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## AN e-p FACILITY IN THE CERN SPS

R. Billinge, H. Hoffmann, A. Hofmann, K. Hübner, A. Hutton,  
K. Johnsen, E. Jones, B.W. Montague, B.H. Wiik\*, C. Zettler

CERN

Geneva, Switzerland

A 25 GeV electron (or positron) storage ring installed in the SPS tunnel above the proton synchrotron would provide e-p collisions with a luminosity in the range of  $10^{31}$  to  $10^{32}$   $\text{cm}^{-2} \text{s}^{-1}$ . The collisions would normally take place at an intermediate plateau of the SPS-cycle up to 270 GeV, and could be followed by acceleration and extraction of the proton beam for fixed target experiments. The feasibility of such a facility is demonstrated and the essential features presented.

### Introduction

Collision of e-p will provide new insights for high energy physics. To this end, such facilities have been considered by nearly all High Energy Physics laboratories.

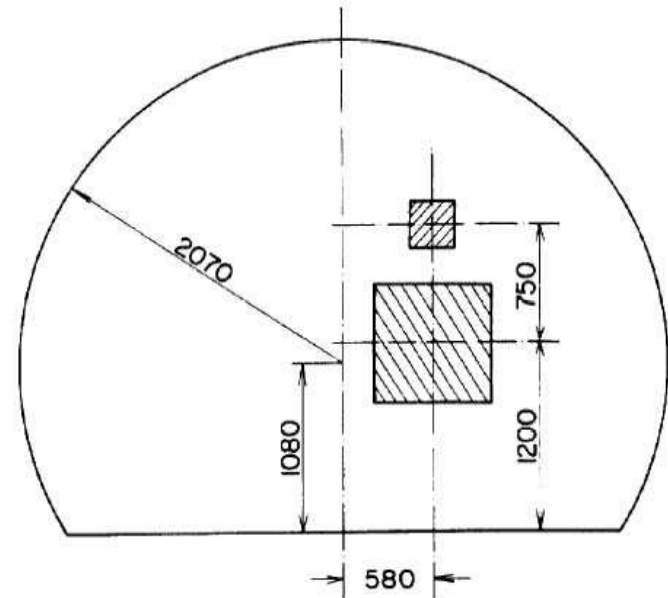


Fig. 1 - Cross-section of the SPS-tunnel at the quadrupoles with the electron ring installed above the proton synchrotron.

After further discussion, an amended recommendation was drawn up:

"As recommended at its meeting on 2 November 1979, ECFA puts first priority on the construction of the electron-positron collider LEP by CERN to keep Europe at the front line of sub-nuclear physics.

The Electron-Proton Working Group of ECFA has conclusively demonstrated the unique scientific interest of electron-proton collisions. Such investigations are complementary to the programme realizable by LEP and other projects elsewhere.

From a study of the Working Group on High-Energy Activities in the CERN Member States, it appears clearly that the scope of sub-nuclear physics in Europe will be greatly broadened with a facility for physics operational in the second half of the 1980s.

ECFA has considered at its meeting on 9 May 1980 the design of an electron-proton collider storage ring, HERA, that German physicists have proposed for DESY.

ECFA recommends strongly the construction of this machine at DESY and welcomes the possibility of its being used by the European community."

The recommendation was unanimously approved.

27th Plenary  
ECFA, 9.5.1980