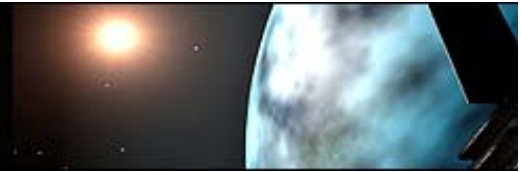




SCIENCE DUDE

by Gary Robbins



World's biggest physics tool debuts with UCI's help

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A massive particle accelerator that's meant to re-create what the universe was like shortly after the Big Bang will begin operating in Europe today following years of expensive construction and design, some of which was done by physicists at UC Irvine.

Engineers will send protons through the \$6 billion [Large Hadron Collider](#) (LHC), a 16.9 mile ring-shaped

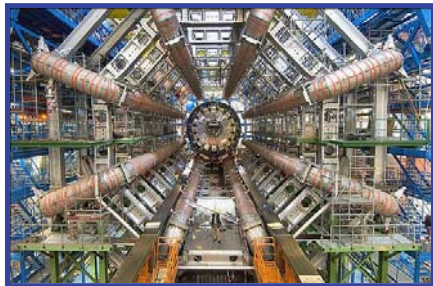
tunnel that's located 300-feet beneath the ground on the border of Switzerland and France.

When it's fully operational, the LHC will be capable of producing 1 billion particle collisions per second — mashups that will be recorded and analyzed by high-speed computers and distributed around the world.

"The LHC might become a factory that produces the dark matter that makes up about 80-percent of the universe," says Jonathan Feng, one of seven UCI physicists who worked on the project.

"We could learn the weight of dark matter, and what it's made of. It would help us understand how galaxies formed, and whether the process will continue that way in the future."

Feng says, "The LHC also is designed to determine whether there are extra spatial dimensions beyond the three known to humans."



One of his colleagues, UCI physicist Andy Lankford, is head of the American team that works on the [ATLAS](#) Trigger and Data Acquisition System. ATLAS is one of LHC's four particle detectors and weighs roughly the same as the metal that makes up the Eiffel Tower.

In a UCI background paper, Lankford says, "My group contributed to the development of two of the major instrumentation systems. The Trigger and Data Acquisition System selects the particle interactions ATLAS will record for future study and acquires the data for recording. The Muon Spectrometer measures the trajectories of muons (a type of elementary particle.)"

"ATLAS ...will probe the basic forces that have shaped our universe since the beginning of time."