P S S E M I N A R

Wednesday 24 April 2002 at 11 a.m.

PS Auditorium (6 2-024)

MEASURING EMITTANCE AND INJECTION MATCHING WITH PICK-UPS

by Andreas JANSSON, PS

To continuously optimize the transverse emittance of the proton beam for the LHC, one needs a non-destructive measurement of injection matching. For this reason, a quadrupole pick-up has been developed for the CERN PS. This pick-up is sensitive to the transverse beam size, and detects beam width oscillations caused by injection mismatch. Unlike previous cases, the instrument is custom-built, and not merely a position pick-up with enhanced electronics. With the two pick-ups that are now installed in the machine, it is possible to determine not only the matching, but also the emittance of each bunch in the injected beam. The talk gives an overview of the pick-up design, describes the methods used to acquire and analyze the data, and presents some measurement results, including comparisons with other instruments in the machine. Applications in other machines will also be discussed.

Organiser(s): Simon Baird/PS