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Wednesday, July 26, 2006

Intel, Micron claim first for 50 nano flash

IM FLASH TECHNOLOGIES, a joint venture between Micron and Intel, said they've produced the first NAND flash memory using 50 nanometre process technology. IM is sampling four gigabit devices and mass production isn't likely until next year. The samples are from Micron's Boise and Manassas fabs. A factory in Lehi Utah dedicated to the joint venture will start production of NAND in the beginning of next year. Source: The Inquirer

Posted by Nano News at 10:48

Friday, July 21. 2006

UNESCO on nanotechnology ethics & politics

UNESCO's Division of Ethics of Science and Technology has taken a shot at writing about The Ethics and Politics of Nanotechnology. Brochure describing the science of nanotechnology and presenting some of the ethical, legal and political issues that face the international community in the near future. Brochure: The Ethics and Politics of Nanotechnology

Posted by Nano News at 12:54

Iran does not fear embargo - diplomat

Iran does not fear any embargo that might be imposed on it over its nuclear program, Iranian Ambassador to Azerbaijan Afshar Suleymani has said. "There is nothing new for us in the imposition of an embargo on us: the U.S. imposed an embargo on Iran a long time ago, and all our development, especially regarding the nuclear program, fell exactly on the embargo period," Suleymani told journalists on Friday. Progress that Iran made in the development of the defense area, the military-industrial complex, nanotechnology, biotechnology, and the nuclear program coincided with the embargo period, Suleymani said. "In other words, the embargo benefited us," he said. Source: Interfax

Posted by Nano News at 09:59

Thursday, July 20, 2006

Trinity and UCC in fourth-level R&D pact

Dublin's Trinity College and University College Cork (UCC) have announced they intend to work together to research neuroscience, food science and nanotechnology. The heads of the universities said on Friday 15th July that they have identified a number of research areas in which they have complimentary strengths and that they wish to develop these areas in tandem to ensure the maximum intellectual and educational benefits for the two universities. Trinity Provost Dr John Hegarty and UCC president Prof Gerry Wrixon said that at a time of unprecedented investment by the State in science and technology research, the institutions should work together to deliver greater efficiencies at fourth level. In addition to the research themes of nanotechnology, food, health and neuroscience, UCC and Trinity College will also collaborate in the implementation of institutional research strategies, management-information systems, benchmarking, institutional repositories, technology transfer initiatives and in the procurement of equipment and materials for research. The universities will also exploit opportunities for the introduction of joint postgraduate programmes at masters and PhD levels and will work to develop a system of credit recognition that facilitates the transfer of students between the institutions. 'We see this as the first step on the road to increased collaboration between all universities on the island, moving from competition to collaboration through multiple partnerships across the entire academic spectrum, from the humanities to the sciences,' said Dr Hegarty. 'It doesn't make sense for us to do exactly the same things,' said Prof Wrixon. 'We are a small country competing in an increasingly competitive global market for research.' Citing their successful collaboration in nanotechnology over the past five years, Prof Wrixon noted that UCC and Trinity College have worked extremely effectively together, making significant but complementary investments in infrastructure at the Tyndall National Institute in Cork and CRANN (Centre for Research in Adaptive Nanostructures and Nanodevices) in Dublin. 'In some fields, such as nanotechnology, we are both strong,' added Dr Hegarty. 'In others, one of us will take the lead and the other will work in partnership. For example, UCC is an international leader in food and health, Trinity College in neuroscience.' Source: BiotechnologyIreland.com

Posted by Nano News at 13:08

Wednesday, July 19, 2006

Nanotechnology risk research demanded

The US government should act fast, and invest significantly, to make sure that nanotechnology and its related products are safe. The call comes from the Project on Emerging Nanotechnologies, a think-tank that advises on ways to develop policy alongside this burgeoning science. The report – Nanotechnology: A research strategy for addressing risk – spells out a two-year roadmap for assessing the risks of nanotechnology. “This is really a plan for getting some strategic research done in the short term that needed to be overseen by the US federal government,” said Andrew Maynard, chief science advisor for the project, which is based at the Woodrow Wilson International Center for Scholars in Washington, DC. Maynard wants to change the way risk research is carried out, directing it in a more strategic manner. “There is not a clear research strategy in any region in the world,” Maynard told Chemistry World, “and people desperately see the need for a strategy if we’re going to come up with some of these answers.” The plan, of course, requires large amounts of money. Maynard wants \$100 million (£55 million) to be spent in risk assessment research over the next two years. This is a low estimate, he said, “but it is a significant jump compared to current research funding.” Rob Aitken, director of strategic consulting at the Institute of Occupational Medicine, Edinburgh, UK, agrees that this report will have international significance. “The research needs that the report identifies are universal,” said Aitken. “I don’t know if the US government will take note, but they should.” The UK government has already embarked on its own process towards identifying risk research priorities currently being monitored by the Council for Science and Technology. Maynard’s report was also welcomed by semiconductor giant Intel. “We believe there is a need for a more strategically-focused federal effort devoted to studying the environmental, health, and safety dimensions of nanotechnology,” said Paolo Gargini, Intel’s director of technology strategy. Maynard stressed that without nanotechnology risk research, the industry will grind to a halt. “If the research is not done, we are not going to see safe acceptable nanotechnologies be developed,” he said. Source: Royal Society of Chemistry

