

Electroweak milestones – 50 years of neutral currents, 40 years of W and Z bosons

31st October 10:00 – 17:30

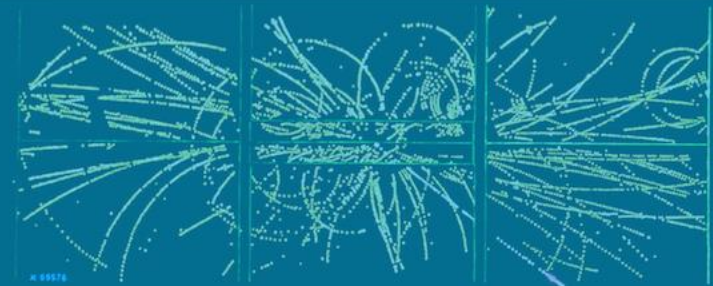
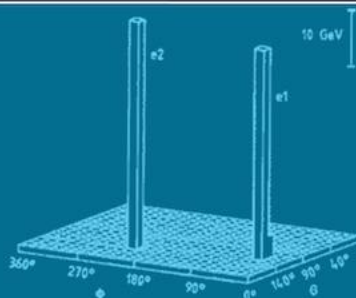
SCIENCE GATEWAY

Neutral currents and Gargamelle: Dieter Haidt
The W and Z at UA1: Jean-Pierre Revol
The W and Z at UA2: Pierre Darriulat
The SPS Collider: Lyn Evans

The evolution of electroweak theory: Wolfgang Hollik
Z and W measurements at LEP and SLD: Guy Wilkinson
CDF, D0 and HERA: Bo Jayatilaka

The W mass at the LHC: Maarten Boonekamp
Measurements with W and Z bosons at LHC: Elisabetta Manca
A forward look (FCC-ee): Rebeca Gonzalez Suarez

