Abstract Submitted
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A pp Collider in a 100 km Ring at Fermilab [VLHC][1] M. KARL MEDINA, Fermi National Accelerator Laboratory — Recent discovery of a Higgs-like boson at CERN has reignited interest in a future high energy collider to study physics beyond the Standard Model of elementary particle physics. We propose a proton-proton (pp) Very Large Hadron Collider (VLHC) with collision energies of $\sim$ 100 TeV.[2] A Java-based tool for studying the parameters of such a collider has been developed. The dynamics of the protons in this high energy range is dominated by the effects of synchrotron radiation. We model the effects of radiation damping and intra-beam scattering on quantities such as the emittance and luminosity. Our model shows that integrated luminosities near 1 fb^{-1} can be obtained over a 10 hour luminosity store. Here we present details of the program and some key results from our study of the proposed collider.

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[2]*Proton-proton and electron-positron collider in a 100 km ring at Fermilab*, C.M. Bhat, P.C. Bhat, W. Chou, E. Gianfelice-Wendt, J. Lykken, G.L. Sabbi, T. Sen, R. Talman, arXiv:1306.2369 [physics.acc-ph].

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