Posted by Nano News at 15:14

Putting the right spin on nano-electronics

Thanks to a quantum physics breakthrough, European and American physicists are, electron-by-electron, pushing back the resistance barriers stifling current generation computers and high-speed, high-powered electronics. But as fundamental researchers, they say their work is not about end products, but the thrill of discovery. Today, all electronics are based on transistors, and they are getting smaller, faster and more powerful – a trend likely to continue in light of recent news reported in a July issue of Nature Physics. Two Danish physicists at the Copenhagen University (CU) have mastered a technique for migrating electrons in a nano-transistor. Using quantum physics, the scientists have got the electrons at either end of a carbon nano-tube ‘talking’ to each other in perfect pitch. Jens Paaske of the Nano-Science Centre and Niels Bohr Institute at CU, who was responsible for the theoretical part of the experiment, said the breakthrough was made possible thanks to excellent collaboration with his experimental colleague Jesper Nygård of the Niels Bohr Institute and colleagues at Universität Karlsruhe, Germany, and Harvard University, USA. A relationship borne out of friendship and international training. “I first started working with tiny molecular transistors and theories for how to push electrons through single-walled carbon nanotubes about four years ago in Germany where I was doing postdoc work,” Paaske told Headlines. But there was only so far he could go with his ideas without input from experimental physicists who could help with the cooling of the electrons – entering the quantum realm. Basically, he explains, at temperatures near absolute zero (–273°C), the so-called ‘spin’ of the electrons gets each one acting like a little magnet, jumping one-by-one from one end of the nanotube to the other and building up momentum until they reach ‘quantum mechanic cohesion’ – technically known as a Kondo resonance. “By this stage, we’re getting clean communication between the two poles with perfect flow of electrons, lowering resistance and heat build up,” he notes. “The electrons are actually helping each other through the molecule in the nano-transistor.” It’s still fundamental, though. This achievement is not only a breakthrough in the fundamental research of nanotechnology, the Niels Bohr Institute notes in a statement, “it also influences the development of tomorrow’s electronics, such as future super-fast quantum computers.” But Paaske still stresses the fundamental nature of the demonstration. “We’re looking at the result in two ways,” he says. First, it is a fundamental building block in molecular electronics, with the idea of one day mixing transistors in a test tube, pouring them out and letting them organise, or ‘talk’, amongst themselves. “This would make them not only cheaper but also faster, as they self-organise,” he adds. The second factor is that, by controlling the spin over the electrons – pure quantum electronics – you are then

controlling it well enough to manipulate a "quantum bit", which is the basic building block in a "quantum computer". Significant research efforts worldwide are being put into the quest to develop this quantum computer. While it is still at the vision stage, the result from Copenhagen shows that the necessary quantum properties can be realised in a nanotube transistor at low temperatures. Nygård says discovering how to control the way electrons move through nano-transistors is all the more satisfying as it is a shared experience built on years of work spanning two continents. Guided by the work of Harvard professor Charlie Marcus in the field of quantum electronics, Nygård returned to Denmark and began what turned out to be a very successful partnership with Paaske, resulting in a worldwide breakthrough in quantum nano-electronics. In another example of international collaboration, Paaske has also been taking part in the EU-funded CANEL project, which is a three-country – Sweden, Denmark, the Netherlands – tie up to integrate carbon-based nano-electromechanical devices into silicon technology. The 36-month project, funded to the tune of €1.8 million by the EU's Information Society Technologies programme, kicked off in 2004 and is focusing on applications in information technology, such as switches and memory elements. Source: European Commission

Posted by Nano News at 10:17

Tuesday, July 18, 2006

NanoBioNexus Expands International Presence with Oxford NanoLabs Letter of Intent

