

EDITORIAL

- 1079 Competitions to Support STEM
Arthur Eisenkraft

NEWS OF THE WEEK

- 1082 A roundup of the week's top stories

NEWS & ANALYSIS

- 1085 Telescope Project Splits Array to Avoid Division
- 1086 Early Dates for Artistic Europeans
- 1087 Creative Deal Gives NASA Telescope New Lease on Life
- 1088 Criticism Continues to Dog Psychiatric Manual as Deadline Approaches

NEWS FOCUS

- 1090 **Mysteries of Astronomy**
What Is Dark Energy?
How Hot Is Dark Matter?
Where Are the Missing Baryons?
How Do Stars Explode?
What Reionized the Universe?
What's the Source of the Most Energetic Cosmic Rays?
Why Is the Solar System So Bizarre?
Why Is the Sun's Corona So Hot?
>> Science Podcast

LETTERS

- 1100 Reading Too Much Into Baboon Skins?
L. Katz et al.
Response
M. L. Platt and G. K. Adams
- Going to Bat for an Endangered Species
F. B. Vincent Florens
- Biosecurity on Thin Ice in Antarctica
P. E. Hulme et al.
- 1104 CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.

- 1108 Net Smart
H. Rheingold, reviewed by J. A. Hendler
- 1109 Companions in Wonder
J. Dunlap and S. R. Kellert, Eds., reviewed by K. Rowell

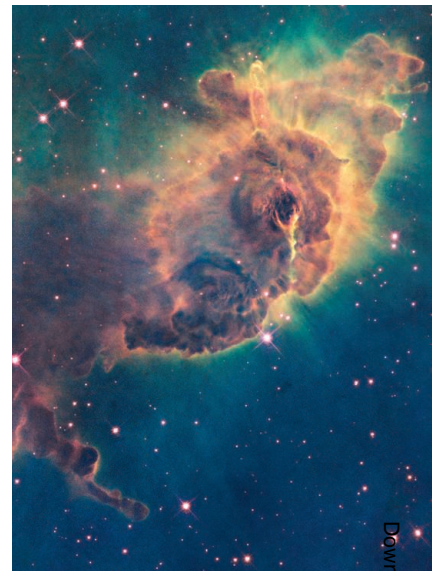
POLICY FORUM

- 1110 The Ultimate Genetic Test
R. Drmanac
- 1112 Whole-Genome Sequencing: The New Standard of Care?
L. R. Brunham and M. R. Hayden

PERSPECTIVES

- 1114 Efficiency in Evolutionary Trade-Offs
E. Noor and R. Milo
>> Report p. 1157
- 1115 Tracking the Fukushima Radionuclides
N. Yoshida and J. Kanda
- 1117 Understanding Sediments—Reducing Tsunami Risk
R. Weiss and J. Bourgeois
- 1118 A Rogue Earthquake Off Sumatra
J. J. McGuire and G. C. Beroza
- 1120 When Less Signaling Is More
O. M. Bannard and J. G. Cyster
>> Report p. 1178
- 1121 Evidence of Things Not Seen
N. W. Murray
>> Report p. 1133
- 1122 Speeding Up Quantum Field Theories
P. Hauke et al.
>> Research Article p. 1130
- REVIEW**
- 1124 Designing Cell-Compatible Hydrogels for Biomedical Applications
D. Seliktar

CONTENTS continued >>

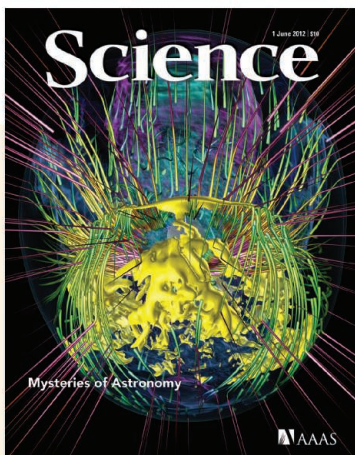


page 1090



page 1109

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COVER

Three-dimensional computer models such as this one help researchers explore the mechanisms behind core-collapse supernovae, the violent death of short-lived massive stars. In the image, tubes represent paths of gas falling into a supernova, deflected by an accretion shockwave (horizontal width of 600 km); colors represent different velocities. The question of how stars explode is one of the "Mysteries of Astronomy" described in a special News package beginning on page 1090.

Visualization: Hongfeng Yu and Kwan-Liu Ma, University of California-Davis and the SciDAC Institute for Ultra-Scale Visualization; Simulation: John Blondin, North Carolina State University

DEPARTMENTS

- 1077 This Week in *Science*
- 1080 Editors' Choice
- 1081 *Science* Staff
- 1186 New Products
- 1187 *Science* Careers

BREVIA

- 1129 **Structure of a 16-nm Cage Designed by Using Protein Oligomers**
Y.-T. Lai et al.
A general computational method allows the design of proteins that self-assemble into a desired symmetric architecture.