<https://indico.cern.ch/event/1301000/>

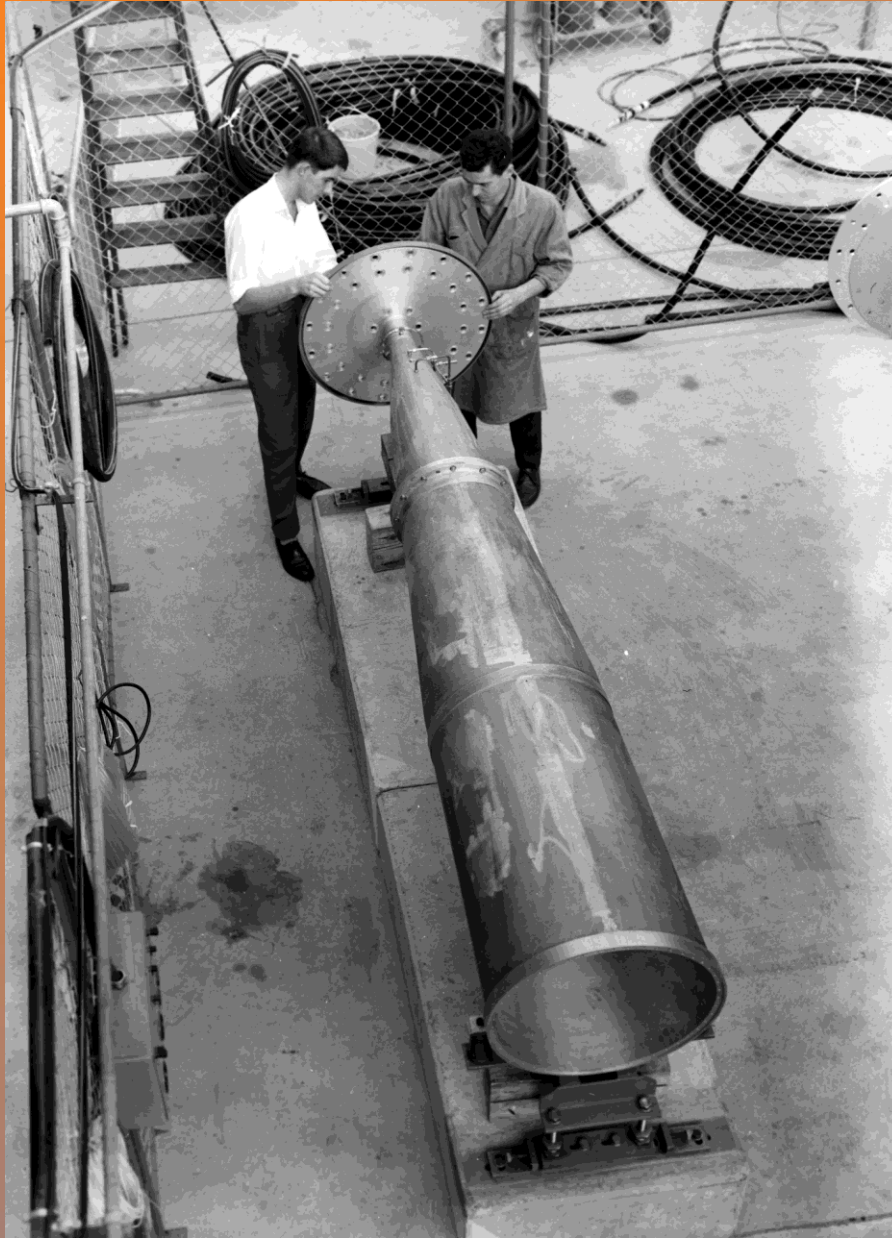


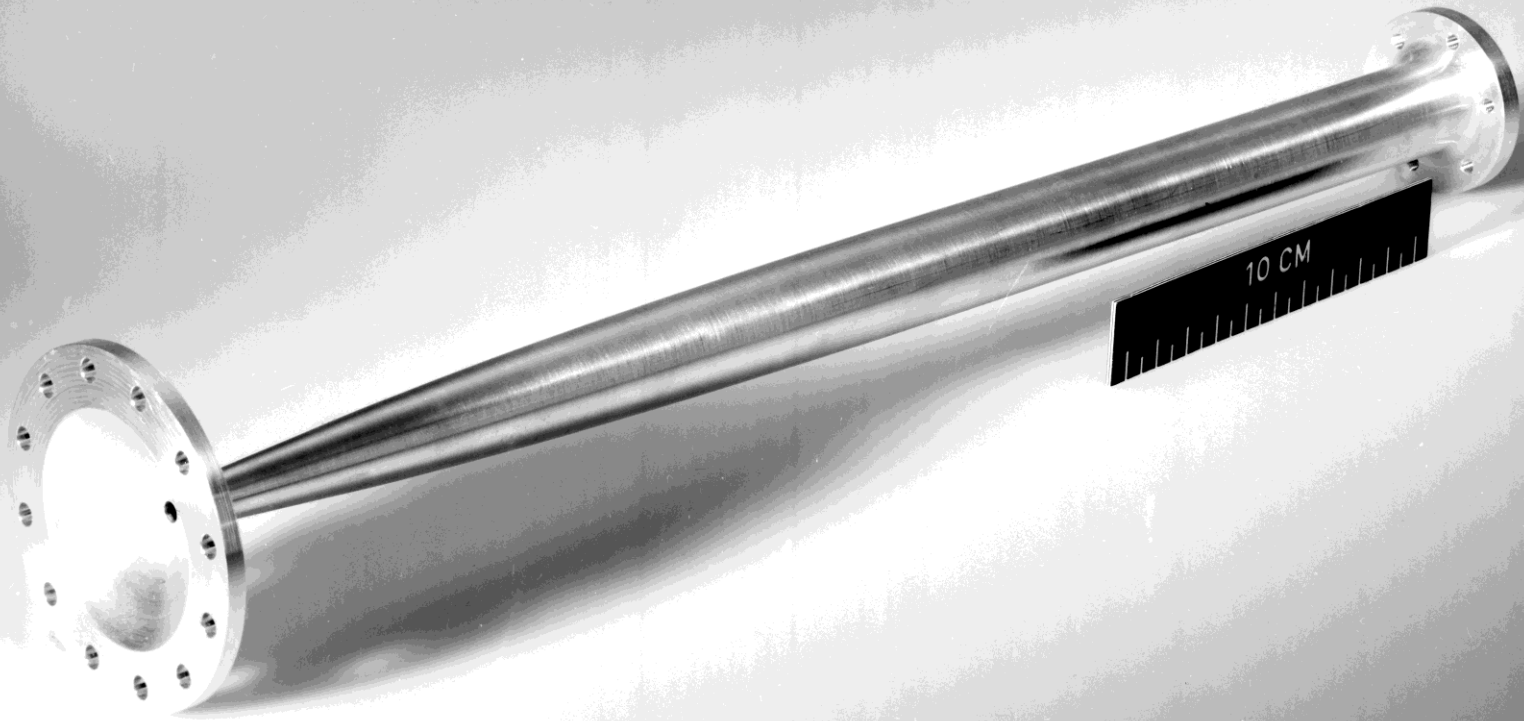
The Swiss strategic steel reserve!





