



COVER

Like a cauliflower, the quantum critical regime has the same appearance irrespective of viewing distance. Fluctuations prevent a stable phase from developing; instead a patchwork of mixed phases arises. See the special section on quantum matter beginning on page 1201.

Image: Getty Images

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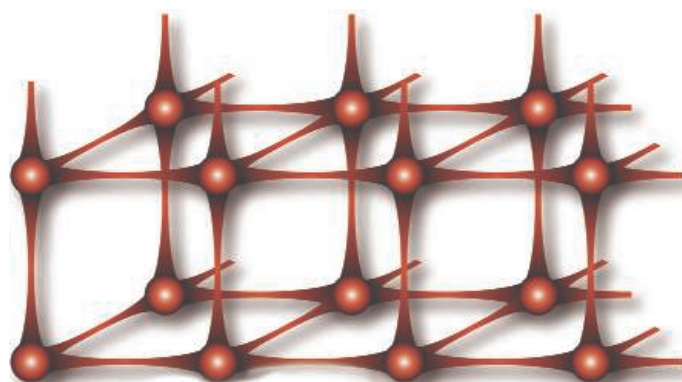
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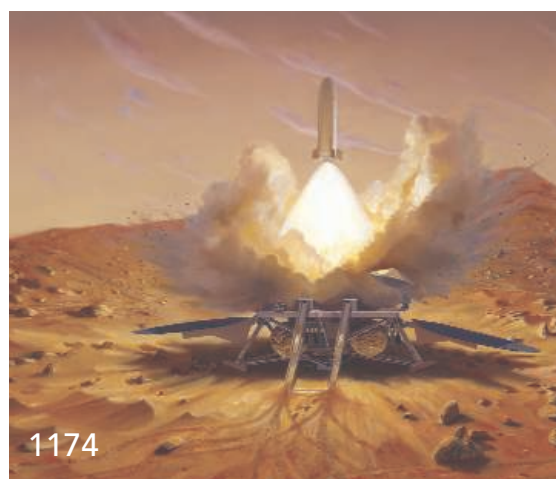
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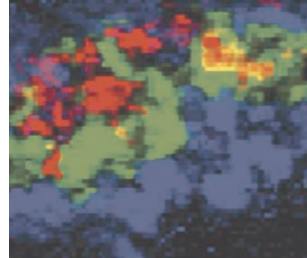
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www.scienceexpress.org

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Covariant Glacial-Interglacial Dust Fluxes in the Equatorial Pacific and Antarctica

G. Winckler, R. F. Anderson, M. Q. Fleisher, D. McGee, N. Mahowald
A 500,000-year record shows that more dust, which provides iron and other nutrients, was blown into the equatorial Pacific during glacial periods than during warm periods.
10.1126/science.1150595

GEOCHEMISTRY

Graphite Whiskers in CV3 Meteorites

M. Fries and A. Steele
Graphite whiskers, a naturally occurring allotrope of carbon, have been found in primitive grains in several meteorites and may explain spectral features of supernovae.
10.1126/science.1153578

MEDICINE

TDP-43 Mutations in Familial and Sporadic Amyotrophic Lateral Sclerosis
J. Sreedharan et al.

Mutations in a gene that encodes a protein that aggregates in several neurodegenerative disorders are linked to amyotrophic lateral sclerosis (Lou Gehrig's disease).
10.1126/science.1154584

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Protein Synthesis and Neurotrophin-Dependent Structural Plasticity of Single Dendritic Spines

J. Tanaka et al.
Pairing of stimuli in hippocampal cells induces secretion of the growth factor BDNF, causing enlargement of individual spines and strengthening of synapses.
10.1126/science.1152864

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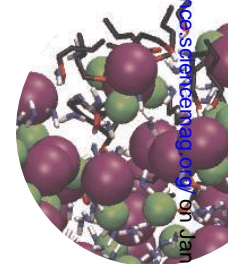
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Chemically Derived, Ultrasoft Graphene Nanoribbon Semiconductors 1229

X. Li, X. Wang, L. Zhang, S. Lee, H. Dai

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Deeply Inverted Electron-Hole Recombination in a Luminescent Antibody-Stilbene Complex 1232

E. W. Debler et al.

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Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land-Use Change 1238

T. Searchinger et al.

Converting forests and grasslands to biofuels crop production results in a net carbon flux to the atmosphere for decades despite any displacement of fossil fuel use.

