



page 893



page 915

EDITORIAL

- 883 The GMO Stalemate in Europe
Louise O. Fresco

NEWS OF THE WEEK

- 888 A roundup of the week's top stories

NEWS & ANALYSIS

- 893 North Korea's Blast Poses Riddles and Challenges
>> Science Podcast
- 894 Congress Tries Again to Head Off Looming Helium Crisis
- 895 Warning Issued for Looming Data Gap From Fleet of Weather Satellites
- 896 How Sweet It Is: Genes Show How Bacteria Colonized Human Teeth
- 897 International Arbitrator of Animal Names Faces Financial Woes

NEWS FOCUS

- 898 Reversal of Misfortunes
Treatment as Prevention, Real World
Pulling South Africa Back From the HIV/AIDS Brink
>> Reports pp. 961 and 966

LETTERS

- 904 Old Trees: Extraction, Conservation Can Coexist
R. Aerts
- Old Trees: Cultural Value
M. Blicharska and G. Mikusinski
- Old Trees: Large and Small
J. Cecile et al.
- Response
D. B. Lindenmayer et al.
- China's Little Emperors Show Signs of Success
X. Zhao et al.
>> Report p. 953

- 906 CORRECTIONS AND CLARIFICATIONS
- 906 TECHNICAL COMMENT ABSTRACTS

BOOKS ET AL.

- 907 The World Until Yesterday
J. Diamond, reviewed by W. G. Runciman
- 908 The World in the Model
M. S. Morgan, reviewed by C. Marchionni

POLICY FORUM

- 909 The Stability of Malaria Elimination
C. Chiyaka et al.

PERSPECTIVES

- 911 The Aerosol Nucleation Puzzle
M. O. Andreae
>> Report p. 943
- 912 Bacterial Escape Artists Set Afire
M. Cemna and J. H. Brumell
>> Report p. 975
- 913 Integrative Structural Biology
A. B. Ward et al.
- 915 Preservation of Recalcitrant Seeds
C. Walters et al.
>> Science Podcast
- 917 Graphene Nanophotonics
F. J. García de Abajo
- 918 Food as a Hormone
K. K. Ryan and R. J. Seeley

SCIENCE PRIZE ESSAY

- 920 Mars Student Imaging Project: Real Research by Secondary Students
S. K. Boonstra and P. Christensen

CONTENTS continued >>

Explore our rich online offerings, including multimedia, news, *Science Careers*, and our two research journals—*Science Signaling* and *Science Translational Medicine*—at www.sciencemag.org



COVER

With her mother looking on, a woman in Hlabisa, South Africa, receives an HIV test as part of a survey by the Africa Centre for Health and Population Studies. In this issue, two Reports (pages 961 and 966) show that treating HIV-infected people reduces the risk of virus spread and increases life expectancy. A special News section (page 898) describes South Africa's fight against the co-epidemics of HIV and tuberculosis.

Photo: *Malcolm Linton*

DEPARTMENTS

- 881 This Week in *Science*
- 884 Editors' Choice
- 886 *Science* Staff
- 922 AAAS News & Notes
- 979 New Products
- 980 *Science Careers*

REVIEW

- 923 How Cells Know Where They Are
A. D. Lander

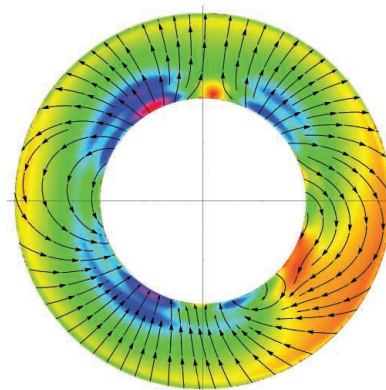
RESEARCH ARTICLE

- 928 Using the Earth as a Polarized Electron Source to Search for Long-Range Spin-Spin Interactions
L. Hunter et al.
Improved bounds on exotic spin-spin interactions were obtained from a study of polarized spins in Earth's mantle.

