

ASTRONOMY

An embarrassment of planets

A system predicted to contain as many as seven planets orbiting a Sun-like star has been discovered 39 parsecs from the Sun — the most populous extrasolar planetary system found so far.

The planets orbit HD 10180 near the southern constellation Hydrus. Christophe Lovis at the University of Geneva in Switzerland and his team used a spectrograph at the European Southern Observatory in Chile to look for a characteristic stellar ‘wobble’ caused by planets tugging on their parent star. Their results suggest that five planets of a similar mass to Neptune orbit at distances of 0.06–1.4 times the Earth–Sun distance. A possible sixth planet, with a mass similar to that of Saturn, has an orbital period of about 6 years.

The seventh prospective planet could have a mass just 1.4 times that of Earth, making it the smallest extrasolar planet found so far. But with an orbital distance equivalent to just 2% of Earth’s, it is likely to be a scorched world.

Astron. Astrophys. 528, A112 (2011)

CHEMISTRY

Vesicles form with pH shift

Lipid bilayers, which make up cell membranes, can change shape in response to external stimuli. To reproduce this behaviour in a synthetic system, Jan van Esch at Delft University of Technology

in the Netherlands and his co-workers have produced a vesicle — a water-filled compartment bounded by a bilayer membrane — that forms and collapses in response to changes in pH.

The system comprises a solution containing a molecule with two ‘tails’, each of which can form reversible covalent bonds with another molecule. When there is a sufficiently

high number of the molecules, the bonds form and the vesicles spontaneously take shape; conversely, when bonds break, the vesicles eventually collapse (**pictured**). The stability of the bonds is also affected by the solution’s pH, with vesicles forming at a pH of more than 7, and dissociating completely when pH falls below 4.

These reversible vesicles might be useful for applications that require controlled encapsulation and delivery. **Angew. Chem. Int. Edn** doi:10.1002/anie.201007401 (2011)

CANCER IMMUNOLOGY

Hide no more, tumour

Deadly pancreatic tumours evade attack by the immune system by developing a stroma — a shell of connective tissue enmeshed with white blood cells that suppress the immune response. Robert Vonderheide at the University of Pennsylvania in Philadelphia and his team now report a way to reverse this immune suppression.

The authors studied



ARCHAEOLOGY

North America’s first tool users?

The Clovis people who lived in North America about 13,200 years ago have long been thought to be the continent’s first tool-using humans. But the discovery of older human artefacts at a site in Texas is challenging this idea.

In sediments dating from between 13,200 and 15,500 years ago, Michael Waters of Texas A&M University in College Station and his team found 15,528 stone artefacts that seem to have been undisturbed by soil movement. This suggests

that the artefacts, including ancient tools (**pictured**), existed before the Clovis people came to dominate the landscape. A few of the tools have similarities to Clovis ones, but are simpler and still distinct. The authors suggest that a different sort of people was using tools in North America before the Clovis people.

Science 331, 1599–1603 (2011)

For a longer story on this research, see go.nature.com/2sijzo