Clash of the titans

As Fermilab"s accelerator races toward becoming obsolete scien hoping for one last explosive discovery before Swiss collider ste thunder.

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Amid the gentle sway of grasses in a Batavia prairie, the reign of a champion is cc an end. The Tevatron particle accelerator — the muscle that pumped the blood of discovery through the veins of Fermi National Accelerator Laboratory and the regi scientific community for 22 years — is about to become obsolete. But don't count out yet. Last year, Fermilab officials cranked up the Tevatron for one last proton-s flourish before its European replacement steals the stage. They're hoping one of l greatest scientific devices ends with a big bang and not a whimper.

The prize could be the discovery of a key particle. Still only theoretical, a graviton could once and for all explain the mystery of gravity and possibly prove what's kn "theory of everything."

But the clock is ticking.

Far from the prairie, across the Atlantic, beneath the mountains of the Swiss-Fren a behemoth is being built. The Large Hadron Collider (LHC) will be seven times m powerful than the Tevatron when it gets up and running next year. And power is th the game in particle physics, which uses accelerators to smash sub-atomic particl each other at close to the speed of light and see what's left in the resulting sub-at debris.

Unlike your home computer, which will gradually become outdated over a number "obsolete" is absolute and immediate in the market of particle accelerators.

In its first microseconds of operations, the LHC might be able to answer fundamental questions about how the universe works — questions that the Tevatron has been trying to answer for years.

Don't misunderstand. The scenic

to become a ghost town. A program already is under way to allow scientists at the Kane County lab here to essentially telecommute to CERN, the European lab that will operate the LHC.

A number of non-Tevatron experiments at Fermilab aren't threatened by the new kid on the block. And the Tevatron will still be a highly prized accelerator with plenty of research value; it just won't be the one to make the next big discovery once the European one gets rocking and rolling.

Laura Stoecker/lstoecker@dailyherald.com S at Fermi National Accelerator Laboratory in I working to make one last big discovery with Tevatron, a particle accelerator that's heade obsolescence. They hope to use its muscle t explain the mystery of gravity.

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The LHC's reign might not be indefinite. Fermilab's leaders are angling to build the next super-accelerator — the International Linear Collider — here. Fermilab Director Pier Odo pushing the idea and he's fond of recalling Chicago planning forefather Daniel Bu famous mantra, "Make no small plans."

"When Burnham built the Columbian Exposition, the world came to Chicago," Odo "When we build the ILC, the world will come here."

Meanwhile, the Tevatron continues to shoot protons and antiprotons at each other 2.5æmillion times a second, 20 hours a day — a blistering pace, even in the worlo particle accelerators.

Its legacy already is secure; The Tevatron firmly planted Batavia on the map of sc immortality when the long-anticipated top quark was discovered there in 1995.

Scientists are hardly mourning the European collider's usurpation. In fact, they're and teams of researchers and technicians at Fermilab have been designing and b components for CERN's new centerpiece. But many split their time between that a to squeeze every last electron-volt of power out of the Tevatron.

The 10th round flurry already has yielded a number of significant new discoveries and as the sun sets on the Tevatron, no one can say what its final contribution will

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