Introduction

HERA is a world wide unique facility which supports a broad and exciting programme in experimental particle physics. The HERA performance has been steadily improving and is now starting to approach the design value with an integrated luminosity of 4 pb^{-1} per month, an overall efficiency of 50% and a longitudinal positron polarization of more than 50%. However, the request for a luminosity well beyond its design value of 35–40 $pb^{-1}year^{-1}$ is clearly justified by this study. A design group with members from both the accelerator division and the HERA experiments has recently completed a conceptual design study which shows that it should be possible to reach a yearly integrated luminosity of order 150 pb^{-1} by moving the low beta quadrupoles closer to the interaction point. The directorate considers the luminosity upgrade to be of high priority and expects that the upgrade can be carried out during the 1999/2000 winter shutdown.

A conceptual design study has shown that it may be possible to store polarized proton beams in HERA. However, to carry out a programme on nucleon spin physics requires major modifications to both the preaccelerators and to HERA proper. A decision how to proceed will be taken after the completion of the luminosity upgrade, i.e. in 2000/2001, and also after the completion of a more technical study. The construction time is estimated to be 4 years such that polarized protons could in principle be available around 2005, after the first part of the high luminosity programme has been completed.

Colliding heavy and light nuclei with high energy electrons opens up a new field of research. DESY and GSI are now exploring how such a facility could be realized as a collaborative effort between the two institutions. As a first step a joint workshop on electron-nuclei interaction at high energies is planned for the spring of 1997.

This study not only shows that we have just scratched the surface of the HERA physics potential, it also provides a guide towards its realisation. On behalf of the DESY Directorate I thank the organizers and all the participants in the study for a job well done.

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