

HERA Upgrade Plans, E. GIANFELICE-WENDT*,
DESY - HERA is a 6 km long proton/electron (positron) double ring collider located at DESY (Hamburg). The proton and the electron(positron) beams are accelerated up to 820 and 27.5 GeV respectively and collide head on at two Interaction Points (IPs). The machine has been in operation since 1992 for the experiments H1 and ZEUS. A third experiment, HERMES, using the longitudinally polarized electron (positron) beam on a gas target, started data taking in 1995. The HERA-B collaboration is currently making test runs; this experiment will use the proton beam halo for CP violation studies. After the machine has reached design performance with very satisfying beam quality, is now being prepared a further increase of the collider luminosity. The idea is to reduce the transverse beam size at the Ips. For this purpose, the HERA luminosity upgrade plan foresees a reduction of the horizontal and vertical betatron function of both rings. As a consequence, some machine magnets must be moved into the experimental region and the anti-solenoids, currently used for compensating the effects of the H1 and ZEUS solenoids, must be removed. Moreover, in order to reduce the electron (positron) beam emittance, it is planned to increase the horizontal phase advance in the FODO cells of the electron (positron) ring from the present 60 degrees. After giving a brief summary of the HERA performance so far, the presentation will touch some of the main issues of such a concept, namely - New magnet design; - Synchrotron light generation and masking in the experimental areas; - Beam dynamics; - Electron (positron) polarization preservation.

* Representing the Luminosity Upgrade Group.