SPECIAL SECTION
Materials for Grid Energy

INTRODUCTION
921  Electricity Now and When

NEWS
922  Saving for a Rainy Day
925  Turning Over a New Leaf
     Sunlight in Your Tank—Right Away

REVIEWS
928  Electrical Energy Storage for the Grid:
     A Battery of Choices
     B. Dunn et al.

935  Lowering the Temperature of
     Solid Oxide Fuel Cells
     E. D. Wachsman and K. T. Lee

>> Editorial p. 877, News Focus story p. 896, and
   Perspective p. 917

LETTERS
899  Race Disparity in Grants:
     Check the Citations
     H. P. Erickson

Race Disparity in Grants:
Empirical Solutions Vital
J. L. Voss
Response
D. K. Ginther et al.

Race Disparity in Grants:
Oversight at Home
J. L. Sherley
Response
F. S. Collins and L. A. Tabak

CORRECTIONS AND CLARIFICATIONS
905  TECHNICAL COMMENT ABSTRACTS

BOOKS ET AL.
906  The Next Convergence
     M. Spence, reviewed by C. I. Jones

906  Design with the Other 90%: Cities
     C. E. Smith, curator,
     Design with the Other 90%: Cities
     C. E. Smith et al., reviewed by E. M. Sternberg

POLICY FORUM
908  Preparing to Manage
     Climate Change Financing
     S. D. Donner et al.

PERSPECTIVES
910  When More Is More
     L.-A. Giraldeau
     >> Report p. 1000

911  Understanding Tribal Fates
     R. Arthur and J. Diamond

912  Human Locomotor Circuits Conform
     S. Grillner
     >> Report p. 997

914  One Atom Makes All the Difference
     S. Ramaswamy
     >> Brevia p. 940; Report p. 974

915  Antioxidant Strategies to Tolerate Antibiotics
     P. Belenky and J. J. Collins
     >> Reports pp. 982 and 986

916  Analyzing Solar Cycles
     S. K. Solanki and N. A. Krivova

917  True Performance Metrics in
     Electrochemical Energy Storage
     Y. Gogotsi and P. Simon
     >> Materials for Grid Energy section p. 921

919  Retrospective: Steven P. Jobs (1955–2011)
     T. J. Misa

CONTENTS continued >>

EDITORIAL
877  The Energy Research Imperative
     Bill Gates
     >> Materials for Grid Energy section p. 921

NEWS OF THE WEEK
880  A roundup of the week’s top stories

NEWS & ANALYSIS
883  NSF Creates Fast Track for
     Out-of-the-Box Proposals

884  Research Projects Could Be Roadkill
     in Revision of Massive Highway Bill

885  Revolution Brings New Hopes
     for Libyan Archaeology

886  China Looks to Balance Its Carbon Books
     An Unsung Carbon Sink

NEWS FOCUS
888  Will Busting Dams Boost Salmon?
     Out of the Frying Pan?
     >> Science Podcast

893  Evolutionary Time Travel

896  Dreams of a Lithium Empire
     >> Materials for Grid Energy section p. 921

BOOKS
906  The Next Convergence
     M. Spence, reviewed by C. I. Jones

906  Design with the Other 90%: Cities
     C. E. Smith, curator,
     Design with the Other 90%: Cities
     C. E. Smith et al., reviewed by E. M. Sternberg

COVER
Nighttime view of present-day Chicago, USA. Since the 1893 Chicago World’s Fair introduced alternating current to the public, demand for electrical power has soared. Increased use of power from renewable resources will require new materials to store energy or generate power to ensure proper load balancing, as discussed in the special section beginning on page 921.

