

SPECIAL SECTION

Breakthrough of the Year

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- 1526 Genomic Cruise Missiles
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- 1528 Genomics Beyond Genes
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- 1531 Majorana Fermions, Quasi-Here at Last
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- 1546 Tackling Meningitis in Africa
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S. E. Ingebritsen
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- 1553 Retrospective: Keith Campbell (1954–2012)
I. Wilmut

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COVER

Mosaic of the CMS and ATLAS detectors (as in 2007), part of the Large Hadron Collider at CERN. In 2012, research teams used these detectors to fingerprint decay products from the long-sought Higgs boson and determine its mass, successfully testing a key prediction of the standard model of particle physics. See the Breakthrough of the Year special section beginning on page 1524, three Articles beginning on page 1558, and www.sciencemag.org/special/btoy2012.

Photos: Maximilien Brice and Claudia Marcelloni/CERN

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- 1554 **How We Got Here: An Inquiry-Based Activity About Human Evolution**
R. M. Price

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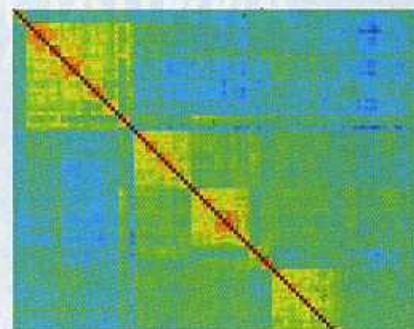
- 1558 **The Higgs Boson Glossary**
- 1560 **Journey in the Search for the Higgs Boson: The ATLAS and CMS Experiments at the Large Hadron Collider**
M. Della Negra et al.
- 1569 **A New Boson with a Mass of 125 GeV Observed with the CMS Experiment at the Large Hadron Collider**
The CMS Collaboration
- 1576 **A Particle Consistent with the Higgs Boson Observed with the ATLAS Detector at the Large Hadron Collider**
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RESEARCH ARTICLES

- 1583 **Radar-Enabled Recovery of the Sutter's Mill Meteorite, a Carbonaceous Chondrite Regolith Breccia**
P. Jenniskens et al.
Analysis of this rare meteorite implies that the surfaces of C-class asteroids can be more complex than previously assumed.
>> *News story p. 1521*
- 1587 **The Evolutionary Landscape of Alternative Splicing in Vertebrate Species**
N. L. Barbosa-Morais et al.
The patterns and complexity of messenger RNA splicing across vertebrates cluster by species rather than by organ.
- 1593 **Evolutionary Dynamics of Gene and Isoform Regulation in Mammalian Tissues**
J. Merkin et al.
Messenger RNA alternative splicing is highly variable among vertebrates and links to kinase signaling pathways.
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- 1599 **C/EBP Transcription Factors Mediate Epicardial Activation During Heart Development and Injury**
G. N. Huang et al.
Transcriptional mechanisms controlling gene expression in the heart's outer layer are exploited for cardiac repair.
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- 1604 **Symmetry-Protected Topological Orders in Interacting Bosonic Systems**
X. Chen et al.
Counterparts of topological insulators are predicted to exist in interacting bosonic systems.
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- 1606 **Sign-Problem-Free Quantum Monte Carlo of the Onset of Antiferromagnetism in Metals**
E. Berg et al.
An effective lattice theory enables an efficient computational solution to an otherwise intractable problem.
- 1609 **Optomechanical Dark Mode**
C. Dong et al.
The formation of a mechanical dark mode can be used to isolate an optomechanical system from thermal noise.
- 1613 **Porphyry-Copper Ore Shells Form at Stable Pressure-Temperature Fronts Within Dynamic Fluid Plumes**
P. Weis et al.
A numerical model attributes ore metal accumulation in porphyry deposits to fluid plumes draining from large magma chambers.
>> *Perspective p. 1551*
- 1616 **Apatite $^4\text{He}/^3\text{He}$ and (U-Th)/He Evidence for an Ancient Grand Canyon**
R. M. Flowers and K. A. Farley
The Colorado River carved the Grand Canyon to nearly its modern depth 60 million years earlier than was generally believed.
- 1619 **Multiplex Targeted Sequencing Identifies Recurrently Mutated Genes in Autism Spectrum Disorders**
B. J. O'Roak et al.
Large-scale human autism candidate gene resequencing implicates de novo mutations in six genes in ~1% of sporadic cases.
- 1622 **Genome-Wide Detection of Single-Nucleotide and Copy-Number Variations of a Single Human Cell**
C. Zong et al.
A whole-genome amplification method with reduced bias compares a single cell with its descendants.
- 1627 **Probing Meiotic Recombination and Aneuploidy of Single Sperm Cells by Whole-Genome Sequencing**
S. Lu et al.
A whole-genome amplification method with reduced bias yields a personal meiotic recombination map.



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- 1631 **Organization of the Influenza Virus Replication Machinery**
A. Moeller et al.
Electron microscopic analysis of a reconstituted RNA-protein complex outlines pathways of transcription.
- 1634 **The Structure of Native Influenza Virion Ribonucleoproteins**
R. Arranz et al.
Electron microscopic analysis of a purified RNA-protein complex links its structure to the influenza life cycle.
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