CDF Physics results: past, present and future

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Abstract

The CDF detector collected during 1992-95 (Run I) a data sample of 110 pb^{-1} $p\bar{p}$ collisions at a center of mass energy $\sqrt{s} = 1.8$ TeV. A large variety of physical studies and measurements has been performed using these data. Untill today several analysis are under way. We will review results obtained recently in top quark physics, B Physics, QCD, Exotic and New Phenomena, Minimum Bias and Diffraction using the Run I data. The Fermilab Tevatron Collider has undergone in the past few years a whole series of upgrades to increase the instantaneous luminosity and to improve the bunch structure. During the Run II the machine is expected to deliver a luminosity of up to $2.0 \times 10^{32}\ cm^{-2}s^{-1}$ at a center of mass energy $\sqrt{s} = 2\ TeV$ to each of the two collider experiments: CDF and DØ. The CDF detector has been then upgraded in order to be able to operate at the high radiation and high crossing rate of the Run II Tevatron environment. In addition, there have been several upgrades to improve the sensitivity of the detector to specific physics tasks such as heavy flavor physics, Higgs boson searches and many others. The current paper will review also the preliminary results obtained using the new Run II data as well as discuss the physical potential of the upgraded CDF Detector.