

## EDITORIAL

- 624 Ensuring Integrity in Science  
*Ralph J. Cicerone*

## NEWS OF THE WEEK

- 628 Science Spared From Domestic Spending Freeze—for Now  
Obama Shakes Up Satellite Programs for Clearer Picture of Earth  
>> *Science Podcast*
- 630 New Korean Science City Caught in Political Crossfire
- 631 Publications and Expats Warn of Russia's Dangerous Decline
- 631 From the *Science* Policy Blog
- 632 Big Battle Brewing Over Elephants at Upcoming CITES Meeting
- 633 'Toadness' a Key Feature for Global Spread of These Amphibians  
>> *Report p. 679*
- 633 From *Science's* Online Daily News Site

## NEWS FOCUS

- 634 Relief Among the Rubble  
The Long Battle Against a Horrific Disease
- 638 From the Bottom Up
- 640 Greening Haiti, Tree by Tree

## LETTERS

- 642 Predators Could Help Save Pollock  
*B. Wright*  
Religiosity Tied to Socioeconomic Status  
*G. S. Paul*  
Savannas Need Protection  
*C. E. R. Lehmann*  
Taking Our Lumps  
*Q. Wheeler*  
Response  
*J. Endersby*
- 644 TECHNICAL COMMENT ABSTRACTS
- 644 CORRECTIONS AND CLARIFICATIONS

## BOOKS ET AL.

- 645 The New Foundations of Evolution  
*J. Sapp, reviewed by W. P. Hanage*
- 646 Atomic Obsession  
*J. Mueller, reviewed by D. Holloway*

## POLICY FORUM

- 647 Gene Doping and Sport  
*T. Friedmann et al.*

## PERSPECTIVES

- 649 Tinkering Inside the Organelle  
*F. Alcock et al.*
- 650 Splitting Spin States on a Chip  
*G. Burkard*  
>> *Report p. 669*
- 652 Seeing Quantum Fractals  
*G. A. Fiete and A. de Lozanne*  
>> *Report p. 665*
- 653 An Ensemble View of Allostery  
*V. J. Hilser*  
>> *Report p. 685*
- 654 Iron and the Carbon Pump  
*W. G. Sunda*  
>> *Report p. 676*

## REVIEW

- 656 Development of Monocytes, Macrophages, and Dendritic Cells  
*F. Geissmann et al.*

## BREVIA

- 662 100-GHz Transistors from Wafer-Scale Epitaxial Graphene  
*Y.-M. Lin et al.*  
The maximum switching frequency of these devices exceeds that of silicon transistors with similar gate-electrode dimensions.  
>> *Science Podcast*

CONTENTS continued >>

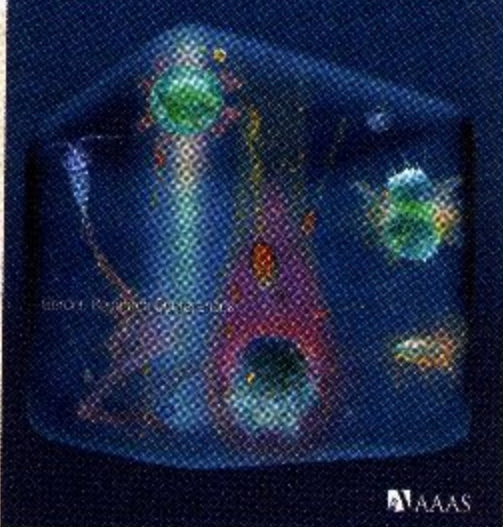


page 640



page 647

# Science



## COVER

A milliliter of seawater. Motile marine bacteria can take advantage of highly heterogeneous landscapes of dissolved organic carbon, resulting from zooplankton excretions (left), leakage by phytoplankton (top) and marine snow particles (bottom), and phytoplankton lysis (right). The Gordon Research Conference on Marine Microbes will be held 4 to 9 July 2010 at Tilton School, Tilton, NH. See page 708 for a preliminary conference schedule.

Image: Roman Stocker (*romans@mit.edu*), Justin Seymour, Glynn Gorick

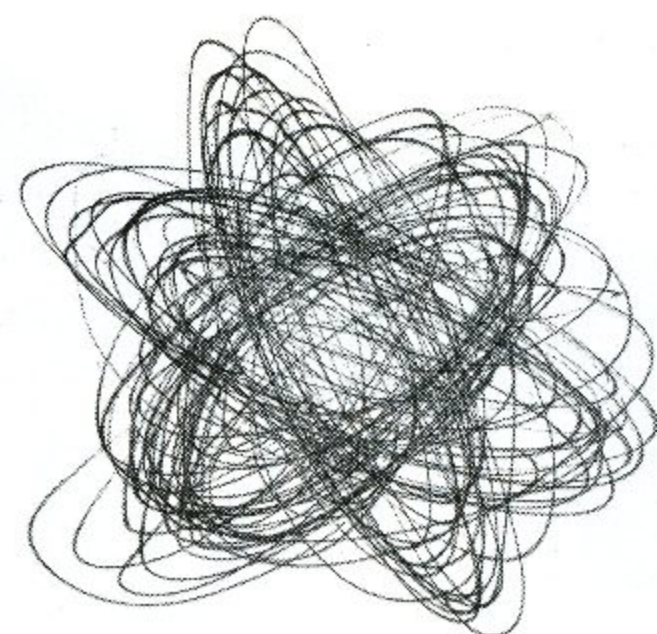
## DEPARTMENTS

- 621 This Week in *Science*  
625 Editors' Choice  
626 *Science* Staff  
627 Random Samples  
708 Gordon Research Conferences  
734 New Products  
735 *Science* Careers