NanoBioNexus (NBN) will announce a recently signed Letter of Intent (LOI) to provide professional services to UK-based Oxford NanoLabs at NBN's second anniversary gala being held Tuesday, July 18, 2006 at San Diego's Salk Institute. Also unveiled at the event will be a new membership program. Nanobiotechnology and NanoBioNexus (NBN) will take center stage with the announcement of a recently signed Letter of Intent (LOI) to provide professional services to UK-based Oxford NanoLabs. The announcement will be made at the NanoBioNexus's second anniversary gala being held Tuesday, July 18, 2006 at San Diego's Salk Institute. Also unveiled at the event will be a new membership program that is sure to draw attention and additional international membership from the nanobiotechnology community. Industry thought leaders will join NBN to recognize its 2005 accomplishments, including a review of the group's well-respected educational series. Among the accomplishments is the expansion of the professional services division which includes clients such as the "Center for Nanotechnology for Treatment, Understanding and Monitoring of Cancer" (NanoTUMOR), one of the Centers of Cancer Nanotechnology Excellence (CCNE) funded by NIH. "We're honored to announce our agreement with Oxford NanoLabs -- highlighting our credibility on the global stage -- in addition to kicking-off our unique membership program," said Adriana Vela, NanoBioNexus' founder and chair. "Our commercial and academic constituencies have validated our philosophy and the quality of work we do on the educational front as well as our professional services." The LOI agreement is a business instrument outlining terms already agreed upon and is a precursor to a formal contractual agreement with a commercial company. "After a thorough evaluation we selected NanoBioNexus because of their in-depth understanding of the nanotechnology commercialization process and for their business and scientific expertise," commented Gordon Sanghera, CEO of Oxford NanoLabs. "We look forward to NanoBioNexus assistance in establishing a corporate presence in the United States and helping us to reach our goals for our Nanopore Technology." Companies and individuals in the nanotech sector regularly seek ways to expand their businesses, relationships and knowledge. The NBN membership program uniquely addresses those needs by serving as a vehicle by which they can expand their reach, share information and network in order to promote and grow their business. "NanoBioNexus listened to its constituents' requests and has developed a membership program that offers excellent benefits for small businesses and individuals", says Vela. "In addition to discounts for seminars, webcasts, and other services, we will also provide small business members brand building and public relations opportunities as well as access to nanobiotech thought leaders and the opportunity to forge powerful relationships." Companies that already joined include Oxford NanoLabs and nanoComposix Inc with many more expected to sign up. NanoBioNexus will soon begin providing the second year activities of the educational service component for the NCI funded Cancer Center of Nanotechnology Excellence (CCNE) partnership that includes the University of California, San Diego, UCSD Moores Cancer Center, the Burnham Institute, NanoBioNexus, and the University of California campuses at Irvine, Riverside and Santa Barbara. The upcoming educational seminars of the NanoTUMOR are slated for both the general public and the healthcare communities in nanotechnology. Additionally, NBN staff is designing the concept, content and scope of the CCNE's educational website and will oversee the launch of that website at the end of August. NanoBioNexus will continue its ongoing series of events that are open to the general community. The next NBN seminar, "Canada's Nanotech Innovation and Commercialization Models" begins September 14, 2006. Other educational activities include providing bylined content to NanoBiotech News and yearly subscriptions to this leading-edge publication. Other editorial submissions include a feature article discussing "NBN's Community Building" in the May issue of NanoNews-Now written by Julian Zegelman, NBN's Director of Corporate Partnerships and Alliances. That same issue of NanoNews now included an interview with the CCNE and NBN principals. Additionally, the NBN executive team authored Drug Delivery Technology's cover feature on "Nanodrugs" for the May issue. About NanoBioNexus NanoBioNexus is the only San Diego organization exclusively dedicated to nanobiotechnology with a growing international constituency. It is a non-profit corporation that showcases applications of nanotechnology in the Life Sciences. The NanoBioNexus mission is to provide a community service by building awareness and understanding of nanotechnology and by fostering business opportunities in the application of nanotechnology in the life sciences. Source: PRWeb Press

Posted by Nano News at 17:51

Monday, July 17. 2006

Two universities forge closer ties on research projects

Two of the State's leading universities have agreed to greater collaboration on research projects and to facilitate the introduction of joint postgraduate programmes facilitating the transfer of students between institutions. The announcement by Trinity College Dublin (TCD) and University College Cork (UCC) that they are to collaborate in the areas of science and technology follows the recent announcement of a multi-billion euro budget for the research and development sector. The move is designed 'to focus on research areas where both institutions have complementary strengths and thereby reduce duplication of research projects and provide value for money', according to Trinity's dean of research, Dr David Lloyd. 'We are actively pursuing collaborations with other universities in other areas . . . competition with other universities is not the intention of this collaboration. We are not drawing a line in the sand and will be talking to other universities,' he said. Over the past five years, UCC and TCD have collaborated in the field of nanotechnology, making complementary investments in infrastructure at the Tyndall National Institute in Cork and the Crann Centre in Dublin. Under the new relationship, the two universities will work in partnership in the implementation of institutional research strategies, management information systems, benchmarking, institutional repositories, technology transfer initiatives and in the procurement of equipment and materials for research. UCC president Prof Gerard Wrixon said it made no sense for two universities to tackle the same research areas in a small country competing in an increasingly competitive global market for research. 'UCC and TCD are probably the most research intensive universities and together account for 50 per cent of the total research funds out there,' said Prof Wrixon. Source: Biotechnology Ireland

Posted by Nano News at 22:24

Trinity and UCC in fourth-level R&D pact

Dublin's Trinity College and University College Cork (UCC) have announced they intend to work together to research neuroscience, food science and nanotechnology. The heads of the universities said on Friday that they have identified a number of research areas in which they have complementary strengths and that they wish to develop these areas in tandem to ensure the maximum intellectual and educational benefits for the two universities. Trinity Provost Dr John Hegarty and UCC president Prof Gerry Wrixon said that at a time of unprecedented investment by the State in science and technology research, the institutions should work together to deliver greater efficiencies at fourth level. In addition to the research themes of nanotechnology, food, health and neuroscience, UCC and Trinity College will also collaborate in the implementation of institutional research strategies, management-information systems, benchmarking, institutional repositories, technology transfer initiatives and in the procurement of equipment and materials for research. The universities will also exploit opportunities for the introduction of joint postgraduate programmes at masters and PhD levels and will work to develop a system of credit recognition that facilitates the transfer of students between the institutions. 'We see this as the first step on the road to increased collaboration between all universities on the island, moving from competition to collaboration through multiple partnerships across the entire academic spectrum, from the humanities to the sciences,' said Dr Hegarty. 'It doesn't make sense for us to do exactly the same things,' said Prof Wrixon. 'We are a small country competing in an increasingly competitive global market for research.' Citing their successful collaboration in nanotechnology over the past five years, Prof Wrixon noted that UCC and Trinity College have worked extremely effectively together, making significant but complementary investments in infrastructure at the Tyndall National Institute in Cork and CRANN (Centre for Research in Adaptive Nanostructures and Nanodevices) in Dublin. 'In some fields, such as nanotechnology, we are both strong,' added Dr Hegarty. 'In others, one of us will take the lead and the other will work in partnership. For example, UCC is an international leader in food and health, Trinity College in neuroscience.' Source: SiliconRepublic.com

