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Atom-smashing record thrills SFU physicists

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It's a new record-subatomic particles colliding at the highest energies ever reached in a laboratory—in the enormous Large Hadron Collider particle accelerator at the CERN particle physics laboratory in Geneva, Switzerland.

And Simon Fraser University physicist Bernd Stelzer, who was monitoring data quality remotely from the university when it happened yesterday, was so excited he literally ran to tell his colleagues.

SFU's physicists, like thousands of scientists around the world, were ecstatic over the milestone in the ATLAS project, dubbed the world's largest physics experiment.

SFU is hosting one of Canada's four Tier-2 data centres that, like others around the world, are collecting and analyzing ATLAS data. The SFU researchers have worked for years with simulated data, but they say nothing comes close to the real thing.

'We're excited to see real data arrive on SFU's computers,' says SFU physicist Mike Vetterli, who is also the project leader of the Tier-1 Data Centre at Vancouver's TRIUMF facility (Tier-1 because it houses some of the raw data from ATLAS).

'It's exciting, but also very intense,' says SFU colleague Dugan O'Neil, who admits to getting little sleep since the first particle beams were circulated Nov. 23. The SFU scientists have committed years of research to ATLAS. O'Neil will be watching activity from Paris later this week.

But the best view of events is no doubt that of Jennifer Godfrey, one of O'Neil's PhD students, who's working onsite at CERN on the ATLAS experiment.

'I happened to luck-out that my pre-planned trip corresponded with the first collisions,' Godfrey said from Switzerland, where she is doing eight-hour shifts right in the ATLAS control room. Her job is to help monitor the Liquid Argon Calorimeter, which measures the energy of particles as they pass through the detector.

Godfrey arrived two days after the first beams were circulated and returns home Dec. 22.

She wasn't on shift yesterday when particles collided at 2.36TeV (tera-electron volts), the highest energy at which protons have ever collided. But she has witnessed collisions and the subsequent outbursts from scientists. 'Everyone is pulling out cameras and photographing screens,' she says.

Godfrey's research is identifying 'tau leptons', which are elementary particles similar to electrons. She and others studying tau identification at ATLAS are working out ways to figure out whether a tau was present during the recent colliding events.

(Godfrey has another five shifts in the control room. Her next is on Friday, Dec. 11).