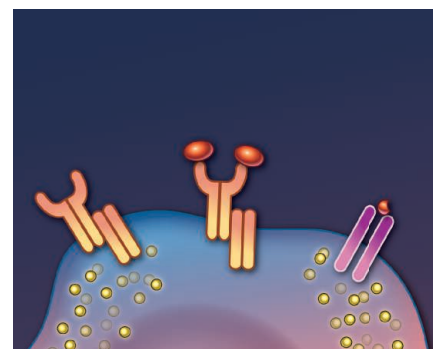
RESEARCH ARTICLE

- 1130 **Quantum Algorithms for Quantum Field Theories**
S. P. Jordan et al.
A quantum computer may be able to efficiently simulate theories used to describe particle scattering in accelerators.
>> *Perspective p. 1122*; *Science Podcast*

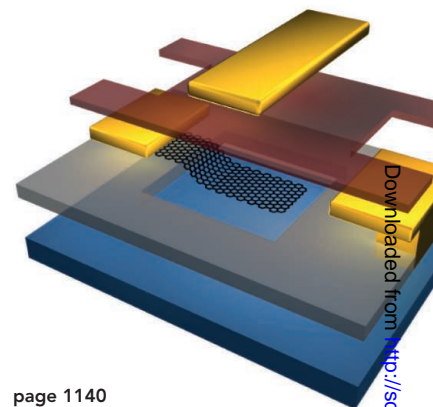
REPORTS

- 1133 **The Detection and Characterization of a Nontransiting Planet by Transit Timing Variations**
D. Nesvorný et al.
Analysis of the deviations in the orbit of a transiting exoplanet revealed an outer planet in the same planetary system.
>> *Perspective p. 1121*
- 1137 **Tracking Cooper Pairs in a Cuprate Superconductor by Ultrafast Angle-Resolved Photoemission**
C. L. Smallwood et al.
Time-resolved spectroscopy is used to probe the dynamics of electron pairing recovery in a high-temperature superconductor.
- 1140 **Graphene Barristor, a Triode Device with a Gate-Controlled Schottky Barrier**
H. Yang et al.
The absence of defects and surface oxides at a graphene-silicon interface enables voltage control of graphene devices.
- 1143 **Tailoring Electrical Transport Across Grain Boundaries in Polycrystalline Graphene**
A. W. Tsen et al.
Overlap between crystallites in vapor-grown graphene improves its electronic conductivity.
- 1147 **Theory Untangles the High-Resolution Infrared Spectrum of the *ortho*-H₂-CO van der Waals Complex**
P. Jankowski et al.
High-level calculations assign the unusually complex spectrum of a molecular pair implicated in interstellar chemistry.
- 1150 **Secreted Kinase Phosphorylates Extracellular Proteins That Regulate Biom mineralization**
V. S. Tagliabracci et al.
The elusive enzyme that modifies proteins involved in building bone and teeth has now been identified.

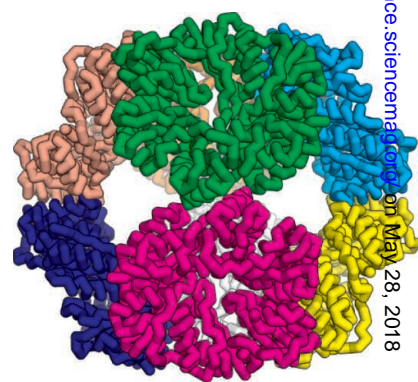
- 1154 **Evolution of a Vertebrate Social Decision-Making Network**
L. A. O'Connell and H. A. Hofmann
Across vertebrates, behaviorally relevant brain regions are remarkably conserved over 450 million years of evolution.
- 1157 **Evolutionary Trade-Offs, Pareto Optimality, and the Geometry of Phenotype Space**
O. Shoval et al.
The fitness of an organism can be modeled graphically to determine how phenotypic trade-offs are maximized.
>> *Perspective p. 1114*
- 1160 **Chitin-Induced Dimerization Activates a Plant Immune Receptor**
T. Liu et al.
Structural analysis shows how fungus-derived chitin dimerizes its receptor on target plants and triggers defense responses.
- 1164 **Rocket Launcher Mechanism of Collaborative Actin Assembly Defined by Single-Molecule Imaging**
D. Breitsprecher et al.
Triple-color microscopy suggests two factors interact to initiate actin formation and then separate as the filament grows.
- 1168 **The Amyloid Precursor Protein Has a Flexible Transmembrane Domain and Binds Cholesterol**
P. J. Barrett et al.
The structure of the APP transmembrane domain allows processive cleavage and cholesterol binding that may enhance cleavage.
- 1171 **Computational Design of Self-Assembling Protein Nanomaterials with Atomic Level Accuracy**
N. P. King et al.
A general computational method is used to design protein building blocks that self-assemble into target architectures.
- 1175 **Generic Indicators for Loss of Resilience Before a Tipping Point Leading to Population Collapse**
L. Dai et al.
Experiments in yeast confirm that statistical indicators can signal the approach of population crashes.
- 1178 **B Cell Receptor Signal Transduction in the GC Is Short-Circuited by High Phosphatase Activity**
A. M. Khalil et al.
Restricted B cell signaling in the areas responsible for immune memory cell production promotes affinity maturation.
>> *Perspective p. 1120*
- 1182 **Restoring Voluntary Control of Locomotion after Paralyzing Spinal Cord Injury**
R. van den Brand et al.
A rehabilitation program involving robotic neuroprosthetics restores previously paralyzed hindlimb function.
>> *Science Podcast*



page 1120



page 1140



page 1171

CONTENTS continued >>

SCIENCEONLINE

SCIENCEEXPRESS

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Structural Basis of Wnt Recognition by Frizzled
C. Y. Janda et al.