Posted by Nano News at 10:37

Thursday, July 13. 2006

Russia opens new nanotech center

A multimillion dollar nanotechnology development center here funded by the Russian Federation expands on anticipated \$400 million overall Russian investment in nanotechnology development by 2007. The Pilot Scientific and Technical Center of Excellence for Nanotechnology Development opened in June 3. Robert Cresanti, U.S. undersecretary of commerce for technology, and Bob Gregg, executive vice president at FEI, participated in the opening ceremonies. Global public investment in nanotechnology development is expected to reach \$5 billion in 2006. Corporate investment is expected to exceed government funding this year, reaching nearly \$6 billion. "Government nanotechnology investments were initially led by Europe, North America and Japan," Sean Murdock, executive director of the U.S.-based NanoBusiness Alliance, said in a statement. "Now countries such as Russia, China, Brazil and India have joined the trend and are making significant investments." Source: EE Times

Posted by Nano News at 18:26

Tuesday, July 11. 2006

Scientists research nanotechnology use for chilled, frozen sectors

Scientists at the University of Kent in the UK have received €800,000 to study ways nanotechnology can improve the safety and quality of chilled and frozen foods. Nanotechnology has been touted as the next revolution in many industries, including food manufacturing. It holds the promise of helping manufacturers produce novel products and improve their processes and packaging. However it is also a sector that has become a hot consumer issue due to fears over the unknown consequences of digesting nano-scale particles designed to behave in specific way in the body. The EU grant was given to the university's nanobiotechnology research group. They are part of a wider EU consortium tasked with developing and integrating novel technologies to improve safety and quality assurance for the chilled and frozen food supply chain. "New materials and chemistry being developed at the University of Kent will significantly improve the efficiency of food testing for identity and therefore improve consumer confidence and choice," stated Ian Bruce, a professor of nanobiotechnology and leader of the research group. Professor Bruce joined the University of Kent from the University of Urbino, Italy, in 2004. Since then he has won grant funding of about €2m from the European Commission for research. The nanobiotechnology research group conducts work in the general area of nanotechnology. The group project includes collaborating with mainstream process engineers, biochemists, molecular biologists, geneticists, microbiologists, software engineers and statisticians. Source: Food Production Daily

Posted by Nano News at 12:36

Nanowires in the Brain - Making brain implants safer, cheaper

To treat severe cases of Parkinson's disease, surgeons implant electrodes deep in the brain, where they deliver high-frequency electrical pulses that shut down neural systems responsible for the disease's characteristic tremors. But this expensive treatment, called deep brain stimulation, is risky: the patient's skull must be opened, and the electrodes can damage blood vessels in the brain. A new type of polymer nanoelectrode, however, could make brain implants far safer and less costly. Rodolfo Llinas, a professor of neuroscience at New York University, has worked with Ian Hunter, a professor of mechanical and biological engineering at MIT, to develop a nano-wire electrode just 600 nanometers across -- so thin that it could be inserted through an artery in the arm or groin, threaded up to the brain, and snaked through the smallest blood vessels, getting close enough to neurons to detect and deliver electrical signals. Before the technology can be used in humans, the researchers will have to demonstrate that the nanowires do not cause complications, such as blood clots. But Joseph Pancrazio, a program director at the National Institute of Neurological Disorders and Stroke, says, "There may be payoffs in terms of safety, efficacy, robustness, and biocompatibility.... This is a completely out-of-the-box way to think about enabling deep brain stimulation." Source: Technology Review

Posted by Nano News at 12:22

Monday, July 10, 2006

Microchip miniaturisation barrier could be broken by nanotechnology

A project that could remove the electrical wiring in microchips, allowing denser circuitry, could result in computers with 500 times the power of present day technology. The University of Bath is to lead an international £555,000 three-year project to develop the wireless silicon chip system. As microchip circuits are made smaller to increase processing power they approach a limit imposed by the need to use electric wiring, which weakens signals sent between computer components at high speed. Wireless systems are in widespread use in mobile phones, Bluetooth gadgets, Wi-fi computers etc, but the electronics that create and use wireless signals are too large to be used within individual microchips successfully. The research project, which involves four universities in the UK and a university and research centre in Belgium and France, will look at ways of producing microwave energy on a small scale by firing electrons into magnetic fields produced in semi-conductors that are only a few atoms wide and are layered with magnets. The process, called inverse electron spin resonance, uses the magnetic field to deflect electrons and to modify their magnetic direction. This creates oscillations of the electrons which makes them produce microwave energy. This can then be used to broadcast electric signals in free space without the weakening caused by wires. The possibility of using the special semi-conductors in this way was first pointed out by Dr Alain Nogaret, of the University of Bath's Department of Physics, in an important scientific paper in 2005 (Electrically induced Raman Emission from planar spin oscillator, in Physical Review Letters). The latest research is the first attempt to turn theory into practice. "The work could be very important for the creation of faster, more powerful computers," said Dr Nogaret. "We can only go so far in getting more power from silicon chips by shrinking their components — conventional technology is already reaching the physical limits of materials it uses, such as copper wiring, and its evolution will come to a halt." But if this research is successful, it could make computers with wireless semi-conductors a possibility within five or ten years of the end of the project. Then computers could be made anything from 200 to 500 times quicker and still be the same size. "This research may also improve the accuracy and speed of medical diagnostics by gathering data from health monitoring sensors. The microwave emitters are small enough to be integrated on portable biological sensors which feed information out on faulty biological processes." The research is not only practical, but beautiful in its theoretical simplicity, which is one of the big attractions for the physicists working on it. "The project is the only one which aims to create wireless emitters and receivers that fit on semi-conductor wafers, where individual devices are one ten thousandth of a millimetre in size. It will also allow the creation of integrated circuits which will still continue to work properly even if some of its connections fail — the system can be programmed to reroute itself so that it can continue working. At present a failure in a connecting wire can put an integrated circuit out of action. In the manufacture of today's integrated circuits there is no room for error, and so manufacturers must spend large amounts of money to build dust-free clean rooms. The advantage of the new more flexible system is that only 95% or so of the electronic components would need to work for the chip to work properly. Such chips would be many times cheaper to produce. Dr Nogaret is working with colleagues Professor Simon Bending and Professor John Davies in the University's £2m laboratory dedicated to nanotechnology. The University receives £463,000 for the project, which begins in October. The University of Nottingham receives £65,000, and the University of Leeds £27,000, all from the Engineering and Physical Sciences Research Council. The University of St Andrews in Scotland, and the University of Antwerp, Belgium, will also take part, as will the Centre National de la Recherche Scientifique in Grenoble, France. Source: MTB Europe

