

# ***AMERICAN SCIENTIST***

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## THE COVER

*A man in a hard hat gives some scale to the Compact Muon Solenoid (CMS) detector, one of two detectors on the Large Hadron Collider, the largest scientific instrument in the world. It's part of the massive European Organization for Nuclear Research (CERN) laboratory based underground outside Geneva, Switzerland. The CMS detector is built around a solenoid magnet that generates a magnetic field of 4 teslas, close to 100,000 times stronger than Earth's magnetic field. Scientists use the device to accelerate and collide subatomic particles to try to detect building blocks of our universe. Among the elusive targets are the Higgs boson particle, potential extra dimensions, even dark matter, features theorists expect are there but we have not yet seen. As Jeremy Bernstein explains in "A Palette of Particles" (pages 146-155), evidence of enigmatic atomic components has propelled the work of physicists for more than a century. (Photograph by Mark Thiessen for National Geographic Society/Cobis.).*