Joint DESY and University of Hamburg Accelerator Physics Seminar

— special seminar —

Friday, January 21, 2005

(16:00 in Room 459/30b)

LHC — Status and Prospects

Frank Zimmermann

CERN

Abstract

First collisions in the Large Hadron Collider (LHC), now under construction at CERN, are scheduled for 2007. At a proton–proton centre–of–mass energy 7 times that of the Fermilab Tevatron, a design peak luminosity of 10^{34} $\mathrm{cm}^{-2}\mathrm{s}^{-1}$, and a stored beam energy approaching 1 GJ, the LHC will enter a new territory of accelerator design and operation. After a brief overview of the LHC hardware & commissioning status, I will discuss the expected performance limitations, including machine protection, collimation, beam–beam interaction, and electron cloud, as well as a beam commissioning strategy which takes these limitations into account. Recently, studies on a future LHC luminosity or energy upgrade have started. The seminar concludes with the motivation for such an upgrade and a review of various scenarios, possible IR layouts, alternative parameter choices, and technology options.

NOTE THE UNUSUAL DATE AND TIME

D.P.Barber (MPY), J.Rossbach (Univ. HH) and M.Vogt (MPY).