Posted by Nano News at 18:46

Friday, July 7. 2006

UK launches review of nanotechnology policy

The UK government has launched a review of its nanotechnology policy, part of a move to assess the implications of current developments in the emerging science of tiny dimensions. Nanotechnology has been touted as the next revolution in many industries, including food manufacturing. It is a sector for which the topic has become a hot consumer issue due to fears over the unknown consequences of digesting nano-scale particles designed to behave in specific way in the body. In May the country's Food Standards Agency (FSA) said gaps existed in EU legislation in regulating the future uses of nanotechnology. The gaps include those relating to particle size, the use of nano versions of already approved ingredients, and to packaging, according to the FSA's legislative review of the food sector. In addition the government's Department of Environment, Food and Rural Affairs (Defra) on 23 June completed a consultation on a proposed voluntary reporting scheme for engineered nanoscale materials. Defra's proposed voluntary reporting scheme is part of the government's programme to build the evidence on any potential risks posed by nanotechnologies. Other regulators worldwide are also in the process of reviewing policy and regulations relating to the technology. Yesterday the UK Council for Science and Technology (CST) said it had been asked by government to review progress of its commitments on nanotechnology policy, and called for input from the public and industry, among others. The independent review will cover the Government's actions in the two years since their The CST wants comments on the extent to which the government has taken forward the commitments it agreed to in its response to a study by the Royal Society and the Royal Academy of Engineering. The report, "Nanoscience and nanotechnologies: opportunities and uncertainties", was issued two years ago. The government made its response in February 2005. The CST will also be examining whether new issues have arisen since due to significant developments in nanoscience and nanotechnology. "How the government is handling issues of nanotechnology and nanoscience will influence the UK's competitiveness in this rapidly growing field, and the public's confidence in government science policy," stated John Beringer, the scientist charged with leading the CST review. "We will be taking a close look at what the government has done, whether it has responded quickly enough, and how well prepared it is for new developments in nanotechnology," he added. The CST is the UK government's advisory body on science and technology policy issues. Members are appointed by the prime minister. The CST plans to publish its review in spring 2007. The deadline for submissions is 2 October 2006. The Royal Society and the Royal Academy of Engineering report on nanotechnologies considered the possible health, social, ethical, safety and environmental questions that could be raised by nanotechnologies. The scientific bodies stated that while nanotechnologies offer many benefits, more public debate is needed about their development. It called for research to address uncertainties about the health and environmental effects of nanoparticles — one area of nanotechnologies. Among the 21 recommendations was a call for regulation to control exposure to nanoparticles. A nanometre (nm) is one billionth of a metre. Industry is interested in the nanoscale because it is at this size that the properties of materials can be very different from those of the same material at a larger scale. The report defines nanotechnologies as the design, characterisation, production and application of structures, devices and systems by controlling the shape and size at the nanometre scale. The report recommends that manufactured free nanoparticles and nanotubes should be treated as new chemicals under UK and EU legislation, in order to trigger appropriate safety tests and clear labelling. It also recommends that industry should publish details of safety tests showing that the novel properties of nanoparticles have been taken into account. The government said it agrees that ingredients in the form of manufactured free nanoparticles should undergo a safety assessment by the relevant scientific advisory body before they are used in a consumer product. A proposed EC regulation covering the registration, evaluation and authorisation of chemicals, called REACH, is currently under consideration by the bloc's legislators. Whilst any new legislation is being developed, at national or the EU level, the government said it will work with industry to restrict releases of nanoparticles into the environment. The current use of free nanoparticles in consumer products is limited to a few cosmetic products. It is probable that in future they will be used in consumer areas such as food and pharmaceuticals. Government responded to the recommendation by saying it believes in consumers being able to make informed choices. No mention was made specifically for food products. "Existing labelling requirements on cosmetic products would need to be revised to accommodate this," it said in response last year. "The feasibility of labelling needs to be fully investigated and we will work with the public and other interested parties to consider whether manufactured free nanoparticles contained in consumer products should be identified as such on lists of ingredients and under what circumstances." A public survey taken last year by the European Commission across the EU found widespread support for medical and industrial biotechnologies. While there is opposition in most European countries to agricultural biotechnologies, such as genetically-modified (GM) food, the European public mainly supports the development of nanotechnologies, pharmacogenetics and gene therapy, the survey found. All three technologies "are perceived as useful to society and morally acceptable", the Eurobarometer survey found. "Neither nanotechnology nor pharmacogenetics are perceived to be risky." So far nanotechnology has made minor inroads in the food and drink industry, mainly due to consumers' fears about the unknown risks the

technology poses to their health. However food companies see great opportunity in the technology as a means of introducing innovative products to the market. Nanoscale technology also offers new opportunities for the packaging industries, and various potential food contact applications have been suggested, including improved barrier properties, better temperature performance, thinner films for flexible packaging, and nanoscale pigments for inks. Other countries are also determining how to approach the technology. Last month Germany's food safety risk assessment agency commissioned a study on the risks of nanotechnological applications in food, cosmetics and other everyday items. Source: Food Production Daily