Photo: Jim Richardson/National Geographic/Getty Images

DEPARTMENTS
875  This Week in Science
878  Editors’ Choice
879  Science Staff
1004  New Products
1005  Science Careers
BREVIA
940 Evidence for Interstitial Carbon in Nitrogenase FeMo Cofactor
T. Spatzal et al.
Structural data show that the light atom at the center of the nitrogenase active site cofactor is a carbon.
>> Perspective p. 914; Report p. 974

RESEARCH ARTICLE
941 Crystal Structure of the Eukaryotic 60S Ribosomal Subunit in Complex with Initiation Factor 6
S. Klinge et al.
The 3.5 angstrom–resolution structure provides insights into the architecture of the eukaryotic ribosome and its regulation.

REPORTS
948 The Large, Oxygen-Rich Halos of Star-Forming Galaxies Are a Major Reservoir of Galactic Metals
J. Tumlinson et al.
Observations with the Hubble Space Telescope show that halos of ionized gas are common around star-forming galaxies.
952 The Hidden Mass and Large Spatial Extent of a Post-Starburst Galaxy Outflow
T. M. Tripp et al.
A galaxy that has experienced a recent burst of star formation has an extended halo of hot, ionized gas surrounding it.
955 A Reservoir of Ionized Gas in the Galactic Halo to Sustain Star Formation in the Milky Way
N. Lehner and J. C. Howk
Clouds of ionized gas located inside our Galaxy provide a major supply of matter for fueling ongoing star formation.
958 Giant Piezoelectricity on Si for Hyperactive MEMS
S. H. Baek et al.
High-quality piezoelectric thin films are grown and exhibit superior properties for microelectromechanical systems.
962 Ultralight Metallic Microlattices
T. A. Schaedler et al.
A route is developed for fabricating extremely low-density, hollow-strut metallic lattices.
965 Silica-Like Malleable Materials from Permanent Organic Networks
D. Montarnal et al.
A polymer shows thermoset-like stability while displaying melt processability like that of a thermopolymer.
968 Domain Dynamics During Ferroelectric Switching
C. T. Nelson et al.
The role of defects and interfaces on switching in ferroelectric materials is observed with high-resolution microscopy.
972 Negative Frequency-Dependent Selection of Sexually Antagonistic Alleles in Myodes glareolus
M. Mokkonen et al.
Selection of rare-male types in a population can maintain genetic variation that benefits one sex but harms the other.
974 X-ray Emission Spectroscopy Evidences a Central Carbon in the Nitrogenase Iron-Molybdenum Cofactor
K. M. Lancaster et al.
A central light atom in a cofactor at the nitrogenase active site is identified as a carbon.
>> Perspective p. 914; Brevia p. 940
977 Structural Basis of Silencing: Sir3 BAH Domain in Complex with a Nucleosome at 3.0 Å Resolution
K.-J. Armache et al.
A regulatory protein forms extensive interactions with the nucleosome core particle to create the basis for gene silencing.
982 Active Starvation Responses Mediate Antibiotic Tolerance in Biofilms and Nutrient-Limited Bacteria
D. Nguyen et al.
During growth arrest, bacteria tolerate the presence of antibiotics, thanks to mechanisms that protect against oxidant stress.
>> Science Podcast
986 H2S: A Universal Defense Against Antibiotics in Bacteria
K. Shatalin et al.
Sulfide formation helps to protect various bacteria from antibiotic toxicity.
>> Perspective p. 915
990 Wolbachia Enhance Drosophila Stem Cell Proliferation and Target the Germline Stem Cell Niche
E. M. Fast et al.
A bacterial endosymbiont up-regulates mitosis of Drosophila germline stem cells and blocks programmed cell death.
993 Correction of Sickle Cell Disease in Adult Mice by Interference with Fetal Hemoglobin Silencing
J. Xu et al.
Manipulation of a transcriptional repressor promotes expression of protective fetal globin genes.
997 Locomotor Primitives in Newborn Babies and Their Development
N. Dominici et al.
Mammalian locomotion patterns share common roots.
>> Perspective p. 912
1000 Rational Choice, Context Dependence, and the Value of Information in European Starlings (Sturnus vulgaris)
E. Freidin and A. Kacelnik
Context-related information improves serial decision-making but impairs simultaneous choice.
>> Perspective p. 910