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A screw dislocation drives the growth of a nanowire pine tree, in which branches regularly extend from the trunk in a spiral, confirming Eshelby’s theory of dislocations. 10.1126/science.1157131

MEDICINE
A Polymorphism Within the G6PC2 Gene Is Associated with Fasting Plasma Glucose Levels
N. Bouatia-Naji et al.
Variation in a gene for a protein in the pancreas may help explain why people have different levels of fasting blood glucose, a factor that affects disease risk. 10.1126/science.1156849

TECHNICAL COMMENT ABSTRACTS
APPLIED PHYSICS
Comment on “Long-Lived Giant Number Fluctuations in a Swarming Granular Nematic”
I. S. Aranson, A. Senezko, J. S. Olafsen, J. S. Urbach
full text at www.sciencemag.org/cgi/content/full/320/5876/612c
Response to Comment on “Long-Lived Giant Number Fluctuations in a Swarming Granular Nematic”
V. Narayan, S. Ramaswamy, N. Menon
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GEOPHYSICS
Structure and Dynamics of Earth’s Lower Mantle
E. J. Garnero and A. K. McNamara

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CLIMATE CHANGE
Fire-Derived Charcoal Causes Loss of Forest Humus
D. A. Wardle, M.-C. Nilsson, O. Zackrisson
Charcoal enhances the microbial activity in soils, which in turn decreases the amount of carbon and humus in forests over time.

RESEARCH ARTICLES
NEUROSCIENCE
A Specialized Forebrain Circuit for Vocal Babbling in the Juvenile Songbird
D. Aronov, A. S. Andalman, M. S. Fee
The babbling of young zebra finches learning to sing is produced by a brain region distinct from the adult song center, a pattern that may also apply to other motor systems.

MATERIALS SCIENCE
High-Thermoelectric Performance of Nanostructured Bismuth Antimony Telluride Bulk Alloys
B. Poudel et al.
Milling a thermoelectric alloy, which produces electricity from a thermal gradient, into a nanopowder, then pressing it into a bulk form, greatly improves its performance.

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Coherent Control of Decoherence
M. P. A. Branderhorst et al.
Iterative shaping of a laser pulse using feedback from a fluorescence signal extends the phase stability of a molecular vibration in the face of rotational jostling.

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Strong Interactions in Multimode Random Lasers
H. E. Türeci, L. Ge, S. Rotter, A. D. Stone
A theoretical approach describes lasing in strongly disordered media where multiple excitation modes may switch on and off to emit light over a range of wavelengths. >> Perspective p. 623
In Vivo Imaging of Membrane-Associated Glycans in Developing Zebrafish
S. T. Laughlin, J. M. Baskin, S. L. Amacher, C. R. Bertozzi

Imaging of cell-surface sugars in developing zebrafish reveals dramatic bursts of sugar production in the jaw, olfactory organ, and pectoral fin 60 to 72 hours after fertilization.

Innate Immunity to a Haptoglobin-Hemoglobin Receptor Conveys Innate Immunity to Trypanosoma brucei in Humans
B. Vanhollebeke et al.

A lipoprotein in human blood protects against an African parasite by binding to a parasite receptor and triggering uptake of the lipoprotein, which contains a toxic component.

Expanding Oxygen-Minimum Zones in the Tropical Oceans
L. Stramma, G. C. Johnson, J. Sprintall, V. Mohrholz

Since the 1950s, dissolved oxygen concentrations have decreased in low-oxygen zones of the tropical Atlantic and equatorial Pacific, and the zones have expanded toward the surface.

Phosphorylation by p38 MAPK as an Alternative Pathway for GSK3β Inactivation
T. M. Thornton et al.

A well-studied kinase is shown to be unexpectedly phosphorylated and inhibited by mitogen-activated protein kinase, and this modification activates cell-survival pathways.

ROS-Generating Mitochondrial DNA Mutations Can Regulate Tumor Cell Metastasis
K. Ishikawa et al.

Mutations in mitochondrial DNA that cause enhanced production of reactive oxygen species can increase the propensity of tumor cells to metastasize.

Silica-on-Silicon Waveguide Quantum Circuits

Quantum circuits—in which individual photons interfere, entangle, and form logic gates—have been realized on silicon chips.

Innate Immune Activation Through Nalp3 Inflammasome Sensing of Asbestos and Silica
C. Dostert et al.

A large multiprotein complex detects particulate airborne pollutants that have been taken up by immune cells in the lung and initiates a potent inflammatory response.

Asymmetric Tethering of Flat and Curved Lipid Membranes by a Golgipin
G. Drin, V. Morello, J. F. Casella, P. Gounon, B. Antonny

A long protein may tether vesicles to the Golgi apparatus by binding the positively curved vesicle membrane to its N terminus and flat membranes to its C terminus.

A General Model for Food Web Structure
S. Allesina, D. Alonso, M. Pascual

A model based on likelihood analysis is able to replicate the actual structure of food web networks derived from experimental data.

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W. R. Williamson and P. R. Hiesinger
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C. Wald
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