

## EDITORIAL

- 1128 China's Research Culture  
*Yigong Shi and Yi Rao*

## NEWS OF THE WEEK

- 1132 Controversial Ruling Throws U.S. Research Into a Tailspin
- 1135 Panel Faults IPCC Leadership But Praises Its Conclusions
- 1136 In Ground-Based Astronomy's Final Frontier, China Aims for New Heights
- 1137 From *Science's* Online Daily News Site
- 1138 Novel Grant Promises Greener Buildings, Regional Growth
- 1139 Ireland's Departing Research Chief on Irish and European Science
- 1139 From the *Science* Policy Blog

## NEWS FOCUS

- 1140 Mammoth-Killer Impact Flunks Out  
>> *Science Podcast*
- 1142 The Dour Frenchman on Malaria's Frontier  
>> *Research Article p. 1175*
- 1144 An Unsettled Debate About the Chemistry of the Sun

## LETTERS

- 1146 Give Beach Ecosystems Their Day in the Sun  
*J. E. Dugan et al.*  
Methane from the East Siberian Arctic Shelf  
*V. V. Petrenko et al.*  
Response  
*N. Shakhova et al.*  
Candidate Gene Approach's Missing Link  
*J. P. Pandey*
- 1147 Readers' Poll Results

## BOOKS ET AL.

- 1149 Mood Matters  
*J. L. Casti, reviewed by R. Taylor*
- 1150 The Heavens on Earth  
*D. Aubin et al., Eds., reviewed by G. Holmberg*

## EDUCATION FORUM

- 1151 Growing Rules for Science Education in Community Colleges  
*G. R. Boggs*

## PERSPECTIVES

- 1153 Is the Tide Turning for New Malaria Medicines?  
*T. N. C. Wells*  
>> *Research Article p. 1175*
- 1154 CAR'ing for the Skin  
*A. S. Shaw and Y. Huang*  
>> *Reports pp. 1205 and 1210*
- 1156 Marine Biodiversity Dynamics over Deep Time  
*C. R. Marshall*  
>> *Report p. 1191*
- 1157 Just Add Water  
*M. I. Katsnelson*  
>> *Report p. 1188*
- 1158 Targeting the Core of Transcription  
*D. G. Hardie*  
>> *Report p. 1201*
- 1159 Fullerenes and Cosmic Carbon  
*P. Ehrenfreund and B. H. Foing*  
>> *Report p. 1180*

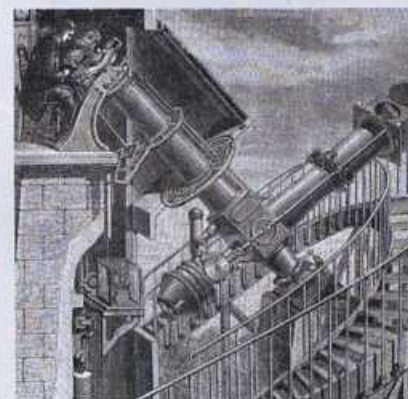
## REVIEW

- 1161 Heavy Fermions and Quantum Phase Transitions  
*Q. Si and F. Steglich*

CONTENTS continued >>



page 1140



page 1150

上海理工大学图书馆  
军工路516号邮编:200093



## COVER

False-colored scanning electron micrograph showing the shedding of superficial cells in the urogenital tract of a female mouse (magnification ~3000×). Exfoliation of epithelial cells inhibits microbial colonization of the mucosa. On page 1197, Muenzner *et al.* report how specialized pathogens suppress this host defense to successfully establish a firm foothold in their host.

*Image: Jochen Hentschel and Christof R. Hauck/Lehrstuhl Zellbiologie, Universität Konstanz, Germany*

## DEPARTMENTS

- 1125 This Week in *Science*
- 1129 Editors' Choice
- 1130 *Science* Staff
- 1131 Random Samples
- 1219 New Products
- 1220 *Science* Careers

## BREVIA

- 1167 **Chlorine Isotope Fractionation in the Stratosphere**  
J. C. Laube et al.  
Isotope fractionation in a common refrigerant may provide insights into the mechanism of stratospheric ozone depletion.

