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Achievements and Lessons from Tevatron

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For almost a quarter of a century, the Tevatron proton-antiproton collider was the centerpiece of the world's high energy physics program - beginning operation in December of 1985 until it was overtaken by LHC in 2011. The aim of this unique scientific instrument was to explore the elementary particle physics reactions with center of mass collision energies of up to 1.96-TeV. The initial design luminosity of the Tevatron was $10^{30} cm^{-2}s^{-1}$, however as a result of two decades of upgrades, the accelerator has been able to deliver 430 times higher luminosities to each of two high luminosity experiments, CDF and D0. Tevatron will be shut off September 30, 2011. The collider was arguably one of the most complex research instruments ever to reach the operation stage and is widely recognized for many technological breakthroughs and numerous physics discoveries. Below we briefly present the history of the Tevatron, major advances in accelerator physics, and technology implemented during the long quest for better and better performance. We also discuss some lessons learned from our experience.

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