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Why I Have a Man Crush on the Large Hadron Collider

By Marty Kaplan

***Update 10/09/2013**: Now that the theorists of the Higgs boson have won the Nobel Prize, here's my take (from the wayback machine) on the God part of the God particle, and why I have a mancrush on the Large Hadron Collider.*

Last weekend they cooled it to 456.25 F below zero.

Buried 300 feet beneath the border of France and Switzerland, 17 miles long, 14 years in the making, it now begins two months of tests before some 7,000 scientists from around the world come to its grand opening party in October.

I love the Large Hadron Collider.

I love it that the citizens of 20 European countries have been willing to pony up $8 billion for something whose findings may have huge relevance to the frontiers of scientific theory, but zero relevance to the practicalities of everyday life. Like great art and literature, it may fundamentally recast our understandings of the essence of existence, but it won't invent Tang or Velcro, nor will it enable the West to say nyah-nyah to the Russians.

(On the other hand, I don't love it that political timidity and a poverty of imagination led the United States, which has chipped in $531 million to the LHC budget, to abandon construction of our own, even more powerful Superconducting Supercollider in 1993, having wasted 10 years of planning, two years of digging and $2 billion on a 54-mile proton racetrack beneath Waxahachie, Texas, that is now worthless for probing the secrets of the universe but a real contender for the title of world's most expensive mushroom farm.)

I love the exotic "God particle," the as-yet-undetected Higgs boson that the LHC may create when it crashes protons together at energies of 14 trillion electron volts and recreates the conditions of the Big

Bang 30 million times a second, and whose existence will push physics beyond the Standard Model that has dominated science's understanding of the universe for nearly four decades.

(But I don't love it that the baseline of American scientific literacy is so low; that the frontiers of quantum physics and cosmology are so abstruse; that so many scientists who put a high priority on talking to one another rarely bother to help the public that funds their work grasp what they're up to; and that science journalism, like arts journalism, has become an endangered species.)

Best of all — and here's where many scientists part company with me — I love the LHC because trying to understand its reason for being means also trying to understand the reason for Being.

If you listen to what cosmologists say about the origin of the universe, you have to put your mind in a place where mystics also dwell.

Just try this on for size: At the beginning of time, 14 billion years ago, every single thing that exists in the universe today was compressed into one single point a zillion times smaller than the period at the end of this sentence. Oh, and by the way, it's entirely possible that before that Big Bang, there was a whole other Big Bang, which created a whole other universe, and before that, yet other Bangs and universes. If that is what scientists really say is true about genesis, and it is, it strikes me as something even more inconceivable and awe-inspiring than anything in biblical Genesis.

Or try wrapping your mind around this: Quantum physicists say that the smallest things in the universe aren't things at all; they're not matter, they're energy. What's more, there is no there there. Stuff isn't anywhere in particular; all that exists is probability, a calculable likelihood that various weirdly named entities will turn up in one place or another, though if you look for them, you'll change where they are.

Einstein famously hated this now-accepted idea, saying, "God does not play dice with the universe." But I find the implications of a probabilistic universe way more mystical than what follows from a mechanistic universe, including the one described by Einstein's theory of general relativity. Imagine that any given point in the cosmos, at any given time, might contain nothing at all. And yet out of all this nothing comes something. You got that? The ultimate reality described by quantum physics is arguably as ineffable as the reality of Buddha, Meister Eckhart or the Kabbalists of Safed.

There's one other thing I love about the LHC: the empirical bearing it may have on string theory. String theory says stuff that makes Richard Dawkins sound like Rumi. (If you'd like my take on string theory, and the thing about the LHC creating a planet-destroying black hole, check out the bigger longer uncut version in my *Jewish Journal* column.)

According to theoretical physicist Michio Kaku, at a 1993 congressional hearing about the soon-to-be cancelled Superconducting Supercollider in Texas, a congressman asked a physicist, "Will we find God with this machine? If so, I will vote for it." We won't find God in the LHC. But if we can get our minds to fully comprehend what we do discover with the LHC, we may yet find God in ourselves.