The surface of the Sun shows rapidly changing patterns due to convection, as well as global oscillations of very low amplitude. The CoRoT (Convection Rotation and Planetary Transits) satellite, launched in December 2006, has now measured both phenomena in other stars. See page 558.

*Image: Thomas Berger; ISP/Royal Swedish Academy of Sciences*
Variation in Evolutionary Patterns Across the Geographic Range of a Fossil Bivalve
M. Grey, J. W. Haggart, P. L. Smith
Within a fossil bivalve genus, evolution tended to occur as a random walk at the highest latitudes and to be in stasis mode in deep marine environments.
10.1126/science.1162046

De Novo Formation of a Subnuclear Body
T. E. Kaiser, R. V. Intine, M. Dundr
The Cajal body, a nuclear structure for small ribonucleoprotein metabolism, can self-assemble from any one of its components immobilized on a substrate.
10.1126/science.1165216

Genetic Compatibility Affects Queen and Worker Caste Determination
T. Schwander and L. Keller
Although environmental signals regulate whether female ants become sterile workers or queens, genetic interactions between their parental genomes also influence the phenotype.

The Structure of a Transcribing T7 RNA Polymerase in Transition from Initiation to Elongation
K. J. Durniak, S. Bailey, T. A. Steitz
In order to accommodate the elongating RNA transcript, a viral RNA polymerase rotates on its DNA binding promoter to expand the active site.

CoRoT Measures Solar-Like Oscillations and Granulation in Stars Hotter Than the Sun
E. Michel et al.
Satellite measurements of pulsations in three stars similar to but hotter than the Sun show that they are oscillating more vigorously and have a finer-scale granulation.
>> Perspective p. 536; Science Podcast

Satellite measurements indicate that the Sun is more oblate than previous measurements suggested, a shape resulting from the combined effects of rotation and magnetism.
>> Perspective p. 535

A method requiring only the light from a laser as an input yields a full characterization of quantum optical processes by probing its effect on classical states.

Profile views of titania, a widely used material, with a transmission electron microscope show that interstitial sites with a lower oxygen stoichiometry produce its reduced surface.
REPORTS CONTINUED...

CHEMISTRY
The Extent of Non–Born-Oppenheimer Coupling in the Reaction of Cl(2P) with para-H2
X. Wang et al.
The study of controlled collisions between chlorine atoms and molecular hydrogen clarifies that excited electronic states play only a minor role in the formation of hydrochloric acid.

BIOCHEMISTRY
MidBody Targeting of the ESCRT Machinery by a Noncanonical Coiled Coil in CEP55
H. H. Lee et al.
As daughter cells separate, final cleavage of the membranes requires a protein with a coiled coil built around an unusual charged core, which recruits other constituents.

ECOLOGY
Functional Traits and Niche-Based Tree Community Assembly in an Amazonian Forest
N. J. B. Kraft, R. Valencia, D. D. Ackerly
Even in a diverse Amazonian forest, trees show particular leaf characteristics that indicate that they are subtly specialized for habitat and growth strategy.

CELL BIOLOGY
White Fat Progenitor Cells Reside in the Adipose Vasculature
W. Tang et al.
Adipocytes (fat cells) originate from precursor cells that reside within the walls of the blood vessels that feed fat tissue.

PLANT SCIENCE
Receptor-Like Kinase ACR4 Restricts Formative Cell Divisions in the Arabidopsis Root
I. De Smet et al.
A membrane kinase regulates the number of stem cells in the main tip of the root, as well as the de novo generation of stem cells in new laterally projecting roots.

MOLECULAR BIOLOGY
Functional Targeting of DNA Damage to a Nuclear Pore–Associated SUMO-Dependent Ubiquitin Ligase
S. Nagai et al.
The damaged regions of DNA are recruited to the periphery of the nucleus by a complex of nuclear-pore and ubiquitin-modifying proteins, where they are repaired.

MOLECULAR BIOLOGY
Splicing Factors Facilitate RNAi-Directed Silencing in Fission Yeast
E. H. Bayne et al.
In fission yeast, RNA splicing factors unexpectedly participate in the silencing of centromeric DNA by RNA interference derived from centromeres.

PSYCHOLOGY
Experiencing Physical Warmth Promotes Interpersonal Warmth
L. E. Williams and J. A. Bargh
When people are given a warm rather than a cold drink, they are more likely to show generous behavior toward others.
Hallucinogenic Hand-Me-Downs
Ancient Caribbean families appeared to share drug paraphernalia across generations.

Monster Tag Team
Gigantic black holes threw their weight around in the early universe.

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* L. Laursen
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* A. Levine
A Ph.D. chemist found a rewarding career designing toilets.

From the Archives: Of Noble Descent
* D. van Vlooten
There are ways of getting elite positions without being nobility or going to the "right" university.
Science 322 (5901), 501-608.

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