A three-dimensional model of the topological structure of zeolite SSZ-65. The Gordon Research Conference on Nanoporous Materials will be held 15 to 20 June 2008 at Colby College, Waterville, ME. The schedules for the 2008 Gordon Research Conferences begin on page 637.

Model creation and rendering: Kelly Harvey and Scott Harvey
SCIENCE EXPRESS

www.sciencexpress.org

CLIMATE CHANGE
Human-Induced Changes in the Hydrology of the Western United States
T. P. Barnett et al.
Combining a regional hydrologic and global climate model implies that human-caused CO$_2$ emissions have already greatly changed river flows and snow pack in the western United States.
10.1126/science.1152538

ASTROPHYSICS
Asphericity in Supernova Explosions from Late-Time Spectroscopy
K. Maeda et al.
Spectroscopic signatures show that supernova explosions of stars that have lost their hydrogen envelopes are strongly aspherical and may be jetlike.
10.1126/science.1149437

GENETICS
High-Resolution Mapping of Crossovers Reveals Extensive Variation in Fine-Scale Recombination Patterns Among Humans
G. Coop, X. Wen, C. Ober, J. K. Pritchard, M. Przeworski
High-density genotyping of individuals from 82 families shows unexpected variation in the number of meiotic crossovers and in the relative activity of recombination hotspots.
10.1126/science.1151851

GENETICS
Sequence Variants in the RNF212 Gene Associate with Genomewide Recombination Rate
A. Kong et al.
A variant of a human gene associated with high rates of recombination in males and low rates in females is an ortholog of a nematode gene essential for recombination.
10.1126/science.1152422

TECHNICAL COMMENT ABSTRACTS

OCEANS
Comment on “Saturation of the Southern Ocean CO$_2$ Sink Due to Recent Climate Change”
R. M. Law, R. J. Matear, R. J. Francey
full text at www.sciencemag.org/cgi/content/full/319/5863/570a

Comment on “Saturation of the Southern Ocean CO$_2$ Sink Due to Recent Climate Change”
K. Zickfeld, J. C. Fyfe, M. Eby, A. J. Weaver
full text at www.sciencemag.org/cgi/content/full/319/5863/570b

Response to Comments on “Saturation of the Southern Ocean CO$_2$ Sink Due to Recent Climate Change”
C. Le Quéré et al.
full text at www.sciencemag.org/cgi/content/full/319/5863/570c

REVIEW
CHEMISTRY
Insights into Phases of Liquid Water from Study of Its Unusual Glass-Forming Properties
C. A. Angell

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EVOLUTION
Languages Evolve in Punctuational Bursts
Q. D. Atkinson et al.
A study of Bantu, Indo-European, Austronesian, and Polynesian languages shows that up to one-third of their words arose in rapid evolutionary bursts from the predecessor tongue.

RESEARCH ARTICLE

GENETICS
Widespread Genetic Incompatibility in C. elegans Maintained by Balancing Selection
H. S. Seidel, M. V. Rockman, L. Kruglyak
Strong natural selection is maintaining multiple alleles of a gene in wild populations of the nematode C. elegans, despite their negative effect on fitness.

REPORTS

CHEMISTRY
Single-Molecule Cut-and-Paste Surface Assembly
S. K. Kufer et al.
An atomic force microscope tip derivatized with DNA can pick up and assemble large molecules bearing DNA handles into specific patterns on a surface in aqueous solution.
>> News story p. 558

PHYSICS
Electronic Liquid Crystal State in the High-Temperature Superconductor YBa$_2$Cu$_3$O$_{6.45}$
V. Hinkov et al.
Neutron-scattering measurements suggest that ordering of fluctuating electron spins explains the liquid crystal phases recently seen in some correlated electron systems.
REPORTS CONTINUED...

MATERIALS SCIENCE
Measuring the Surface Dynamics of Glassy Polymers
Z. Fakhraai and J. A. Forrest
Removal of gold nanoparticles dimpling the surface of a polymer film reveals that polymer chains near the surface relax more rapidly than the bulk.

GEOCHEMISTRY
Abiogenic Hydrocarbon Production at Lost City
G. Proskurowski et al.
The abundance of hydrocarbons and isotopic data imply that hydrocarbons are produced chemically from mantle carbon at a cool Atlantic Ocean hydrothermal system.

CLIMATE CHANGE
Prioritizing Climate Change Adaptation Needs for Food Security in 2030
D. B. Lobell et al.
Analysis of 12 food-insecure regions for vulnerability to crop failure from climate change indicates that those in southern Africa and south Asia are in particular need of attention.

DEVELOPMENTAL BIOLOGY
Oocyte-Specific Deletion of Pten Causes Premature Activation of the Primordial Follicle Pool
P. Reddy et al.
In mice, a tumor suppressor commonly mutated in human cancers prevents premature activation of ovarian follicles, allowing them to form oocytes throughout life.

DEVELOPMENTAL BIOLOGY
The Maternal Nucleolus Is Essential for Early Embryonic Development in Mammals
S. Ogushi et al.
After fertilization or somatic cell nuclear transfer, the oocyte’s nucleolus but not the sperm’s is essential for subsequent development.

MEDICINE
Profiling Essential Genes in Human Mammary Cells by Multiplex RNAi Screening
J. M. Silva et al.
Cancer Proliferation Gene Discovery Through Functional Genomics
M. R. Schlabach et al.
Systematic inhibition of gene expression with RNA interference screening reveals genes essential for growth and survival of tumor cells, potentially leading to new cancer drugs.

IMMUNOLOGY
Cathepsin K–Dependent Toll-Like Receptor 9 Signaling Revealed in Experimental Arthritis
M. Asagiri et al.
A lysosomal enzyme normally associated with osteoclasts of the bone has further function in signaling through an innate receptor in immune cells.

IMMUNOLOGY
Systemic Leukocyte-Directed siRNA Delivery Revealing Cyclin D1 as an Anti-Inflammatory Target
D. Peer, E. J. Park, Y. Morishita, C. V. Carman, M. Shimaoka
Small RNAs are packaged in lipid nanoparticles with antibodies that direct them to specific gut immune cells, where they suppress inflammation by inhibiting a cell-cycle protein.

BIOCHEMISTRY
Direct Observation of Hierarchical Folding in Single Riboswitch Aptamers
W. J. Greenleaf et al.
Optical trapping reveals that activation by adenine stabilizes the weakest helix in a riboswitch, after which secondary and tertiary structures are formed sequentially.
PERIODIC: Metabotropic Glutamate Receptors and Fragile X Mental Retardation Protein—Partners in Translational Regulation at the Synapse

J. A. Ronesi and K. M. Huber

On the road to protein synthesis–dependent plasticity, FMRP is the brake and mGluRs are the gas.

EVENTS

Plan to attend a meeting related to cell signaling.

Making connections through collaboration.

Maximizing Productivity and Recognition, Part 2: Collaboration and Networking

S. Pfirman, P. Balsam, R. E. Bell, J. D. Laird, P. Culligan

Collaboration and networking help make connections that can advance both science and your career.

What’s Ahead for Early-Career Scientists?

B. L. Benderly

A comprehensive examination finds opportunities in the U.S. brighter in industry than in academia.

Learning to Manage

H. Franzen

A workshop series in Germany teaches management skills to young scientists before they need them.

February 2008 Funding News

J. Fernández

Learn about the latest in research funding opportunities, scholarships, fellowships, and internships.

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