

EDITORIAL

- 235 Influenza and the Live Poultry Trade
George F. Gao

NEWS OF THE WEEK

- 240 A roundup of the week's top stories

NEWS & ANALYSIS

- 243 U.S. Support for ITER Wavers as Costs Spiral
- 244 'Humanized' Mouse Detects Deadly Drug Side Effects
- 245 Ancient DNA Holds Clues to Gene Activity in Extinct Humans
>> *Science Express Report by D. Gokhman et al.*
- 247 More Sophisticated Forecasts Yield Glimmer of Hope in Climate Gloom
- 249 Almost-Earth Tantalizes Astronomers With Promise of Worlds to Come
>> *Report p. 277*

NEWS FOCUS

- 250 Into the Maelstrom

LETTERS

- 254 Climate Discussion Echoes Tobacco Debate
R. J. Gould and E. Maibach
Integrating Psychological Treatment Approaches
B. D. Kelly
Uganda Homosexuality Report in Context
M. Wayengera
- 255 Life in Science: Weeds Making Waves
D. S. Johnson
- 255 CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.

- 256 Behind the Curve
J. P. Howe, reviewed by G. A. Schmidt

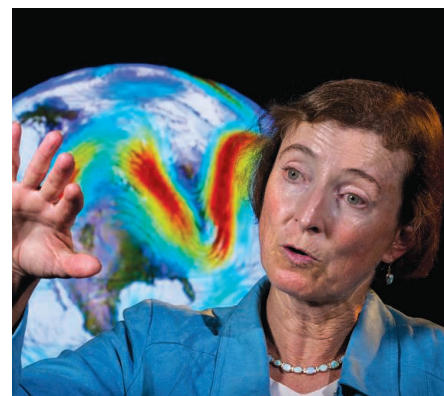
POLICY FORUM

- 257 Particulate Matter Matters
F. Dominici et al.

PERSPECTIVES

- 260 Avoiding (Re)extinction
B. A. Minteer et al.
- 261 Exploring the Interface of Graphene and Biology
K. Kostarelos and K. S. Novoselov
- 263 Refractory Plasmonics
U. Guler et al.
- 264 Myelin—More than Insulation
R. D. Fields
>> *Report p. 319*
- 266 Novelty Trumps Loss in Global Biodiversity
J. M. Pandolfi and C. E. Lovelock
>> *Report p. 296*
- 267 Paired Plant Immune Receptors
M. T. Nishimura and J. L. Dangl
>> *Report p. 299*

CONTENTS continued >>



page 250



page 257

Downloaded from <http://science.sciencemag.org> on September 25, 2017

ON THE WEB THIS WEEK

>> Science Podcast

On this week's show: observation of a distinctive binary star system and a roundup of stories from our daily news site.

>> Find More Online

Check out *Science Express*, the weekly podcast, videos, daily news, our research journals, and *Science Careers* at www.sciencemag.org.



COVER

Artist's concept of Kepler-186f, a planet located ~500 light-years from Earth in the constellation Cygnus. The discovery of Kepler-186f confirms that Earth-sized planets exist in the habitable zone of other stars (that is, the range of distances from a star wherein liquid water might pool on the surface of an orbiting planet) and signals a major step closer to finding a world similar to Earth. See pages 249 and 277.

Image: NASA Ames Research Center/SETI Institute/Jet Propulsion Laboratory—California Institute of Technology

DEPARTMENTS

- 233 This Week in *Science*
236 Editors' Choice
238 *Science* Staff
325 New Products
326 *Science Careers*

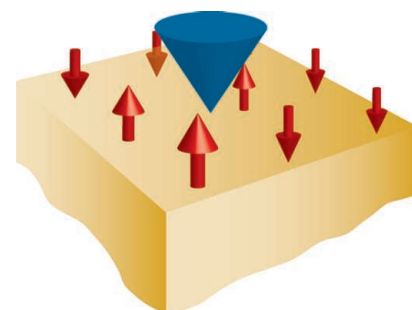
RESEARCH ARTICLE

- 269 **A Critical Period of Sleep for Development of Courtship Circuitry and Behavior in *Drosophila***
M. S. Kayser et al.
Young flies need their sleep, too.

