

32km-long particle accelerator to spearhead dark-matter quest

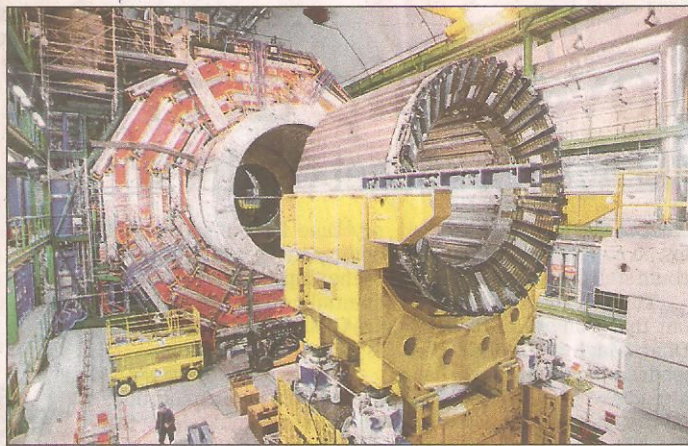
World

Reuters

London: Cern scientists searching for dark matter are planning to build the world's biggest and most expensive particle accelerator — stretching up to 32km. The machine will surpass the Large Hadron Collider (LHC), the particle accelerator that has a circumference of 27km and was used in the hunt for the Higgs boson, the 'God particle' that gives matter its mass and whose discovery was announced last year.

The International Linear Collider (ILC) will smash subatomic particles together with such force that it could reveal evidence of new forms of matter and extra dimensions of space, the Sunday Times reported. Some scientists are even calling it 'Einstein's telescope' because it would reveal why the physicist's equations work as they do. The plans to build the particle accelerator will be announced at Cern's particle physics laboratory in Geneva, and will be followed by a lecture by Brian Cox, the TV physicist, in the hope that the project will inspire the same global fascination as Cern's hunt for the Higgs boson.

"The LHC is a very noisy machine. For every billion collisions we get just one Higgs boson. The ILC is a precision instrument de-



DARK SECRETS: The new machine will be aided in its hunt by Cern's LHC (above)

signed as a Higgs factory," Lyn Evans, Cern's project leader for the ILC, said. "It will produce millions of them, so we can study them properly and see if there is just one or several, as some theories predict," Evans said.

The ILC would comprise two giant 'guns', one accelerating electrons and the other particles of anti-matter called positrons to near-light speeds before smashing them together.

Evans said the new machine would complement the LHC,

which has "many more years of life". "The next enormous prizes for these machines is finding dark matter, which makes up most of the mass in the universe but so far has never been seen," he said.

The machine will most certainly be built in Japan. The country is so keen to host the machine that it will put up half the whopping £8 billion cost — much of which would be spent on drilling the huge underground tunnels needed to house it, the Sunday Times reported. PTI