Posted by Nano News at 18:22

Nanowerk – Who Really Cares About Nanotechnology

You might think that with all the buzz that nanotechnology creates among insiders (mostly scientists) there would be a rising awareness and interest among the general public. Apparently not so. If internet search engines are an indication for the general interest then nanotechnology is not a big issue yet. If you have no idea what nanotechnology is and wanted to find out about it, chances are you start by typing the word into your favorite search engine. Google[®]; just rolled out a new toy called Google Trends. It allows you to check the relative popularity of a search term and how often it has been searched for on Google over time. Google Trends also displays how frequently the search term has appeared in Google[®]; News stories, and which geographic regions have searched for them most often. Comparing the search term "nanotechnology" with "biotechnology" provides an interesting result: There has been, and still is, much more interest in biotechnology than nanotechnology. For the search term "nanotechnology" the trend seems to be downward, not upward as you might expect. And in 2006, as for the most part of 2005, there clearly has been more interest in even something as narrow as "solar energy" than in "nanotechnology". In addition to the search volume trend Google provides a trend of how often the search term was referenced in Google news. As a neat detail, it associates spikes in that trend curve with individual news topics. Maybe indicative for the things to come, three of the six highlighted news spikes for nanotechnology deal with risks and concerns. Google Trends also gives a geographical breakdown of where searches originate. As for the question "who really cares about nanotechnology?" – take a look at this chart (the geographical breakdown for the search term "nanotechnology"): This was by no means a scientific analysis but it certainly is an interesting observation. Way to go, nanotechnology ... Source: Newswire Today

Posted by Nano News at 12:35

Arrowhead Research Chairman & CEO to Speak at NanoEquity 2006

Arrowhead Research Corporation (Nasdaq:ARWR), announced today that its Chairman & Chief Executive Officer, R. Bruce Stewart, will present at the NanoEquity 2006 conference in Frankfurt, Germany on Tuesday, July 11. The presentation will cover the company's business model and investment strategies. Mr. Stewart founded Arrowhead Research in 2003 to bring university innovations in nanotechnology to market and has guided its growth to the present. Arrowhead is now operating four majority-owned subsidiaries commercializing nanotechnologies in the fields of nanomedicine, nanoelectronics, and nanomaterials. In addition, Arrowhead is sponsoring nanotechnology development at the California Institute of Technology, Stanford University and Duke University. Previous to Arrowhead, Mr. Stewart's thirty year entrepreneurial career included founding Acacia Research Corporation, now comprised of Acacia Technologies (Nasdaq:ACTG) and CombiMatrix (Nasdaq:CBMX). About Arrowhead Research Corporation Arrowhead Research Corporation is a diversified nanotechnology company structured to commercialize products expected to have revolutionary impacts on a variety of industries, including materials, electronics, life sciences, and energy. There are three strategic components to Arrowhead's business model: Outsourced R&D Program: Arrowhead identifies patented or patent-pending technologies at universities or government labs and funds additional development of those technologies in exchange for exclusive rights to commercialize the resulting prototypes. Leveraging the resources and infrastructure of these institutions provides Arrowhead with a cost-effective development pipeline. Currently, Arrowhead is supporting efforts in drug discovery tools, stem cell technology and nanoelectronics at the California Institute of Technology, Stanford University and Duke University, respectively. Commercialization Program: After prototypes have been sufficiently developed in the laboratories, Arrowhead forms or acquires majority-owned subsidiaries to commercialize the technology and provides the subsidiaries with strategic, managerial and operational support. By doing so, each research team is able to maintain focus on its specific technology and each management team can focus on specific markets, increasing the likelihood of successful technological development and commercialization. At present, Arrowhead owns majority interest in subsidiaries commercializing diverse technologies, including anti-cancer drugs, RNAi therapeutics, compound semiconductor materials and nanotube technology. The Patent Toolbox: Arrowhead has acquired or exclusively licensed patents and patent applications covering a broad range of nanotechnology. The Company actively adds to its intellectual property portfolio. Safe Harbor Statement under the Private Securities Litigation Reform Act of 1995: This news release contains forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. These statements are based upon our current expectations and speak

only as of the date hereof. Our actual results may differ materially and adversely from those expressed in any forward-looking statements as a result of various factors and uncertainties, including the recent economic slowdown affecting technology companies, the future success of our scientific studies, our ability to successfully develop products, rapid technological change in our markets, changes in demand for our future products, legislative, regulatory and competitive developments and general economic conditions. Our Annual Report on Form 10-K and 10-K/A, recent and forthcoming Quarterly Reports on Form 10-Q and 10-Q/A, recent Current Reports on Forms 8-K and 8-K/A, our Registration Statements on Form S-3, and other SEC filings discuss some of the important risk factors that may affect our business, results of operations and financial condition. We undertake no obligation to revise or update publicly any forward-looking statements for any reason. Source: Finanzen.net