## RESEARCH ARTICLES

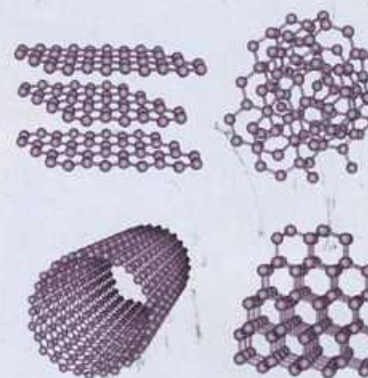
- 1168 **Effectiveness and Safety of Tenofovir Gel, an Antiretroviral Microbicide, for the Prevention of HIV Infection in Women**  
Q. Abdoal Karim et al.  
Tenofovir in a vaginal gel formulation shows significant protection against HIV infection in a randomized control trial.
- 1175 **Spiroindolones, a Potent Compound Class for the Treatment of Malaria**  
M. Rottmann et al.  
High-throughput screening has offered up an oral antimalarial drug and pointers to its mechanism of action.  
>> News story p. 1142; Perspective p. 1153

## REPORTS

- 1180 **Detection of  $C_{60}$  and  $C_{70}$  in a Young Planetary Nebula**  
J. Cami  
Hydrogen-poor conditions allow fullerenes to form in space.  
>> Perspective p. 1159
- 1182 **Real-Time Dynamics of Single Vortex Lines and Vortex Dipoles in a Bose-Einstein Condensate**  
D. V. Freilich et al.  
The temporal evolution of vortices in a superfluid is revealed by imaging an ultracold atomic cloud undergoing free fall.
- 1185 **Plastic Accumulation in the North Atlantic Subtropical Gyre**  
K. L. Law et al.  
The amount of plastic debris in the surface waters of the western North Atlantic Ocean has plateaued over the past 22 years.
- 1188 **Graphene Visualizes the First Water Adlayers on Mica at Ambient Conditions**  
K. Xu et al.  
Water trapped between mica and graphene layers at ambient conditions was imaged with atomic force microscopy.  
>> Perspective p. 1157

- 1191 **The Shifting Balance of Diversity Among Major Marine Animal Groups**  
J. Alroy  
Future assemblies of animals following mass extinction cannot be predicted by analyses of Phanerozoic fossils.  
>> Perspective p. 1156
- 1194 **The Spread of Behavior in an Online Social Network Experiment**  
D. Centola  
An online experiment shows how network structure affects the spread of health behavior.  
>> Science Podcast
- 1197 **Human-Restricted Bacterial Pathogens Block Shedding of Epithelial Cells by Stimulating Integrin Activation**  
P. Muenzner et al.  
Bacterial colonization of the mucosa is facilitated if the microbes engage a human receptor that counteracts epithelial exfoliation.
- 1201 **Signaling Kinase AMPK Activates Stress-Promoted Transcription via Histone H2B Phosphorylation**  
D. Bungard et al.  
The energy sensor AMPK facilitates gene transcription by localizing to chromatin and phosphorylating histone H2B.  
>> Perspective p. 1158
- 1205 **The Junctional Adhesion Molecule JAML Is a Costimulatory Receptor for Epithelial  $\gamma\delta$  T Cell Activation**  
D. A. Witherden et al.  
A costimulatory receptor for immune cells in the skin is identified.
- 1210 **The Molecular Interaction of CAR and JAML Recruits the Central Cell Signal Transducer PI3K**  
P. Verdino et al.  
Ligand engagement and initiation of signaling has been imaged for a costimulatory receptor for immune cells in the skin.  
>> Perspective p. 1154
- 1215 **Glutamine Deamidation and Dysfunction of Ubiquitin/NEDD8 Induced by a Bacterial Effector Family**  
J. Cui et al.  
Pathogenic bacterial proteins interfere with eukaryotic ubiquitination pathways to induce cytopathic effects.

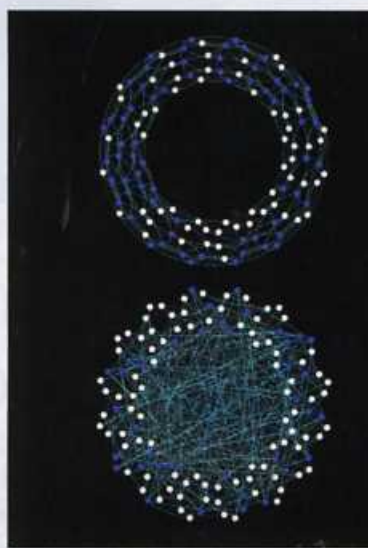
CONTENTS continued &gt;&gt;



pages 1159 &amp; 1180



page 1185



page 1194