

Big Bang Collider Test Successful

Wednesday, Sep. 10, 2008 By AP/ALEXANDER G. HIGGINS

(GENEVA) — The world's largest particle collider successfully completed its first major test by firing a beam of protons all the way around a 17-mile (27-kilometer) tunnel Wednesday in what scientists hope is the next great step to understanding the makeup of the universe.

After a series of trial runs, two white dots flashed on a computer screen indicating that the protons had traveled the full length of the US\$3.8 billion Large Hadron Collider.

"There it is," project leader Lyn Evans said when the beam completed its lap.

The startup was eagerly awaited by 9,000 physicists around the world who now have much greater power than ever before to smash the components of atoms together in attempts to see how they are made.

"Well done everybody," said Robert Aymar, director-general of the European Organization for Nuclear Research, said after the protons were fired into the accelerator below the Swiss-French border at 9:32 a.m. (0732 GMT).

The organization, known by its French acronym CERN, fired the protons — a type of subatomic particle — around the tunnel in stages, several kilometers (miles) at a time.

Now that the beam has been successfully tested in clockwise direction, CERN plans to send it counterclockwise. Eventually the two beams will be fired in opposite directions with the aim of smashing together protons to see how they are made.

The startup — eagerly awaited by 9,000 physicists around the world who will conduct experiments here — comes over the objections of some skeptics who fear the collisions of protons could eventually imperil the earth.

The skeptics theorized that a byproduct of the collisions could be micro black holes, subatomic versions of collapsed stars whose gravity is so strong they can suck in planets and other stars.

"It's nonsense," said James Gillies, chief spokesman for CERN, before Wednesday's start.

CERN is backed by leading scientists like Britain's Stephen Hawking in dismissing the fears and declaring the experiments to be absolutely safe.

Gillies told the AP that the most dangerous thing that could happen would be if a beam at full power were to go out of control, and that would only damage the accelerator itself and burrow into the rock around the tunnel.

And full power is probably a year away.

"On Wednesday we start small," said Gillies. "A really good result would be to have the other beam going around, too, because once you've got a beam around once in both directions you know that there is no show-stopper."

The LHC, as the collider is known, will take scientists to within a split second of a laboratory recreation of the big bang, which they theorize was the massive explosion that created the universe.

The project organized by the 20 European member nations of CERN has attracted researchers from 80 nations. Some 1,200 are from the United States, an observer country which contributed \$531 million. Japan, another observer, also is a major contributor.

The collider is designed to push the proton beam close to the speed of light, whizzing 11,000 times a second around the tunnel.

Smaller colliders have been used for decades to study the makeup of the atom. Less than 100 years ago scientists thought protons and neutrons were the smallest components of an atom's nucleus, but in stages since then experiments have shown they were made of still smaller quarks and gluons and that there were other forces and particles.

The CERN experiments could reveal more about "dark matter," antimatter and possibly hidden dimensions of space and time. It could also find evidence of the hypothetical particle — the Higgs boson — believed to give mass to all other particles, and thus to matter that makes up the universe.

Some scientists have been waiting for 20 years to use the LHC.

