Nanowerk | August 11, 2009
http://www.nanowerk.com/news/newsid=12092.php

Under a targeted basic research program of the Japan Science and Technology Agency (JST), Hiroshi Imamura (Senior Research Scientist) of the National Institute of Advanced Industrial Science and Technology (AIST), and Nobuhiko Yokoshi (Researcher) of JST have developed a new method for electrically measuring a quantum

superposition spin state of two electrons captured in a gallium arsenide (GaAs) based semiconductor artificial molecule (double quantum dots)...

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20) Emerging energy technology: lean, mean and green
Nanowerk | August 11, 2009
http://www.nanowerk.com/news/newsid=12106.php

A highly efficient system for generating and distributing energy is lean, mean and green – and could be as close as the nearest farm, according to a University of Connecticut professor. "This solution is truly homegrown, and its successful application can be critical for the U.S. and the world," said Dr. Prabhakar Singh, Director, Connecticut Global Fuel Cell Center and UTC Endowed Chair Professor in Fuel Cell Technology...

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21) Educating Society on Nanotechnology
Nanotech News | August 11, 2009
http://www.nanotech-now.com/columns/?article=337

A question that continues to plague industry, government, civic groups and scientists is when or whether the general public will buy-in to nanotechnology. What will it take and whose responsibility is it to convince society that nanotechnology is worthy of deeper consideration. The answer is anything but crystal clear...

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22) Scientists update nanoparticle sizing rule
United Press Int'l | August 12, 2009
http://www.upi.com/Science_News/2009/08/12/Scientists-update-nanoparticle-sizing-rule/UPI-64071250097602/

U.S. scientists say a major inter-laboratory study has resulted in an update in guidelines used to measure the size of nanoparticles in solutions.The study, organized principally by the National Institute of Standards and Technology and the Nanotechnology Characterization Laboratory, enabled updated guidelines that now include statistically evaluated data, researchers said...

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23) Paul Weiss named new director of UCLA California NanoSystems Institute
UCLA | August 12, 2009
http://www.newsroom.ucla.edu/portal/ucla/ucla-s-california-nanosystems-98183.aspx

Leading nanoscientist Paul S. Weiss has been named director of the California NanoSystems Institute at UCLA, professor of chemistry and biochemistry, and holder of the Fred Kavli Chair in Nanosystems Sciences...

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24) Camera flash turns graphite oxide into graphene
Nanowerk | August 12, 2009
http://www.nanowerk.com/news/newsid=12128.php

An insulator can now be transformed to conduct electricity by an ordinary camera flash. A Northwestern University professor and his students have found a new way of turning graphite oxide -- a low-cost insulator made by oxidizing graphite powder -- into graphene, a hotly studied material that conducts electricity. Scientists believe graphene could be used to produce low-cost carbon-based transparent and flexible electronics...

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25) DNA-encasing increases carbon nanotubes' tumor killing power
Nanowerk | August 13, 2009
http://www.nanowerk.com/spotlight/spotid=12136.php

Various forms of hyperthermia – a form of cancer treatment with elevated temperature in the range of 41-45°C – have been intensively developed for the past few decades to provide cancer clinics with more effective and advanced cancer therapy techniques. The recent use of nanomaterials has shown promising for developing more effective hyperthermia agents...

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26) Safety comes first for nanotechnology
Environmental Expert | August 13, 2009
http://www.environmental-expert.com/resultEachArticle.aspx?cid=4280&codi=60116&lr=1

Recognizing that workplace safety is a key priority when handling novel nanoscale materials, many stakeholders have accelerated their efforts to identify workplace clothing, equipment, and handling practices to assure a safe and healthful workplace. The newest contribution to the field is ICON's GoodNanoGuide. It's an Internet-based collaboration platform specially designed to enhance the ability of experts to exchange ideas on how best to handle nanomaterials in an occupational setting. It's meant to be an interactive forum that fills the significant need for up-todate information about current good practices, including highlighting new practices as they develop and on a real-time basis...

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27) 'Heroes of Chemistry' for saving teeth, clean water, new high blood pressure drug
Nanowerk | August 16, 2009
http://www.nanowerk.com/news/newsid=12161.php

You've never met Sumita B. Mitra, Ph.D. But your teeth probably have encountered the results of this scientist's research. Her genius has helped restore millions of decayed, broken, or discolored teeth to their original bright white, natural beauty. Raise a glass — make that water, please — to toast and honor William E. Mickols, Ph.D., and the late John Cadotte. Millions of people might well do exactly that. Mickols and Cadotte invented the filters used around the world to remove salt from ocean water. In desalinating seawater, the filters transform the world's oceans into a drought-proof source of fresh water for drinking, irrigating crops, raising livestock and sustaining industry...

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28) New eco-friendly self-cleaning material tough on stains, light on effort
Nanowerk | August 16, 2009
http://www.nanowerk.com/news/newsid=12163.php

Cleaning oily smears from kitchen countertops, mirrors, garage floors, and other surfaces with plain water — rather than strong detergents or smelly solvents — may seem like pure fantasy. But scientists in Indiana today describe what they believe to be a simple and effective state-of-the-art oil stain remover. They have developed a new coating for glass, plastics, and a range of other materials that would enable consumers to wipe away those pesky oils with plain water...

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29) To understand the universe, science calls on the ultrasmall
Nanowerk | August 16, 2009
http://www.nanowerk.com/news/newsid=12162.php

Will the universe expand outward for all of eternity and end in a vast, dark, cold, sterile, diffuse nothingness? Or will the "Big Bang" — the gargantuan explosion that formed the universe 14 billion years ago — end in the "Big Crunch?" Planets, stars and galaxies all hurtle inward and collapse into an incredibly hot, dense mass a billion times smaller than the period at the end of this sentence. And then … KA-BOOOOM!!! Another Big Bang and another universe forms and hurtles outward, eventually leading to new iterations of the Sun, the Earth, and you?

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