Van der Meer's neutrino horn





1972 Van der Meer



CERN/ISR-PO/72-31

STOCHASTIC DAMPING OF BETATRON OSCILLATIONS

IN THE ISR

by

S. van der Meer

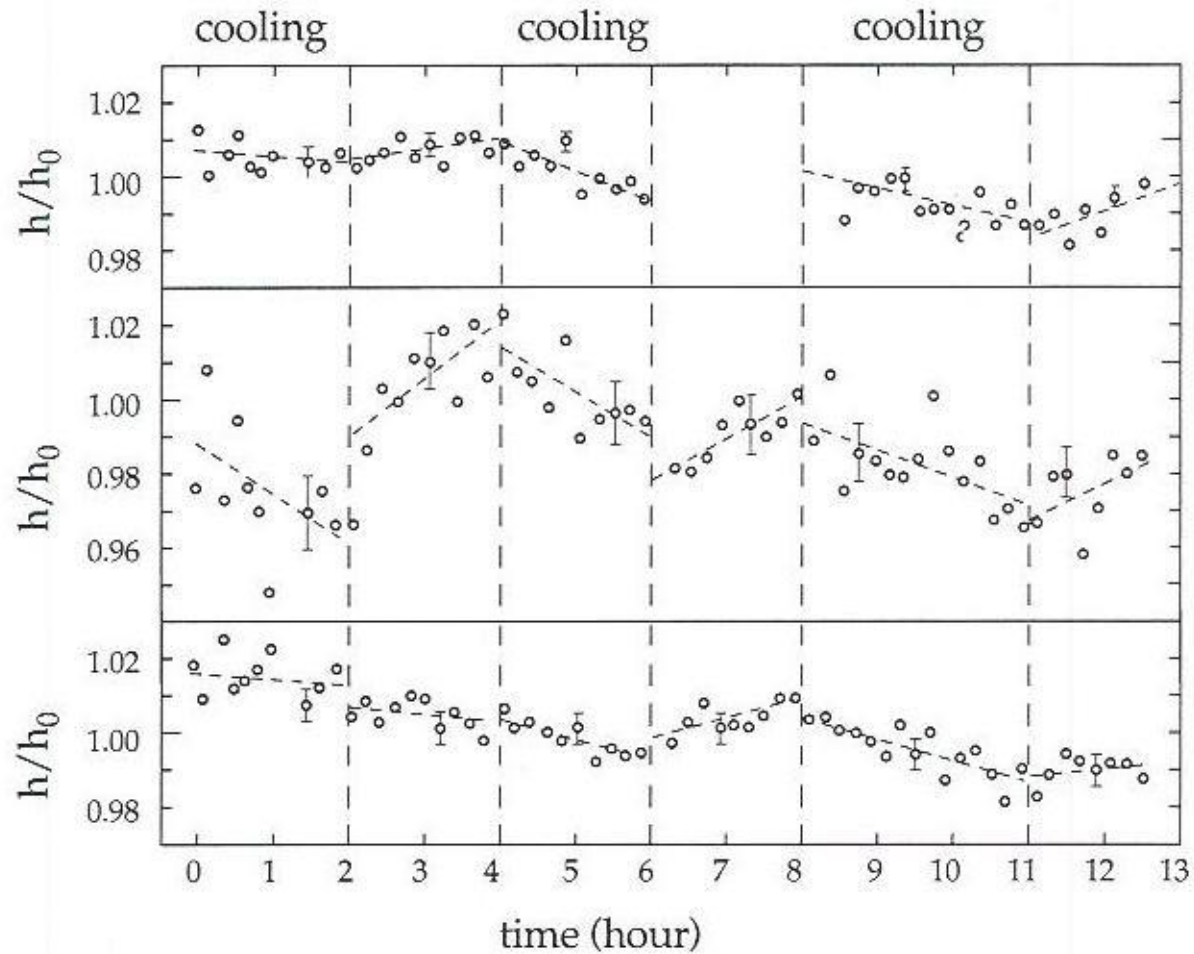


4. FINAL NOTE

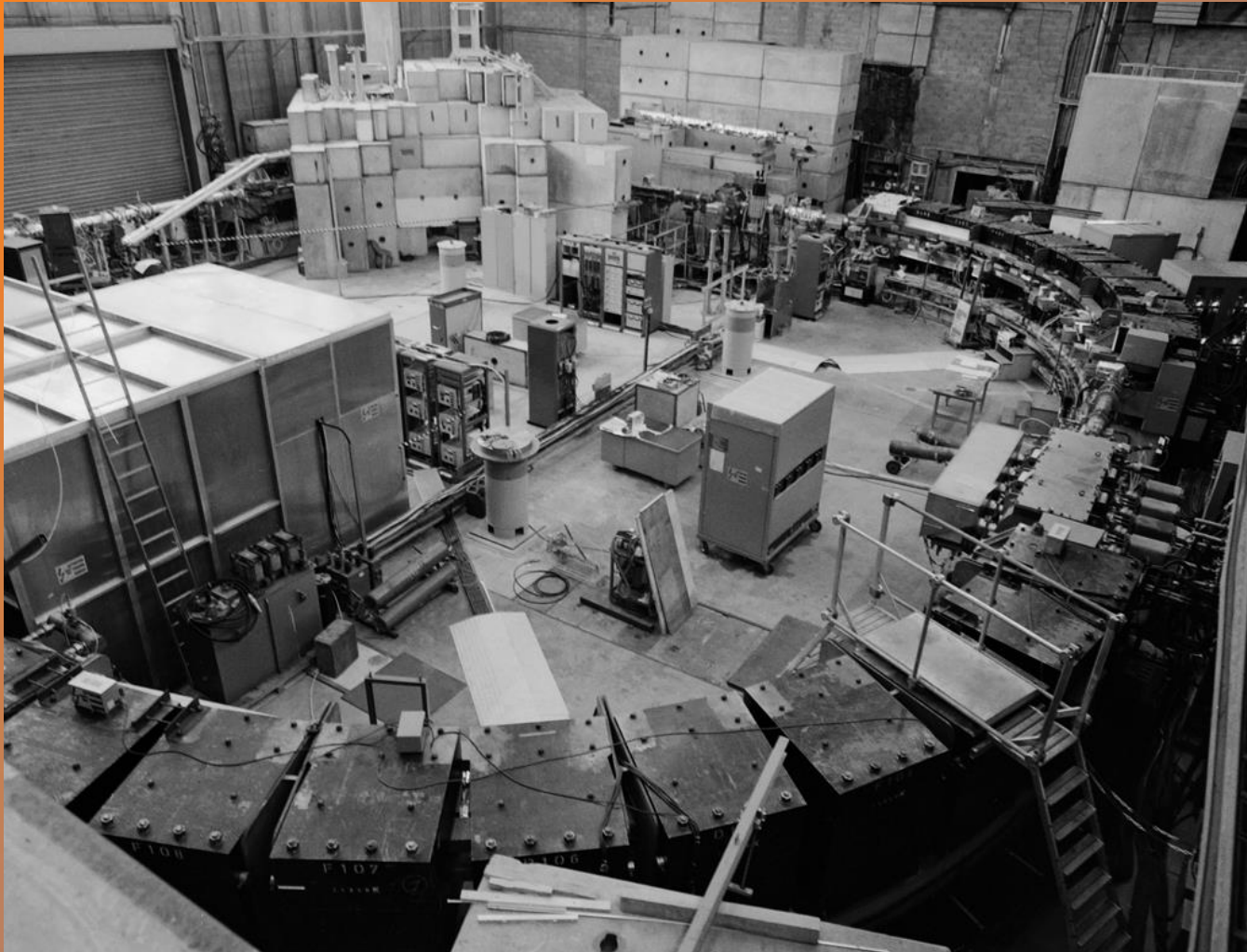
This work was done in 1968. The idea seemed too far-fetched at the time to justify publication. However, the fluctuations upon which the system is based were experimentally observed recently. Although it may still be unlikely that useful damping could be achieved in practice, it seems useful now to present at least some quantitative estimation of the effect.



