distances in space and to measure the expansion of the Universe.
Science 347, **1123–1126 (2015)**

MICROBIOLOGY

Ultra small bacteria spotted

Bacteria roughly 1/100th the volume of a typical *Escherichia coli* have been found in groundwater.

Jillian Banfield at the University of California, Berkeley, Luis Comolli of Lawrence Berkeley National Laboratory in California, and their colleagues filtered groundwater through a mesh with holes around 0.2 micrometres in diameter and collected a variety of extremely small bacteria (around 0.009 cubic micrometres) that have never been cultured. Under the electron microscope, the microbes seemed to have tightly packed DNA, few of the protein-making structures called ribosomes, and structures that might allow the cells to connect and communicate with one another.

The researchers suggest that these bacteria had not been cultured before because they depend on other microbes to grow.
Nature Commun. 6, **6372 (2015)**

PHOTONIC MATERIALS

Pulled fibres shift colour

Rubbery fibres have been developed that reversibly change colour when stretched or bent.

Xuemei Sun, Huisheng Peng and their collaborators at Fudan University in Shanghai, China, attached microscopic plastic spheres to elastic fibres that were wound with carbon nanotubes. As the fibre stretches, the spaces between the microspheres increase in size along the length of the fibre, whereas they decrease in the radial direction. This changes the wavelengths of light that are reflected by the fibres, resulting in shifts in colour between red, green and blue as the fibre is stretched and released. The fibres remained stable after 1,000 rounds of stretching and were woven into fabric in various patterns.

Such 'mechanochromic' materials could be used in wearable displays or sensors, the authors say.
Angewandte Chemie **http://doi.org/f259np (2015)**

GEOLOGY

Hydration lifts Earth's crust

The high elevation of parts of the western United States could be a result of water percolating up from deep in Earth's crust, and changing the crust's mineral composition, making the rocks more buoyant.

Geologists have been hard-pressed to explain why Colorado and much of Wyoming have lifted by more than 2 kilometres over the past 75 million years. A team led by Craig Jones at the University of Colorado Boulder reanalysed data on the geology and seismology of the region and conclude that in lower regions, such as Montana, fragments of crustal rock contain dense minerals such as garnet. Beneath high-elevation areas, however, the rocks contain a different suite of less dense minerals. The authors suggest that these were produced by water reacting with the dense minerals and so making the crust lighter.

The water may have come from the dehydration of a deeply buried, ancient crustal slab.
Geology **http://doi.org/2ps (2015)**

STRUCTURAL BIOLOGY

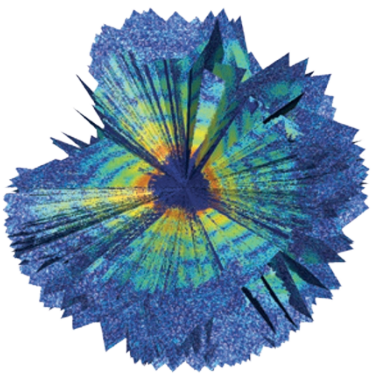
X-rays reveal virus innards

With the help of powerful X-rays, researchers have determined the three-dimensional structure of a single giant virus particle. This shows how tiny objects that cannot be easily crystallized can still be imaged in 3D.

X-ray crystallography is commonly used to work out the structure of molecules, but these must be crystallized first. However, free-electron lasers generate such high-energy X-ray pulses that they can, in theory, produce pictures of just a single molecule.

Tomas Ekeberg at Uppsala University in Sweden and his colleagues fired these lasers at single particles of the *Acanthamoeba polyphaga* mimivirus. They used algorithms to combine X-ray diffraction patterns (**pictured**) from many specimens and created a 125-nanometre-resolution image of the virus.

The results confirm that that the mimivirus is less densely packed with genetic material than smaller viruses tend to be.
Phys. Rev. Lett. 114, **098102 (2015)**



TOMAS EKEBERG, UPPSALA UNIV.

CLIMATE-CHANGE BIOLOGY

Insects feast under high CO_2

Leaf-eating insects in northern temperate forests consume more of the forest canopy when carbon dioxide levels are increased, which could limit forests' capacity to act as carbon sinks in a warming world.

John Couture and his colleagues at the University of Wisconsin-Madison, found that in parts of a research forest exposed to raised CO_2 levels, herbivorous insects increased their consumption of foliage by 88%. This led to an average of 70 grams of carbon-sequestering biomass lost per square metre of forest per year.

Increased CO_2 could be causing this effect by changing the nutrient content of leaves and also by boosting the number of leaf-eating insects, the authors say. They also suggest that insect behaviour should be incorporated into models that estimate the effects of high CO_2 on forest productivity.
Nature Plants **http://dx.doi.org/10.1038/nplants.2015.16 (2015)**

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SOCIAL SELECTION

Popular articles on social media

Scientific art kicks off Twitter storm

Images of painted pterosaurs, ceramic diatoms and quilts depicting neurons flooded scientists' Twitter feeds, after the writers of Symbiartic, *Scientific American*'s art blog, launched SciArt Week on 1 March. Researchers and artists posted a flurry of artwork highlighting the beautiful side of science, using the hashtag #sciart.

Malcolm Campbell, a plant scientist at the University of Toronto, Scarborough, Canada, was one of the first researchers to announce SciArt week on Twitter. "Art captures the imagination in a way that science alone cannot," he says. "It's a wonderful way to make science more tangible to the public."

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