Posted by Nano News at 11:17

NANO-EM blends water, diesel for a cleaner nano-fuel

Water instead of gas? It seems the somewhat far-fetched concept might be possible after all. Israeli company NANO-EM, a product of the Yozmot HaEmek Technological Incubator, has come up with nano-diesel, a blend of water and diesel at a concentration of 15 percent, which reduces diesel consumption and cuts down on the pollution emitted by the engine. According to NANO-EM, nano-diesel does not harm the engine in any way, since the size of the water drops are reduced to a nano-metric level, creating a stable mixture. Consumption of diesel rises steeply every year, primarily because of the increasing number of private and commercial vehicles running on diesel. Diesel is becoming increasingly popular because of its advantages over benzene: not only is it cheaper per liter, but vehicles that run on diesel also run further on one liter of the fuel than those fueled by benzene. Researchers, aware that diesel's tendency to pollute is one of its main flaws, generally focus their attention on upgrading the engine, at a huge expense and by using up many resources. Several large companies in the petrochemical industry are now trying to solve that problem. According to NANO-EM, producing stable water emulsions in diesel is a solution that has already been discussed in the past, but the biggest obstacle to production is instability caused by the size and dispersion of the water drops. NANO-EM claims that its product is a safe and efficient solution to the problem. Zvia Blanc-Baron, CEO of NANO-EM, says that nano-diesel has other useful applications, such as fuel for mass transit, private and commercial vehicles and even ships; it can be used to produce electricity; and can be used to heat private and commercial premises. The company has so far raised \$200,000 and is currently looking for a strategic partner. Source: Haaretz

Posted by Nano News at 10:04

Thursday, July 6, 2006

Nano watchdog tracks policy progress

The Council for Science and Technology (CST) has been asked by Government to review progress of its commitments on nanotechnology policy, and has issued an invitation for written evidence. The independent review will cover the Government's actions in the two years since their response to the Royal Society/Royal Academy of Engineering report "Nanoscience and nanotechnologies: opportunities and uncertainties". Professor Sir John Beringer will lead the review. "How the Government is handling issues of nanotechnology and nanoscience will influence the UK's competitiveness in this rapidly growing field, and the public's confidence in Government science policy," said Prof. Beringer. "We will be taking a close look at what the Government has done, whether it has responded quickly enough, and how well prepared it is for new developments in nanotechnology." The review will seek feedback on the extent to which the Government has taken forward the commitments described in its Response. It will also examine the timeliness and effectiveness of the actions taken by Government and whether there have been significant developments in nanoscience and nanotechnology since the initial report. Source: The Engineer Online

Posted by Nano News at 23:38

UK. Nanotechnology policy review announced

The Council for Science and Technology (CST) has been asked by Government to review progress of its commitments on nanotechnology policy, and has issued an invitation for written evidence. The independent review will cover the Government's actions in the two years since their response to the Royal Society/Royal Academy of Engineering report "Nanoscience and nanotechnologies: opportunities and uncertainties". The review will be led by Professor Sir John Beringer, who said: "How the Government is handling issues of nanotechnology and nanoscience will influence the UK's competitiveness in this rapidly growing field, and the public's confidence in Government science policy." "We will be taking a close look at what the Government has done, whether it has responded quickly enough, and how well prepared it is for new developments in nanotechnology." Comments are being invited on: The extent to which the Government has taken forward the commitments described in its Response. The timeliness and effectiveness of the actions taken by Government. Whether there have been significant developments in nanoscience/nanotechnology since February 2005 which raise new issues the Government did not address in its Response, and should now. The Call for Evidence is available from the review's website: Nanotechnology Review

Posted by Nano News at 15:19

Nano-urchins unveiled

Tweaking a standard chemical method to make nanotubes has provided researchers with a structure that looks just like a miniature sea urchin. The nano-urchin's spines could prove useful as scaffolding for further molecular construction, the scientists say. The urchin is made from vanadium oxide nanotubes, packed together with a much higher density than previous structures made from the same materials. "They're not only really dense, but really uniform," said Colm O'Dwyer of the Tyndall National Institute, University College Cork, Ireland, and part of the research team. Changing the high pressure and high humidity conditions used in such nanotube syntheses can produce a variety of different structures. But the nano-urchins were still a surprising result, considering the team used only slightly different procedures, said O'Dwyer. On closer inspection, they noticed that each nanotube in the urchin was almost identical to those seen during single nanotube synthesis, where flat sheets of vanadium oxide roll up into cylinders. The team has shown that the nano-urchin forms when these sheets merge before they begin to roll up. "That's the only real difference between stand-alone nanotube synthesis and the nano-urchin," said O'Dwyer. He adds that these are the most uniform vanadium oxide tubes formed to date in terms of wall thickness, the number of layers, and the dimensions of the hollow centre. The unprecedented density of the urchin's nanotubes provides a wealth of possible applications, said O'Dwyer. The high surface area could be used to support catalysis, for example. But the researchers are particularly interested in using the structures as supports for other materials. Hoping that a battery based on nano-urchins could store the same amount of charge as a standard battery in a much smaller volume, the scientists have packed lithium atoms into the spaces between the tubes' atoms. "Inserting the lithium into the urchin is not that difficult at all," said O'Dwyer. "The only difficult part, which we haven't begun to do yet, is to sediment these on a polymer base, as for lithium polymer batteries." The team also hope to insert optically-active nanoparticles, known as quantum dots, which could prove useful in optoelectronic devices. Source: Royal Society of Chemistry

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Posted by Nano News at 12:12

Wednesday, July 5, 2006

Is Nano the New Turbo?