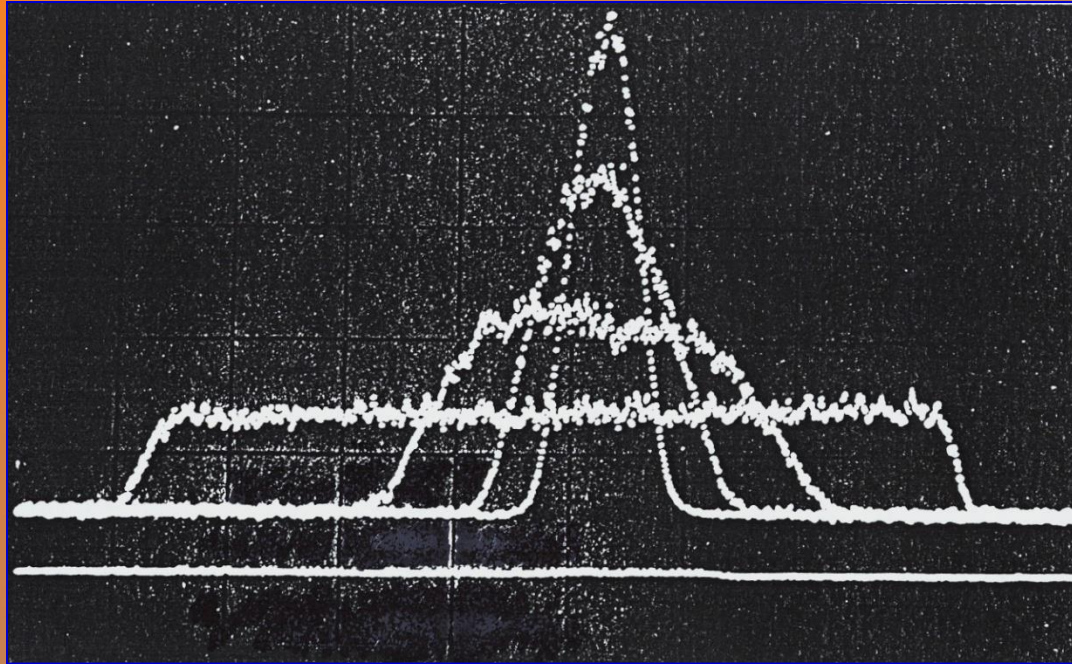
Stochastic cooling in the ISR (Schnell et al)



Initial Cooling Experiment (1978)