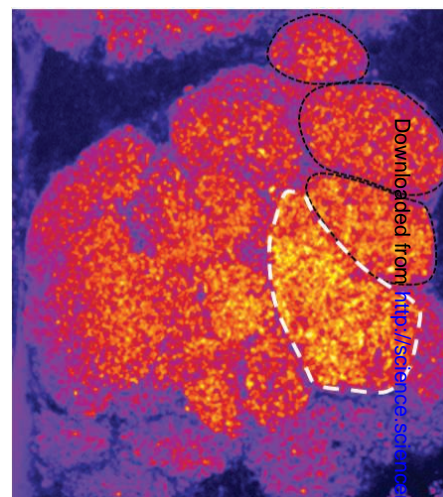
REPORTS

- 275 **KOI-3278: A Self-Lensing Binary Star System**
E. Kruse and E. Agol
A white dwarf that eclipses a Sun-like star enhances, rather than dims, its brightness through relativistic effects.
>> *Science Podcast*
- 277 **An Earth-Sized Planet in the Habitable Zone of a Cool Star**
E. V. Quintana et al.
NASA's Kepler mission revealed that the fifth and outermost planet orbiting Kepler-186 is capable of hosting liquid water.
>> *News story p. 249*
- 280 **Emergent Space-Time Supersymmetry at the Boundary of a Topological Phase**
T. Grover et al.
An elusive symmetry is predicted to emerge at the boundary of an exotic condensed matter system.
- 283 **Strong Increase of T_c of Sr_2RuO_4 Under Both Tensile and Compressive Strain**
C. W. Hicks et al.
An apparatus that can apply both tensile and compressive strain is used to study an unconventional superconductor.
- 286 **Wafer-Scale Growth of Single-Crystal Monolayer Graphene on Reusable Hydrogen-Terminated Germanium**
J.-H. Lee et al.
Wafer-scale single-crystal monolayer graphene can be repeatedly grown on a hydrogen-terminated germanium (110) surface.
- 289 **Ultimate Permeation Across Atomically Thin Porous Graphene**
K. Celebi et al.
Atomically thin nanoporous graphene membranes can sustain ultimate permeation in mass transport.
- 292 **Missing Gas-Phase Source of HONO Inferred from Zeppelin Measurements in the Troposphere**
X. Li et al.
The tropospheric production of HONO from a light-dependent gas-phase source raises questions about its impact on OH.

- 296 **Assemblage Time Series Reveal Biodiversity Change but Not Systematic Loss**
M. Dornelas et al.
Ecological communities are experiencing changes in species composition rather than unidirectional loss.
>> *Perspective p. 266*
- 299 **Structural Basis for Assembly and Function of a Heterodimeric Plant Immune Receptor**
S. J. Williams et al.
A heterodimer stands at the ready; a homodimer responds with action.
>> *Perspective p. 267*
- 304 **Crystal Structure of a Claudin Provides Insight into the Architecture of Tight Junctions**
H. Suzuki et al.
The structure of a mammalian claudin suggests how extracellular domains may form paracellular ion pathways.
- 307 **The Structural Basis of Pathogenic Subgenomic Flavivirus RNA (sfRNA) Production**
E. G. Chapman et al.
A pseudoknot in a flavivirus RNA resists efforts by a host nuclease to untangle it.
- 310 **The STAT3-Binding Long Noncoding RNA Inc-DC Controls Human Dendritic Cell Differentiation**
P. Wang et al.
A long noncoding RNA regulates dendritic cell differentiation and function.
- 313 **Enhancing Depression Mechanisms in Midbrain Dopamine Neurons Achieves Homeostatic Resilience**
A. K. Friedman et al.
Intensifying pathogenic changes paradoxically ameliorate depressive symptoms in mice.
- 319 **Distinct Profiles of Myelin Distribution Along Single Axons of Pyramidal Neurons in the Neocortex**
G. S. Tomassy et al.
Mouse neurons display different and distinctive patterns of myelination.
>> *Perspective p. 264*



page 280



page 269

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 © 2014 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): \$153 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$1282; 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

344 (6181)

Science **344** (6181), 233-325.

ARTICLE TOOLS

<http://science.sciencemag.org/content/344/6181>

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. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.