



## News in Brief

### Kite-Powered Generator

A company called KiteGen Research from Italy is developing a generator that harnesses the wind through kites.

As a kite flies into the air, it unspools a cord that turns the turbine and generates electricity.

The company developed a prototype that flies 200-square-foot kites to altitudes of 2,600 feet, where wind streams are four times as strong as they are near ground-based wind turbines, Popski reported.



As the kite's tether unspools, it spins an alternator that generates up to 40 kilowatts. Once the kite reaches its peak altitude, it collapses, and motors quickly reel it back in to restart the cycle.

This spring, KiteGen started building a machine to fly a 1,500-square-foot kite, which it plans to finish by 2011, that could generate up to three megawatts—enough to power 9,000 homes.

### High-Speed Detection Of Bomb Drug

Researchers at Queen's University in Belfast are developing sensors that quickly detect chemicals used to make bombs. The devices will use special gel pads to "swipe" a person or crime scene.

According to Ideacon, the samples are then analyzed by a scanning instrument that can detect the presence of chemicals within seconds, much quicker than current analysis methods.

This will allow better, faster decisions to be made in response to terrorist threats. The team is also working on devices that detect illegal drugs and will hopefully be deployed by police as roadside drug "breathalyzers".



### Fan With No Visible Blades

James Dyson has invented a new type of desktop fan that has no visible blades. Its key component is a hollow plastic hoop with an aerofoil cross section—like an aircraft wing bent into a circle.

According to NewScientist, set vertically on a pedestal, it contains a motor-driven "impeller" which forces air into the hollow rim of the hoop.

Air emerges through a slot that directs it over the hoop's aerofoil surface. This generates low pressure towards the center of the hoop, which in turn creates a steady draught by drawing the surrounding air through it.



### Copper, Magnetic Devices Unhelpful

Copper bracelets and magnetic wrist straps do not relieve the crippling pain of arthritis, a new study shows.

Charities have warned that sufferers should not waste their money on the alternative therapies, which can cost between £25 and £65.

Researchers from the University of York found that there was no benefit in tests on 45 people.

All were suffering from osteoarthritis and wore the devices over the course of a total of 16 weeks.

They were ineffective in relieving pain and stiffness, according to the findings.

"It appears that any perceived benefit obtained from wearing a magnetic or copper bracelet can be attributed to psychological placebo effects," said Stewart Richmond, who led the study.

"People tend to buy them when they are in a lot of pain, then when the pain eases off over time they attribute this to the device."

However, our findings suggest that such devices have no real advantage over placebo wrist straps that are not magnetic and do not contain copper."

Jane Tadmor from the Arthritis Research Campaign said, "Although there is a big public appetite for non-drug treatments from arthritis patients, we would not encourage them to spend a lot of money on products for which there is very little scientific evidence."



### More Efficient

#### Nuclear-Powered Battery

Researchers at the University of Missouri are developing a nuclear battery that is smaller, lighter and more efficient than existing technology.

According to Ideacon, although nuclear batteries generate electricity from atomic energy like nuclear reactors, they don't use a chain reaction, instead using the emissions from a radioactive isotope to generate electricity.

The battery being developed is intended to power various micro/nanoelectromechanical systems. The team's innovation is not only in the battery's size, but also in its semiconductor, which is liquid rather than solid.



## Looming Sounds Boost Visual Perception

Whether it's the sound of a speeding car approaching from out of the blue, or the faint echo of footsteps following you along a dark street, such looming sounds not only make our ears prick up—but help us see better too.

Scientists at the Universities of Glasgow, UK, and Lausanne, Switzerland, have discovered that even before people are consciously aware of them, such looming sounds excite the low-level visual cortex, boosting visual perception, Physorg wrote.

By pinpointing exactly when and where in the brain multisensory interactions between the auditory and visual senses take place, the study dispels previous beliefs in the relative segregation of hearing and vision at the input stages.

Lead researcher Gregor Thut, of University of Glasgow, said, "The study shows how models of brain organization and perception need to be changed to include multisensory interactions as a fundamental component." The researchers were able to measure the excitability of the visual cortex in healthy adults by artificially stimulating the back of the head (occipital pole) where the visual cortex is located through transcranial magnetic stimulation (TMS).

The stimulation results in the perception of light flashes—called phosphenes—such as those created when you rub your closed eyes. Phosphenes were dramatically and selectively enhanced by looming sounds (relative to a set of control stimuli) and this response occurred 35 milliseconds before participants were able to consciously discriminate the sound.

The findings not only challenge longstanding models of brain organization, but also highlight alternative rehabilitation strategies for aged and clinical populations such as the sight-impaired and blind.

## Children Should Avoid Painkiller After Vaccine

Parents should not give their children the common painkiller paracetamol in the hours after they are given a vaccine because it stops the immune system from working well. Paracetamol, found in Calpol, can reduce the effectiveness of the injections, researchers have found, Telegraph reported.

As well as a painkiller, the drug is used to prevent fever, which can be a side-effect of vaccines, as the body responds to the jab.

The research team believes that paracetamol could limit how the immune system responds to the vaccination. The drugs effects could leave children under-protected when they come into contact with dangerous diseases in the future.

The study tested the effectiveness of vaccines for flu, diphtheria, tetanus, whooping cough, hepatitis B and polio after the children had been given the painkiller as well.

