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COVER

Bags of rice await export from India to Europe. As the global population climbs to a projected peak of some 9 billion in 2050, concerns about food security are growing. A special section beginning on page 797 examines the causes of food insecurity and some solutions, and the implications of climate change and energy use for feeding the world.

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Spin-Dependent Quantum Interference Within a Single Magnetic Nanostructure
H. Oka et al.
Magnetization modulation is observed on a cobalt nanoisland using spin-polarized scanning tunneling microscopy.

Multiple Functional Groups of Varying Ratios in Metal-Organic Frameworks
H. Deng et al.
The adsorption characteristics for mixed linkers can exceed that expected from just combining the single-linker compounds.

Break-Up of Stepped Platinum Catalyst Surfaces by High CO Coverage
F. Tao et al.
Stepped platinum surfaces break up into nanometer-scale clusters at high carbon monoxide surface coverages.

Quantum-State Controlled Chemical Reactions of Ultracold Potassium-Rubidium Molecules
S. Ospelkaus et al.
Reactions mediated by quantum mechanical tunneling are observed, even in a sample of molecules cooled almost to a standstill.

Low-Frequency Modes of Aqueous Alkali Halide Solutions: Glimpsing the Hydrogen Bonding Vibrations
I. A. Heisler and S. R. Meech
An optical scattering technique is used to map the weak bonding interaction between water and dissolved halide ions.

Sea-Level Highstand 81,000 Years Ago in Mallorca
J. A. Dorale et al.
Measurements from the island of Mallorca indicate that past sea levels were much higher than had been assumed.

Recombination Implicates the PRDM9 Gene in Meiotic Recombination
S. Myers et al.
Bioinformatics identifies a chromatin-modifying enzyme as a factor in determining recombination hotspots.

Vibrio cholerae VpsT Regulates Matrix Production and Motility by Directly Sensing Cyclic di-GMP
P. V. Krasteva et al.
A bacterial signaling molecule induces the dimerization and activation of a biofilm-promoting transcription factor.

Darwinian Evolution of Prions in Cell Culture
J. Li et al.
When propagated in vitro, prion strains demonstrate adaptability and selection.

Repulsion of Superinfecting Virions: A Mechanism for Rapid Virus Spread
V. Doceul et al.
Early in infection, vaccinia virus exploits the actin cytoskeleton to promote rapid cell-to-cell spread.

Drive Against Hotspot Motifs in Primates Implicates the PRDM9 Gene in Meiotic Recombination
S. Myers et al.
Bioinformatics identifies a chromatin-modifying enzyme as a factor in determining recombination hotspots.

The Lmo2 Oncogene Initiates Leukemia in Mice by Inducing Thymocyte Self-Renewal
M. P. McCormack et al.
Expression of an oncogene confers self-renewal activity to committed T cells in the thymus long before disease onset.

A Composite of Multiple Signals Distinguishes Causal Variants in Regions of Positive Selection
S. R. Grossman et al.
Combining statistical methods detects signals of selection with increased sensitivity and a lower false-positive rate.
Westerns inspire discovery about reaction speed.

Legendary quantum physicist's speculations about causes weight loss, a study suggests.

High living—in the topographical sense—

Can Thin Mountain Air Make You Slim?

Australia, Antarctica Linked by Climate

Highlights From Our Daily News Coverage

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10.1126/science.1182570

Feeding the planet is an urgent issue that needs new strategies to improve health care.

Electronic health record systems represent important new strategies to improve health care.

COMMENTARY: Liberating Health Data for Clinical Research Applications

JE. J. Nadler and G. J. Downing

A Cornerstone of Translational Integrating Medicine and Science

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