The structure of the morphogen Wnt bound to its receptor provides a basis for understanding Wnt's functional pleiotropy.

10.1126/science.1222879

A Lipid Linchpin for Wnt-Fz Docking

M. Bienz and X. He

10.1126/science.1224468

Crystal Structure of the Heterodimeric CLOCK:BMAL1 Transcriptional Activator Complex
N. Huang et al.

Structure-function analyses reveal details of the interaction between two proteins that regulate daily rhythms in mammals.

10.1126/science.1222804

High-Resolution Protein Structure Determination by Serial Femtosecond Crystallography

S. Boutet et al.

A powerful x-ray laser source can probe proteins in detail using much smaller crystals than previously required.

10.1126/science.1217737

Membrane Fusion Intermediates via Directional and Full Assembly of the SNARE Complex

J. M. Hernandez et al.

During vesicle membrane fusion, straining of lipids at the edges of an extended contact zone may initiate fusion.

10.1126/science.1221976

A *Papaver somniferum* 10-Gene Cluster for Synthesis of the Anticancer Alkaloid Noscapine

T. Winzer et al.

A biosynthetic pathway inherited as a gene cluster generates a pharmaceutically useful alkaloid in poppies.

10.1126/science.1220757

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Occupy the Neolithic

Skeletons of early farmers reveal the roots of social inequality.

<http://scim.ag/Social-Inequality>

No New Neurons for Smell?

Lack of stimulation may have robbed the smell center of the human brain of new cells.

http://scim.ag/Neurons_Smell

'Asian Brown Cloud' Threatens U.S.

Continued growth in Asian pollution could warm United States.

<http://scim.ag/Asian-Pollution>

SCIENCE SIGNALING

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The Signal Transduction Knowledge Environment
29 May issue: <http://scim.ag/ss052912>

EDITORIAL GUIDE: Focus Issue—Signaling Architecture From Domains to Complexes

W. Wong and N. R. Gough

Structural analyses of domains, proteins, and complexes provide insight into signaling mechanisms and uncover therapeutic potential.

RESEARCH ARTICLE: Sequence-Specific Recognition of a PxLPxL Motif by an Ankyrin Repeat Tumbler Lock

C. Xu et al.

Phosphorylation of a motif that binds to ankyrin repeat domains switches its binding preference to 14-3-3 proteins.

REVIEW: Signal Activation and Inactivation by the α Helical Domain—A Long-Neglected Partner in G Protein Signaling

H. G. Dohlman and J. C. Jones

Structural studies suggest that the helical domain of G protein α subunits is an active participant in G protein signaling.

REVIEW: Structural Insights into the Assembly of Large Oligomeric Signalosomes in the Toll-Like Receptor—Interleukin-1 Receptor Superfamily

R. Ferrao et al.

Structural studies show that Toll-like receptors assemble into oligomeric intracellular signaling complexes upon ligand binding.

ST NETWATCH: UCSF Chimera, PyMOL

Render structures of biomolecules in various formats, generate animations, and model binding events.

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30 May issue: <http://scim.ag/stm053012>

EDITORIAL: Seeking Validation

D. Roblin

Clinical validation of new drug targets may best occur in precompetitive partnerships.

RESEARCH ARTICLE: Noninvasive Identification and Monitoring of Cancer Mutations by Targeted Deep Sequencing of Plasma DNA

T. Forshew et al.

Sizable genomic regions were screened and low-frequency mutations were identified in circulating DNA of cancer patients using tagged-amplicon deep sequencing (TAM-Seq).

RESEARCH ARTICLE: SIV Replication in the Infected Rhesus Macaque Is Limited by the Size of the Preexisting T_H17 Cell Compartment

D. J. Hartigan-O'Connor et al.

Macaques with abundant T_H17 cells in blood and intestinal tissue before infection are resistant to SIV replication.

RESEARCH ARTICLE: Kinase-Impaired BRAF Mutations in Lung Cancer Confer Sensitivity to Dasatinib

B. Sen et al.

Induction of tumor cell senescence may explain the response of a patient with BRAF kinase-impaired lung cancer to the multikinase inhibitor dasatinib.

RESEARCH ARTICLE: A Peptide Derived from Endostatin Ameliorates Organ Fibrosis

Y. Yamaguchi et al.

FOCUS: Relief from Within—A Peptide Therapy for Fibrosis

S. P. Atamas

A naturally occurring peptide from endostatin can inhibit fibrosis in lung and skin, even when it is already established.

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B. L. Benderly

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Career Q&A: Often Wrong, Never in Doubt

M. Fessenden

As head of the accelerator division at TRIUMF, Lia Merminga is a rare woman in the upper echelons of physics.

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