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Local Positive Feedback Regulation Determines Cell Shape in Root Hair Cells 1241

S. Takeda, C. Gapper, H. Kaya, E. Bell, K. Kuchitsu, L. Dolan

Accumulation of an oxidase enzyme at one end of *Arabidopsis* root hair cells generates reactive oxygen species, which in turn trigger calcium entry and directional growth.

CELL BIOLOGY

Ceramide Triggers Budding of Exosome Vesicles into Multivesicular Endosomes 1244

K. Trajkovic et al.

Endosomes, membrane-bound vesicles later released from cells, are filled by a lipid-controlled budding of certain membrane regions into the lumen. >> *Perspective p. 1191*

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J. Hu et al.

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F. T. Muijres et al.

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Synaptic Protein Degradation Underlies Destabilization of Retrieved Fear Memory 1253

S.-H. Lee et al.

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Hybrid Neurons in a MicroRNA Mutant Are Putative Evolutionary Intermediates in Insect CO₂ Sensory Systems 1256

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K. D'Ardenne, S. M. McClure, L. E. Nystrom, J. D. Cohen

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Bigger amygdalas in aggressive teens.

SCIENCE NOW

www.sciencenow.org DAILY NEWS COVERAGE

Teen Aggressiveness in the Brain

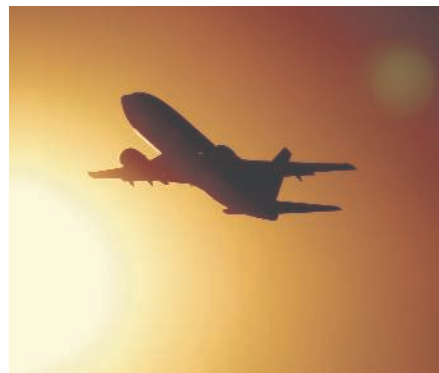
Tough-to-handle adolescents share bigger amygdala.

New Map for Malaria

Disease prevalence lower than thought.

Giving Earth an Umbrella

Computer models show how releasing clouds of fine particles could cool the planet.



Jetting to one more faculty interview.

SCIENCE CAREERS

www.sciencereers.org CAREER RESOURCES FOR SCIENTISTS

Research in Translation: Getting Published

S. Carpenter

Careful planning and choosing the right journal are key in publishing translational research.

In Person: Frequent Flyer

A. McNeil

Faculty interviews come with tight scheduling, awkward questions, and jet lag.

Educated Woman, Postdoc Edition, Chapter 13:

Fake It Until You Make It?

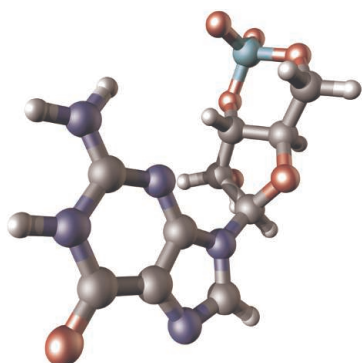
M. P. DeWhyse

Can Micella regain confidence in her abilities for her interview?

From the Archives: Disasters of the Famous

K. Arney

Prominent scientists' stories of lab errors remind us that everyone makes mistakes.



cGMP is a therapeutic target.

SCIENCE SIGNALING

www.stke.org THE SIGNAL TRANSDUCTION KNOWLEDGE ENVIRONMENT

MEETING REPORT: cGMP Matters

B. Kemp-Harper and R. Feil

Emerging therapies for treating cardiovascular disorders target the cGMP signaling system.

TEACHING RESOURCE: Using Web-Based Discussion Forums as

a Model of the Peer-Review Process and a Tool for Assessment

S. L. Jenkins, R. Iyengar, M. A. Diverse-Pierluissi, A. M. Chan, L. A. Devi, E. A. Sobie, A. T. Ting, D. C. Weinstein

Asynchronous discussion forums have several advantages over in-class journal club discussions.



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