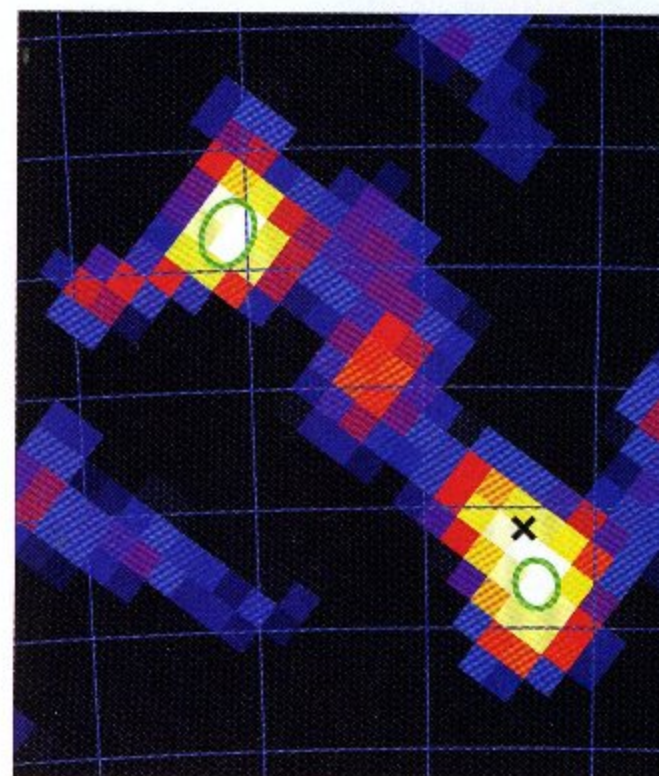
## REPORTS

- 663** **Detection of Gamma-Ray Emission from the Vela Pulsar Wind Nebula with AGILE**  
A. Pellizzoni et al.  
Pulsar wind nebulae could account for some of the yet unidentified galactic gamma-ray sources.
- 665** **Visualizing Critical Correlations Near the Metal-Insulator Transition in  $Ga_{1-x}Mn_xAs$**   
A. Richardella et al.  
Scanning tunneling microscopy reveals the important role of electron-electron interactions in a dilute magnetic semiconductor.  
>> *Perspective p. 652*
- 669** **A Coherent Beam Splitter for Electronic Spin States**  
J. R. Petta et al.  
A series of electrical pulses is used to demonstrate quantum control of a double quantum dot system.  
>> *Perspective p. 650*
- 672** **Water Freezes Differently on Positively and Negatively Charged Surfaces of Pyroelectric Materials**  
D. Ehre et al.  
Supercooled water on a surface can freeze upon heating in response to surface charge switching from negative to positive.
- 676** **Effect of Ocean Acidification on Iron Availability to Marine Phytoplankton**  
D. Shi et al.  
Ocean acidification caused by anthropogenic carbon dioxide is changing the chemistry and bioavailability of iron in seawater.  
>> *Perspective p. 654*
- 679** **Gradual Adaptation Toward a Range-Expansion Phenotype Initiated the Global Radiation of Toads**  
I. Van Bocxlaer et al.  
The range expansions and species radiations of toads required the evolution of an optimal dispersal phenotype.  
>> *News story p. 633*
- 682** **Flight Orientation Behaviors Promote Optimal Migration Trajectories in High-Flying Insects**  
J. W. Chapman et al.  
Radar reveals that insects use high-altitude winds and correct for crosswind drift during long-range migrations.
- 685** **Conformational Spread as a Mechanism for Cooperativity in the Bacterial Flagellar Switch**  
F. Bai et al.  
The behavior of the bacterial flagellar switch is modeled by probabilistic conformational coupling of the protein.  
>> *Perspective p. 653*
- 689** **Cryo-EM Model of the Bullet-Shaped Vesicular Stomatitis Virus**  
P. Ge et al.  
The structure of a negative-strand RNA virus suggests how bullet-shaped rhabdoviruses assemble.
- 693** **Abundance of Ribosomal RNA Gene Copies Maintains Genome Integrity**  
S. Ide et al.  
In eukaryotes, multiple copies of ribosomal DNA protect it from transcription-induced replication damage.
- 697** **Evolutionary Dynamics of Complex Networks of HIV Drug-Resistant Strains: The Case of San Francisco**  
R. J. Smith et al.  
Modeling of data from the U.S. indicates the potential for an epidemic wave of antiretroviral-resistant HIV.
- 701** **Optimal Localization by Pointing Off Axis**  
Y. Yovel et al.  
Echolocating Egyptian fruit bats do not center their sonar clicks on a target, thereby maximizing localization of the target.  
>> *Science Podcast*
- 704** **Axon Extension Occurs Independently of Centrosomal Microtubule Nucleation**  
M. Stiess et al.  
Neuronal polarization and axon regeneration depend on decentralized microtubule assembly rather than a functional centrosome.

CONTENTS continued &gt;&gt;



page 646



page 663



page 701