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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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.  
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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.
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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.

1616  Apatite 4He/3He 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.

1631  Organization of the Influenza Virus Replication Machinery  
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10.1126/science.1230473

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G. Zhang et al.
10.1126/science.1230835

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Comment: S. Roorda and L. J. Lewis
http://dx.doi.org/10.1126/science.1225711
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RESEARCH ARTICLE: IGFBP7 Binds to the IGF-1 Receptor and Blocks Its Activation by Insulin-like Growth Factors
V. Evdokimova et al.
By inactivating the IGF1R, IGFBP7 suppresses growth and promotes cell death.

RESEARCH ARTICLE: c-FLIP Maintains Tissue Homeostasis by Preventing Apoptosis and Programmed Necrosis
X. Piao et al.
The anti-apoptotic protein c-FLIP blocks multiple cell death pathways in mice.

RESEARCH ARTICLE: A CC-SAM, for Coiled-Coil–Sterile α Motif, Domain Targets the Scaffold KSR1 to Specific Sites in the Plasma Membrane
D. Kowal et al.
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Extracellular proteins and extracellular protein domains can be phosphorylated.

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REVIEW: Hidden Killers—Human Fungal Infections
G. D. Brown et al.
Lack of rapid diagnostic tests, drugs, and vaccines impedes treatment and prevention of invasive fungal infections.

RESEARCH ARTICLE: Genetic Correction of Human Induced Pluripotent Stem Cells from Patients with Spinal Muscular Atrophy
S. Corti et al.
Induced pluripotent stem cell–derived motor neurons from spinal muscular atrophy patients show phenotype rescue after genetic correction.

RESEARCH ARTICLE: Long-Term Follow-Up After Gene Therapy for Canavan Disease
P. Leone et al.
Gene therapy for Canavan disease results in a decrease in pathologically elevated N-acetyl-aspartate concentrations in the brain and long-term clinical stabilization.

RESEARCH ARTICLE: Multimodal Actions of Neural Stem Cells in a Mouse Model of ALS—A Meta-Analysis
Y. D. Teng et al.
A meta-analysis reports the beneficial effects of transplanting mouse or human neural stem cells into the spinal cord of the SOD1G93A mouse, a model of ALS.

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E. Pain
Science Careers talks to three young investigators who contributed to this year’s monumental discovery.
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Science Careers’s Person of the Year: Paula Stephan
B. L. Benderly
The labor economist has worked for years behind the scenes, but this year she went public.

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