A little bad PR can go a long way toward destroying the public's confidence in a product, especially when it comes to potential damage to human health -- just ask Monsanto. Whether it was fair, GMO became a dirty word, and if the nanotech industry isn't careful its products could suffer the same fate. A study released by Lux Research in late June advised companies with nanotech offerings to be alert not only to real risks, but also to perceived risks that could undermine consumer acceptance of their products, even if they pose no actual danger. It might not even matter if products actually contain nanotechnology. In April, Kleinmann GmbH in Germany recalled its Magic Nano products after dozens of users reported breathing problems following contact with the aerosol form of the household glass-and-ceramic tile sealant. The irony is the product in question contains no nano ingredient (the company won't reveal exactly what's in Magic Nano). But it won't matter to consumers. "If something bad happens to an item that has 'nano' in its name, attention will immediately focus on that," says Craig Martin, executive vice president of Feinstein Kean Healthcare, a strategic communications firm based in Boston. "That's what the Magic Nano incident has shown us." Nano seems to have survived the incident with its hip status intact. Perhaps "nano" is the new turbo. Nevertheless, the Magic Nano incident was a wake-up call for industry, says David Rejeski, director of the Project on Emerging Nanotechnologies at the Woodrow Wilson International Center for Scholars in Washington, D.C. The government hasn't yet established guidelines for testing nanotech products' safety, and that could lead to problems, which some activist groups are quick to point out. "The scary part of it is that if we were to demand that nano products be tested for health and safety prior to release, we're not even sure how to do the tests," Rejeski says. He points out, for example, that there have been a handful of studies on the effects of buckyballs on the lungs of lab animals, but no prominent studies have been done on how such nano-materials interact with the gastro-intestinal tract. While some companies rush to put "nano" in their product's name even if it does not scientifically deserve the moniker (the Wilson Center keeps a database of products that have a reasonable claim to using nano-engineering, which is now more than 200 items large), others, like Dupont, are taking a more methodical approach. This summer, Dupont unveiled its Framework for Responsible Nanotechnology, a set of standards and practices for testing nano-products for health and environmental hazards before releasing them commercially. It's a surprising move from a company not exactly synonymous with public health and environmental stewardship. The framework is also unique in that it was drawn up in coordination with Environmental Defense, a non-governmental environmental rights organization. While Environmental Defense has received flak from other green groups for its partnership with Dupont, it can point to a considerable achievement -- the first public set of standards for how to ensure the safety of nano-engineered products. "We're a science-based organization and we want to help anybody that's going to use science to keep this technology safe," says Scott Walsh, a project manager with Environmental Defense's corporate partnerships department. The framework can serve as a template for other corporations that want to follow Dupont's lead, he said. "We could even see it serving as a format upon which government regulation in this area can be based." Self regulation could also have its down sides, Walsh says. "We might end up with a situation where companies that are acting responsibly, like Dupont, are at a competitive disadvantage to less scrupulous companies which launch products without any safety testing," Walsh says. "If that's what happens, government regulation might become a more reasonable approach than voluntary standards." Strict workplace safety standards and environmental monitoring are crucial for nanotechnology manufacturers and laboratories, said University of Michigan professor of toxicology Martin Philbert. "If there is a problem, the first place it will show up will be among the technicians and dishwashers in some research lab," he said. But so far no national debate has addressed creating regulations to protect workers. If Congress and the White House aren't paying attention yet, some of the federal bureaucracies are starting to prick up their ears. The Food and Drug Administration announced in May that it will hold a public meeting in the fall to solicit opinions for nanotechnology products regulation. But that's just the tip of what needs to be done, says Rejeski. "So far all we've seen from nanotechnology are better tennis rackets and nice pants," he said. "That's about to change. This stuff will be in our drugs, our food, our cosmetics and everything else. It's better to plan now for how to deal with it than wait another five years." Source: Wired News

Posted by Nano News at 23:42

Nano Football Field Created by German Scientists

Scientists at the University of Kaiserslautern, Germany, have created the world's smallest football field, half a micrometer long on a scale of 1:210,000,000. The nano football field is so miniscule that 20,000 of them could fit onto the tip of a human hair. The field was created in plexiglass on silicon. Pictures of the field were taken with a raster electron microscopy (REM). "The challenge was to develop the world's smallest football field", said Dr. Stefan Trellenkamp of the Nano+Bio Center, Kaiserslautern. "The football field of the victorious Kaiserslautern team is 500 nanometers by 380

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nanometers, thus the smallest football field comes from the smallest World Cup city", Dr. Trellenkamp went on to say. Source: University of Kaiserslautern

Posted by Nano News at 12:01

Tuesday, July 4. 2006

Nanotechnology 2015

Nanotechnology 2015 and the Convergence with Biotechnology, Information technology and Neural technologies (Brain science, Cognoscience, Cognitive science) Nanotechnology 2015. Converging nano-bio-neural-info-technologies 2002 to 2015.State of Science, technologies 2003 and expectations up to 2015 and prospects up to 2025. Markets and Market development 2002-2003-2006-2010-2015 and Prospects, Companies, Competition, Branches, Applications, Regions, Countries, Worldwide Opportunities and Risks and Strategies.Continue reading "Nanotechnology 2015"

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