

World's most powerful atom smasher restarts: CERN

28 February 2010



A view of a superconducting solenoid magnet at the European Organization for Nuclear Research (CERN) near Geneva. Scientists have restarted the world's most powerful atom-smasher overnight, the European Organisation for Nuclear Research (CERN) said Sunday, as they launch a new bid to uncover the secrets of the universe.

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"The LHC is on its way again. First beam of 2010 circulated in each direction by 04.10 CET (0310 GMT)," said CERN in a tweet on its website on Sunday.

The 3.9 billion euro (5.6 billion dollars) Large Hadron Collider (LHC) was shut down in December to ready it for collisions at unfathomable [energy](#) levels. It was run for a few weeks after being successfully revived from a 14 month breakdown.

The [particle collider](#) -- inside a 27-kilometre (16.8-mile) tunnel straddling the Franco-Swiss border near Geneva -- is aimed at understanding the origins of the universe by recreating the

conditions that followed the Big Bang.

In the weeks before the technical shutdown in December, the collider achieved over a million particle collisions and accelerated proton beams to energy levels never reached before, according to CERN.

Collisions reached a world record energy level of 2.36 teraelectronvolts (TeV), already allowing scientists to gather data.

But [CERN](#) now wants to reach 7.0 TeV to try to recreate conditions close to the Big Bang, and run it at those levels for 18 to 24 months.

Subsequently the scientists aim to reach the LHC's design energy of 14 TeV, but only following another long technical shutdown in the second half of 2011.

Before the LHC experiment, no [particle accelerator](#) had exceeded 0.98 TeV. One TeV is the equivalent to the energy of motion achieved by a flying mosquito.

The LHC, a global effort, aims to resolve physics problems including "[dark matter](#)" and "dark energy", thought to account for 96 percent of the cosmos.

The scientists' Holy Grail is to find a theorised component called the Higgs Boson, commonly called the "God Particle", which would explain how [particles](#) acquire mass.

The experiment, the fruit of decades of experiments and research by physicists from around the world, has even attracted Hollywood in recent years with the fictional blockbuster "Angels and Demons".

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APA citation: World's most powerful atom smasher restarts: CERN (2010, February 28) retrieved 16 September 2019 from <https://phys.org/news/2010-02-world-powerful-atom-smasher-restarts.html>

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