The research found that the children had significantly lower numbers of antibodies, the immune systems response to infection, in those given paracetamol for 24 hours after the jab. Researchers gave the drug to 226 children every six to eight hours for 24 hours after the vaccination. They then compared the findings with those from 223 children who had the same injections but were not given the painkiller.

The research team also analyzed 10 previous studies on the effects of paracetamol, which confirmed their findings. Dr Robert Chen, from the American Centres for Disease Control and Prevention, called for more research to be done on the effect of paracetamol on vaccinations. He said: "However, a larger question is the extent to which paracetamol might reduce population protection."

# Iran to Unveil Mideast's 1st Hybrid Bus

The first electric hybrid bus in the Middle East will be unveiled next month.

Omid Shakeri, vice president of Iranian Fuel Conservation Organization's Research and Technology Center, made the above announcement on the sidelines of the unveiling ceremony of two-passenger electric vehicles in Olympic Hotel, Tehran, ISNA reported.

Shakeri noted that the manufacture of the first hybrid bus is the result of a three-year project.

The manufacture of the hybrid vehicle, carried out by the researchers of Isfahan's Industrial University with the support of Iran Khodro, is in its final stages.

The vehicle is the first example



of hybrid vehicles used in the urban transportation system.

The bus was selected for its superior design in the National Technology

Festival and Technology Exchange Meeting in June 2008.

Referring to it as a clean fuel vehicle, Shakeri said it uses 30 percent less fuel, because non-electric buses waste energy even while waiting at bus stops.

The first Iranian two-seat electric urban car was unveiled on September 3, 2009.

In recent years, ecological problems such as rising air pollution and declining oil reserves have tempted car manufacturers to focus on hybrid and electronic vehicles that are friendlier to the environment and less dependent on fossil fuels.

Electric cars are commonly powered by on-board battery packs and grouped as battery electric vehicles.

## Iranian Exhibit to Make Nanotech Accessible

Iranian Nano Student Club plans to inform people about concepts and applications of nanotechnology in a section named "New World: Nano World" at Iran Nano 2009 Exhibition. Nano Student Club, one of the organizations working under the supervision of Iran Nanotechnology Initiative Council (NIC), intends to take students on a path leading from basic concepts to inventing knowledge-based ideas.

The organizers aim to make the educational and re-

search activities of Nano Student Club a base for university researchers by providing them teamwork experience.

The essence of interdisciplinary relationship between nanotechnology and other scientific fields will be imparted to the students.

After receiving widespread acclaim from thousands of visitors to the nano public teaching section during the first nanotechnology exhibition in 2008, the club is prepared to host more visitors and students during this

year's event on 4-8 November.

New products will be presented in different categories such as vehicles, agriculture, home appliances and textiles in a way that visitors will sense the applications of nanotechnology in everyday life.

The educational section will also present scientific materials related to nanotechnology, including nanotechnology in nature, nanomaterials and nanoscale changes.

## Brain Yields Clues to Language

US researchers say they've achieved a breakthrough in understanding how the human brain computes language.

"Two central mysteries of human brain function are addressed in this study: one, the way in which higher cognitive processes such as language are implemented in the brain and, two, the nature of what is perhaps the best-known region of the cerebral cortex, called Broca's area," study first author Ned T. Sahin, of University of California, San Diego said in a news release, HealthDay reported.

For the study, the researchers used intra-cranial electrophysiology to monitor brain language-

processing activity while volunteers repeated words or spoke them in different forms such as past tense or plural.

"We showed that distinct linguistic processes are computed within small regions of Broca's area, separated in time and partially overlapping in space," Sahin said.

The researchers detected patterns of neuronal activity between 200 and 450 milliseconds after a word was presented to a participant. The patterns were identical for nouns and verbs, and consistent between participants.

The findings challenge the widely-held belief that

Broca's area handles speech while another part of the cortex called Wernicke's area handles reading and hearing.

"Our task involved both reading and speaking, and we found that aspects of word identity, grammar and pronunciation are all computed within Broca's area. Crucially, information about the identity of a printed word arrives in Broca's area very quickly after it is seen, in parallel with its arrival in Wernicke's. It has been clear for some time that the expressive/receptive model is out of date, and now it is clearer that Broca's area has several roles, in both expressive and receptive language," Sahin said.

## Ear Acupuncture Curbs Pain in Pregnant Women

A special acupuncture technique can help ease lower back and pelvic pain in pregnant women, new research shows.

In a study, women who had pressure needles held in place with tape at three acupuncture points in their ears for one week, were more likely to experience significant reductions in lower back and pelvic pain than those who had the needles placed at three 'sham' points or women in a control group who didn't

get real or fake acupuncture, Reuters reported.

Pregnant women often suffer from pain in the lower back and pelvis—and this can set the stage for chronic pain later on, Dr. Shu-Ming Wang of the Yale School of Medicine in New Haven, Connecticut said.

Ear acupuncture might offer a drug-free way to help ease pain in these women, Wang and colleagues say.

They randomly assigned 159 women in the 25th to 38th week of pregnancy to receive real acupuncture, acupuncture delivered to points that would theoretically not affect pain in the pelvic or lower back area, and a control group.

Every woman was also instructed to use self-care as needed, including resting, taking acetaminophen and applying warm and cold compresses.

All of the 152 women who completed

the two-week study reported some degree of pain reduction and improvement in their ability to function.

The only side-effect was temporary tenderness in the ear area, reported by one woman in the acupuncture group and three in the sham acupuncture group.

The treatment takes about three minutes for the needles to be put in place if an experienced person is doing the job.