

## Japan to train space laser on potential green fuel solution

**Tokyo** Plans to use an orbiting solar-powered laser to produce hydrogen for fuel cells are to be pursued by Japan's National Space Development Agency and the Institute of Laser Technology in Osaka.

The scheme proposes using a satellite to capture solar energy and power a laser trained on a solution of titanium dioxide and water back on the Earth. The laser would activate a process that separates the solution into oxygen and hydrogen. The hydrogen could then be used in fuel cells, a potential clean alternative to the use of petrol and diesel. Experimental simulations of the proposed laser system will begin this autumn.

Ultimately, researchers hope to use a satellite in an orbit at an altitude of 36,000 kilometres, high enough to track the Sun. The plan involves putting an experimental satellite in orbit by 2010, followed by a fully functional system in 2020.

## Health balance tipped against landfill neighbours

**London** A study of the health of people living near landfill sites in the United Kingdom has shown a higher incidence of low birth weights and congenital defects among babies born to mothers living within 2 kilometres of the sites.

The survey found that rates of birth defects were around 1% higher than expected, a figure that rose to 7% near sites containing hazardous waste. The number of newborn babies weighing less than 2.5 kilograms was 5% higher than expected.

The team from Imperial College, London, that performed the study says that there are no known mechanisms that can explain the findings. The researchers adjusted their results to compensate for socio-demographic factors relating to populations around the landfills, many

of which are situated in areas of low income, but say that more work needs to be done before these factors can be fully discounted.

► <http://www.doh.gov.uk>

## Boost for terascale computer research

**San Diego** In a move to realize the potential of supercomputing, the US Department of Energy last week announced plans to support 51 research projects in the area, at a cost of \$57 million for the first year alone.

The Scientific Discovery through Advanced Computing (SciDAC) initiative will develop software tools to allow researchers from a variety of disciplines to run simulations on terascale computers, which can carry out up to a trillion operations per second.

Of the new projects, 33 will focus on specific problems, such as climate modelling and fluid dynamics. The remainder will involve the development of software to improve researchers' access to supercomputers.

► <http://www.sc.doe.gov>

## Sperm spinner succeeds in HIV-free fertilization

**Tokyo** Two Japanese women seem to be carrying healthy babies after undergoing *in vitro* fertilization (IVF) procedures using sperm from HIV-positive men, doctors announced last week.

The virus was removed before IVF using a method, developed by Japanese researchers, in which viral RNA or DNA within semen is broken down and separated from sperm by spinning it in a centrifuge (see *Nature* 408, 633; 2000). Healthy sperm are then selected and tested for infection. Blood tests show that the women, one due to give birth this autumn and the other next spring, are free of the virus.

The doctors say that this is the first confirmed creation of healthy embryos using sperm from HIV-positive men, although it is thought that previous

attempts have been made using a different technique. Researchers say the current method could be extended to remove other viruses such as hepatitis.

## Fresh faces for British science funding

**London** New heads have been named at two of Britain's research councils, the country's main science-funding agencies.

Julia Goodfellow, currently head of crystallography at Birkbeck College, London, will become the first woman to lead the Biotechnology and Biological Sciences Research Council when she replaces Ray Baker early next year. "The UK research base in biotechnology and the life sciences is strong and internationally



competitive, but the rate of progress is so fast that we need to press vigorously over the next five years," Goodfellow says.

The Engineering and Physical Sciences Research Council last month announced that its new chief executive will be John O'Reilly, currently head of the electronic and electrical engineering department at University College London. O'Reilly will replace Richard Brook in October.



Julia Goodfellow and John O'Reilly.

## Hum conundrum keeps scientists awake at night

**Munich** An investigation by German researchers has confirmed the presence of a nightly hum in several cities in the southern German state of Baden-Württemberg.

Groups of people living in Germany, Britain and the United States have reported being disturbed by low-frequency sounds during the past few years, but their complaints have often been blamed on hearing problems rather than external noise.

In response to complaints, Baden-Württemberg's environment ministry carried out nightly measurements in the homes of local residents. "When people told us the hum starts, we could clearly measure an acoustic signal," says Anja Bussek, a spokeswoman for the project.

The source of the drone — described as sounding like a distant engine or electrical motor — could not be determined. Furthermore, it remains unclear why only some people are able to hear the noise.



Laid waste: a study associates landfills with higher rates of congenital defects in babies born nearby.