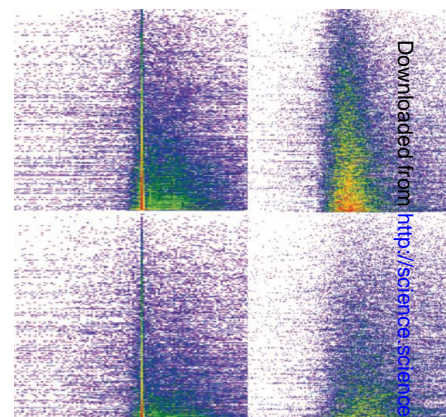
REPORTS

- 933 Ferromagnetic Quantum Critical Point in the Heavy-Fermion Metal $\text{YbNi}_4(\text{P}_{1-x}\text{As}_x)_2$
A. Steppke et al.
Precision low-temperature measurements reveal a divergence associated with quantum criticality in a ferromagnetic metal.
- 936 Living Crystals of Light-Activated Colloidal Surfers
J. Palacci et al.
Light-catalyzed reactions drive the far-from-equilibrium crystallization of colloids that couple to tracer particles.
- 940 Global Patterns of Groundwater Table Depth
Y. Fan et al.
Up to 32% of the global land area contains ecosystems that are influenced by shallow groundwater.
- 943 Direct Observations of Atmospheric Aerosol Nucleation
M. Kulmala et al.
Detailed aerosol measurements provide a consistent framework for the formation of particles from atmospheric gases.
>> *Perspective p. 911*
- 947 Fruit Flies Medicate Offspring After Seeing Parasites
B. Z. Kacsoh et al.
Flies deposit their eggs in protective, alcohol-rich environments when parasitic wasps are around.

- 950 Precise Maps of RNA Polymerase Reveal How Promoters Direct Initiation and Pausing
H. Kwak et al.
The promoter region of a gene regulates the enzyme complex that synthesizes RNA transcripts via initiation and pausing.
- 953 Little Emperors: Behavioral Impacts of China's One-Child Policy
L. Cameron et al.
The increase in the number of only children in urban China over the past three decades has affected their psychology.
>> *Letter by X. Zhao et al. p. 904*
- 957 Highly Recurrent *TERT* Promoter Mutations in Human Melanoma
F. W. Huang et al.
- 959 *TERT* Promoter Mutations in Familial and Sporadic Melanoma
S. Horn et al.
A large fraction of human melanomas harbor mutations in sequences that regulate the expression of telomerase.
- 961 Increases in Adult Life Expectancy in Rural South Africa: Valuing the Scale-Up of HIV Treatment
J. Bor et al.
Adult life expectancy has increased by 11 years in rural KwaZulu-Natal since the 2004 public-sector scale-up of HIV treatment.
>> *Science Podcast*
- 966 High Coverage of ART Associated with Decline in Risk of HIV Acquisition in Rural KwaZulu-Natal, South Africa
F. Tanser et al.
The risk of acquiring HIV is reduced in rural communities via large-scale delivery of antiretroviral therapy.
>> *News section p. 898*
- 971 Minimal "Self" Peptides That Inhibit Phagocytic Clearance and Enhance Delivery of Nanoparticles
P. L. Rodriguez et al.
Cloaking nanoparticles with host-like peptides increases their lifetime enough to allow imaging of tumors.
- 975 Caspase-11 Protects Against Bacteria That Escape the Vacuole
Y. Aachoui et al.
Caspase-11 triggers cell death in response to bacteria that gain access to the cytosol of macrophages.
>> *Perspective p. 912*



page 928



page 950

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals Mail postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 2013 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (51 issues): \$149 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$990; Foreign postage extra: Mexico, Caribbean (surface mail) \$55; other countries (air assist delivery) \$85. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254 88122. Publications Mail Agreement Number 1069624. Printed in the U.S.A.

Change of address: Allow 4 weeks, giving old and new addresses and 8-digit account number. Postmaster: Send change of address to AAAS, P.O. Box 96178, Washington, DC 20090-6178. Single-copy sales: \$10.00 current issue, \$15.00 back issue prepaid includes surface postage; bulk rates on request. Authorization to photocopy material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act is granted by AAAS to libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that \$30.00 per article is paid directly to CCC, 222 Rosewood Drive, Danvers, MA 01923. The identification code for Science is 0036-8075. Science is indexed in the Reader's Guide to Periodical Literature and in several specialized indexes.

Science

339 (6122)

Science **339** (6122), 881-979.

ARTICLE TOOLS

<http://science.sciencemag.org/content/339/6122>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. The title *Science* is a registered trademark of AAAS.

Copyright © 2013 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.