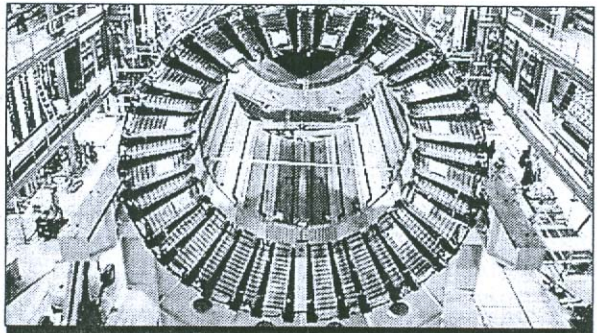
SINP team rejoices at Cern test

Jhimli Mukherjee Pandey | TNN

Kolkata: As the first protons smashed together inside the Large Hadron Collider at Cern, the European nuclear research centre in Geneva, at 6.40 pm IST on Monday, there was much rejoicing at Saha Institute of Nuclear Physics (SINP) in Kolkata.

Quite a few scientists from SINP's Variable Energy Cyclotron Centre are involved in the project that is trying to prove that if particles collide at extremely high energy inside the collider, a completely new particle can be created. This is being called the God Particle and the exercise is an effort to understand the Big Bang, which is believed to have been the starting point of the universe. Particles collided at extremely high speeds during the Big Bang and new particles were created. These helped in the formation of the universe.

Scientists at CERN were trying to perfect the movement of protons inside the 27 km-long Hadron Collider so that equal bunches of protons can collide at extremely high energy level at four specific points. The objective was to see if the collision was giving birth to new particles along with known particles.



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According to plans there would be four different kinds of experiments for this — the Alice experiment, which is on at the moment, the CMS, the Atlas and the LHCB. The SINP scientists have created a Photon Multiplicity Detector, which is crucial to this Alice experiment. This detector will identify the photon particles that are produced at the point of any proton-proton collision.

This detector was in use during Monday's experiment and was able to identify photon particles much to the satisfaction of CERN. "In this first ever proton-proton collision experiment, the energy level was much lower than what it would be at the final stage where a new particle is expected to be created. The energy unit used for this first collision experiment was 900 GeV of the two colliding sides. At the final level it would go up to 14,000 GeV or 7 TeV. This is extremely high energy level, considering the fact that 1 TeV is equal to 1000 GeV," explained senior scientist of SINP, Premomoy Ghosh, who has played a key role in setting up the Photon Multiplicity Detector. Along with another senior scientist, Tapan Naik, Ghosh has just returned from CERN. SINP was represented by another scientist, Anand Dubey, during Monday's experiment.

"It took so long to stage the first collision because all this while scientists were trying to make the protons follow a certain path inside the collider from two sides so that the collision could happen. Magnets were placed along the 27 kilometre stretch to steer these protons along the desired beamline," explained Ghosh.

Bikash Sinha, former director of SINP and its present Homi Bhaba professor, has received a congratulatory note from the director-general of CERN for the successful collision. "It takes great engineering precision to make so many protons follow a certain beamline for the collision," Sinha said. "Our detector that traces the circuit of the protons along the beamline is working successfully, which makes us very happy," Sinha added.