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

NEwS OF THE WEEK

DOE’s Disappointing Budget Makes It Harder to Stick to the Basics 554
Lancet and MSF Split Over Malnutrition Series 555
Indian Government Hopes Bill Will Stimulate Innovation 556
Dutch Revise Policy Blocking Iranian Students 556
Deaths Prompt a Review of Experimental Probiotic Therapy 557

SCiENCESCOPE

DNA Assembles Materials From the Ground Up 558
Aging of the Ovary Linked to PTEN Pathway 558

NEwS FoCUS

A Seismic Shift for Stem Cell Research 560
Shinya Yamanaka: Modest Researcher, Results to Brag About Nuclear Transfer: Still on the Table
Scientists Hope to Adjust the President’s Vision for Space
Getting Up to Speed on Space
The Big Thaw Reaches Mongolia’s Pristine North 567

LETTERS

Retraction M. A. Dwyer, L. L. Looger, H. W. Hellinga 569
Comparing Social Skills of Children and Apes F. B. M. de Waal, C. Boesch, V. Horner, A. Whiten Response E. Herrmann et al.

BOOKS ET AL.

Evolution of Primary Producers in the Sea P. G. Falkowski and A. H. Knoll, Eds., reviewed by R. Riding
No Way Home The Decline of the World’s Great Animal Migrations D. S. Wilcove, reviewed by T. Alerstam

POLICY FORUM


PERsPECTIVES

Sweet, Hairy, Soft, and Slippery S. Lee and N. D. Spencer
The Toll of Cathepsin K Deficiency A. M. Krieg and G. B. Lipford
Glass Surfaces Not So Glassy J. R. Dutcher and M. D. Ediger
The Art of Assembly F. Szoka
Nanowires in Nanoelectronics D. K. Ferry
Food Security Under Climate Change M. E. Brown and C. C. Funk

579

CONTENTS continued >>
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 snowpack 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

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

CHEMISTRY

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

582

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.

594
REPORTS CONTINUED...

MATERIALS SCIENCE
Measuring the Surface Dynamics of Glassy Polymers 600
Z. Fakhraai and J. A. Forrest
Removal of gold nanospheres dimpling the surface of a polymer film reveals that polymer chains near the surface relax more rapidly than the bulk.

>> Perspective p. 577

GEOCHEMISTRY
Abiogenic Hydrocarbon Production at Lost City 604
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 607
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.

>> Perspective p. 580

DEVELOPMENTAL BIOLOGY
Oocyte-Specific Deletion of Pten Causes Premature Activation of the Primordial Follicle Pool 611
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.

>> News story p. 558

DEVELOPMENTAL BIOLOGY
The Maternal Nucleolus Is Essential for Early Embryonic Development in Mammals 613
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 617
J. M. Silva et al.
Cancer Proliferation Gene Discovery Through Functional Genomics 620
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 624
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.

>> Perspective p. 576

IMMUNOLOGY
Systemic Leukocyte-Directed siRNA Delivery Revealing Cyclin D1 as an Anti-Inflammatory Target 627
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.

>> Perspective p. 578

BIOCHEMISTRY
Direct Observation of Hierarchical Folding in Single Riboswitch Aptamers 630
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.
Perspective: 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.