

# Technisches Englisch

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## First beam in the LHC – accelerating science

The first **beam** in the Large Hadron Collider at CERN was successfully **steered** around the full 27 kilometres of the world's most powerful **particle accelerator** at 10h28 on 10 September 2008. This historic event marks a key moment in the **transition** from over two decades of preparation to a new **era** of **scientific discovery**. ...

Starting up a **major** new particle accelerator **takes much more** than **flipping a switch**. Thousands of individual elements have to work in harmony, timings have to be synchronized to under a **billionth** of a second, and beams finer than

a human hair have to be brought into **head-on collision** in order to produce elementary particles. This success **puts a tick** next to the first of those steps, and over the next few weeks, as the LHC's operators **gain experience** and **confidence** with the new machine, the machine's acceleration systems will be **brought into play**, and the beams will be brought into collision to **allow** the **research** programme to begin.

**Once** colliding beams have been **established**, there will be a period of **measurement** and calibration for the LHC's four major experiments, and new results could start to **appear** in around a year. Experiments at the LHC will allow **physicists** to complete a journey that started with Newton's description of **gravity**. Gravity **acts on** mass, but **so far** science is unable to explain the mechanism that generates mass. Experiments at the LHC will **provide** the answer. LHC experiments will also try to **probe** the mysterious **dark matter** of the universe – **visible** matter seems to **account for** just 5 % of what must exist, while about a quarter is **believed** to be dark matter. They will **investigate** the reason for nature's **preference** for matter over antimatter, and they will probe matter as it existed at the very beginning of time. ...

*By courtesy of CERN, Switzerland*



A historic moment in the CERN Control Centre: the beam was successfully steered around the accelerator

### CERN

CERN, the European Organization for Nuclear Research, is the world's leading laboratory for particle physics. It has its headquarters in Geneva. At present, its **Member States** are Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom. India, Israel, Japan, the Russian Federation, the United States of America, Turkey, the European Commission and UNESCO have **observer status**.

**accelerate** beschleunigen  
**account for** ausmachen  
**act on** wirken auf  
**allow** erlauben, ermöglichen  
**appear** erscheinen, auftreten, auftauchen  
**beam** Strahl, Strahlenbündel; Balken  
**believe** glauben, *hier*: annehmen  
**billionth** (ein) Milliardstel  
**bring, brought, brought into play** ins Spiel bringen  
**confidence** Zuversicht, Vertrauen  
**dark matter** dunkle Materie  
**era** Ära, Zeitalter  
**establish** aufbauen, bilden, (h)erstellen  
**flip a switch** das Umlegen eines Schalters  
**gain experience** Erfahrungen gewinnen  
**gravity** Schwerkraft  
**head-on collision** frontale Kollision  
**investigate** untersuchen  
**LHC** (= Large Hadron Collider) Großer Hadronen Speicherring  
**major** Haupt-, wichtig  
**measurement** Messung  
**member states** Mitgliedstaaten  
**observer status** Beobachterstatus  
**once** sobald, wenn erst einmal  
**particle accelerator** Teilchenbeschleuniger  
**physicist** Physiker  
**preference** Vorliebe  
**probe** erforschen, gründlich untersuchen  
**provide** sorgen für, liefern  
**put a tick** abhaken  
**research** Forschung  
**scientific discovery** wissenschaftliche Entdeckung  
**so far** bis jetzt  
**steer** lenken, steuern, *hier*: aussenden  
**takes much more** bedarf viel mehr  
**transition** Übergang  
**visible** sichtbar

P. Zillmer