

RESEARCH HIGHLIGHTS

Monkey talk

Proc. Natl Acad. Sci. USA doi:10.1073/pnas.0908118106 (2009)

The vocal communication system used by Campbell's monkeys may represent the most complex syntax-like structure yet found among animals.

Karim Ouattara and Alban Lemasson of the University of Rennes in France and Klaus Zuberbühler of the University of St Andrews, UK, recorded and analysed the calls of males in six groups of free-ranging Campbell's monkeys in the rainforest of Ivory Coast.

The males have just six basic types of call, but combine these in context-specific sequences to convey different information. Crowned eagles, for example, elicited four different sequences, and leopards three, according to how the male learnt about their presence — by seeing them, hearing them, or learning about them through the hearsay of other monkey species.



F. MÖLLERS/TAI MONKEY PROJECT

PHYSICAL CHEMISTRY

Dual-aspect particles

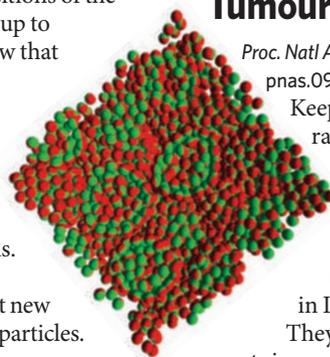
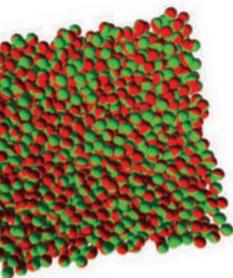
Phys. Rev. Lett. **103**, 237801 (2009)

Like their mythological namesake, Janus particles have two faces: one that attracts and one that repels a liquid. Scientists are interested in the nanoparticles' behaviour because they mimic that of many biological and chemical molecules.

When suspended in solution, the repellent faces cluster together, causing the particles to clump. Francesco Sciortino of the University of Rome La Sapienza and his colleagues have now found that this clumping affects gas-to-liquid phase transitions of the

particles. Simulations of up to 5,000 particles in solution show that the clumping creates unusual behaviour: contrary to expectation, the gas phase (pictured above) is more ordered than the liquid phase (pictured right) and the material expands as it cools.

The researchers believe that their simulations could prompt new experimental work with Janus particles.



AM. PHYS. SOC.

subsequent robustness of the ecological network.

Carl Simpson and Wolfgang Kiessling of the Berlin Museum of Natural History propose an explanation for this relationship on evolutionary timescales. They say the 'diversity–stability' relationship can be explained solely by the extinction of species: high species turnover needs to be buffered by higher species numbers.

If this is true, then the diversity–stability relationship should be strongest when the extinction rate is high. Looking at historical coral reef data, they found that the relationship was historically strong during periods of high extinction, and weak during low-extinction periods.

CANCER BIOLOGY

Tumours hate company

Proc. Natl Acad. Sci. USA doi:10.1073/pnas.0910753106 (2009)

Keeping normally gregarious rats isolated from their own kind boosts their cancer risk, according to Martha McClintock and her colleagues at the University of Chicago in Illinois.

They kept 20 rats alone and 20 rats in groups of five. All 40 were genetically prone to mammary cancer. The lone rats exhibited a 135% increase in the number of tumours, an 8,391% increase in the size of tumours and a 3.3-fold increase in the relative risk of malignancy compared with those kept in groups.

Isolated rats were also more stressed, anxious, fearful and vigilant. The authors

suggest that prolonged exposure to large pulses of the stress-related hormone corticosterone may have contributed to tumour origin and growth.

GEOLOGY

Bubble batholiths

Lithosphere **1**, 323–327 (2009)

In some mountains and plateaux, geologists find granite rocks that formed from magmas that had risen up through 'floating' continental tectonic plates. The rocks' origin has often been attributed to melting underneath the continental plates, caused by convection in the hot mantle.

However, Donna Whitney at the University of Minnesota in Minneapolis and her colleagues suggest that subduction — the downward thrusting of one plate under another during tectonic collisions — might be responsible. Using a numerical model, the researchers find that continental subduction can lead to melting of crustal slabs and percolating granitic magma.

POPULATION GENETICS

Asia's common origin

Science **326**, 1541–1545 (2009)

Humans migrated from Africa into Asia, along its southern coast and then down into Indonesia. But whether this wave also accounted for east Asian populations or was supplemented by one or more later migratory waves along a northern route has been the subject of debate.

The HUGO Pan-Asian SNP Consortium reports an analysis of nearly 55,000 variations in genes from nearly 2,000 people that supports the single-wave theory. The analysis

ECOLOGY

Reef regulation

Proc. R. Soc. B doi:10.1098/rspb.2009.2062 (2009)

An ecosystem's stability is postulated to increase as its number of species goes up, owing to the increased number of interactions between those species and the