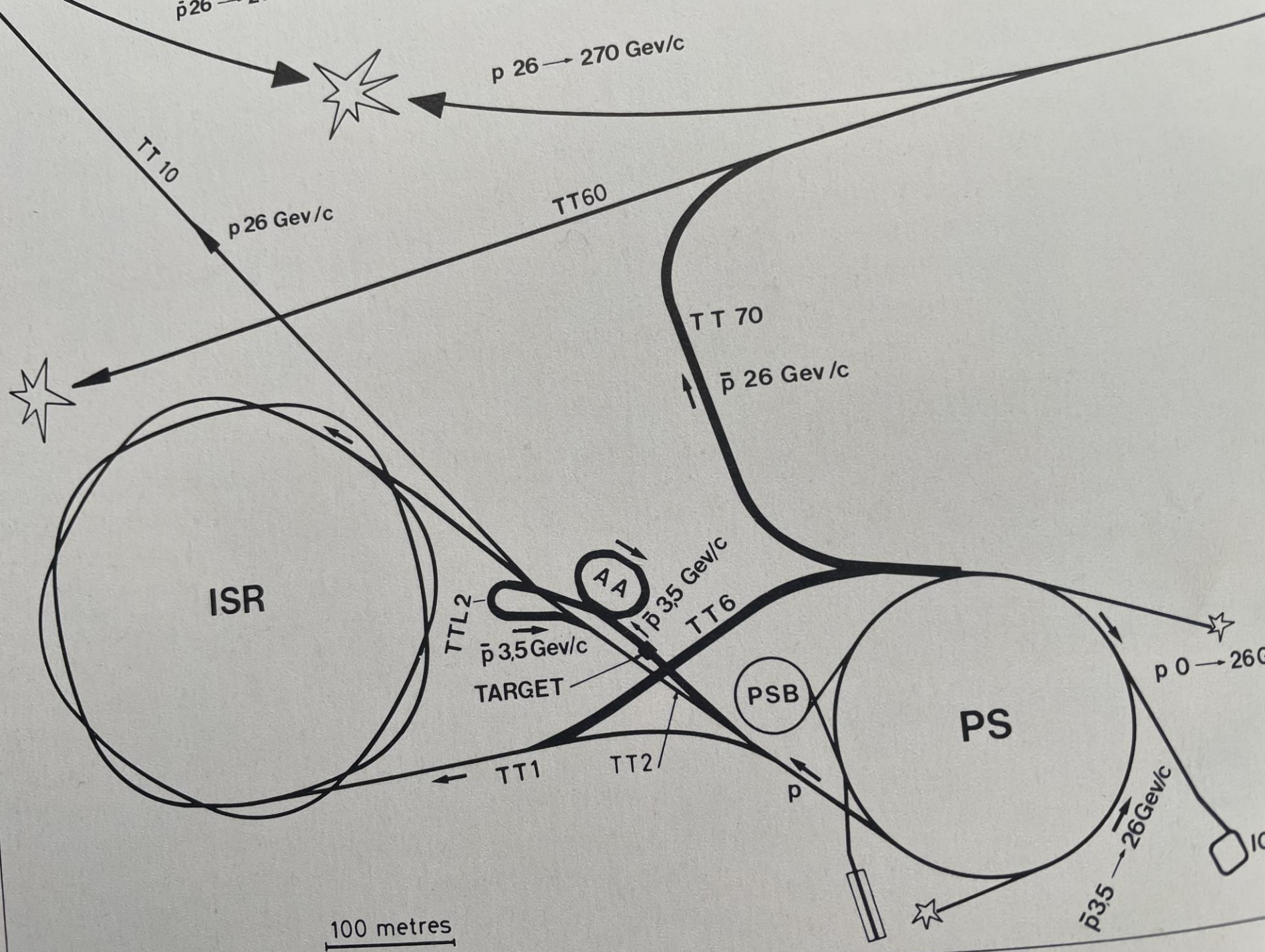


Momentum Cooling in ICE



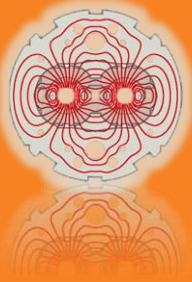
Schottky scan after 1, 2 and 4 min.

Signal height proportional to the square root of density and width proportional to $\Delta p/p$.



Antiprotons

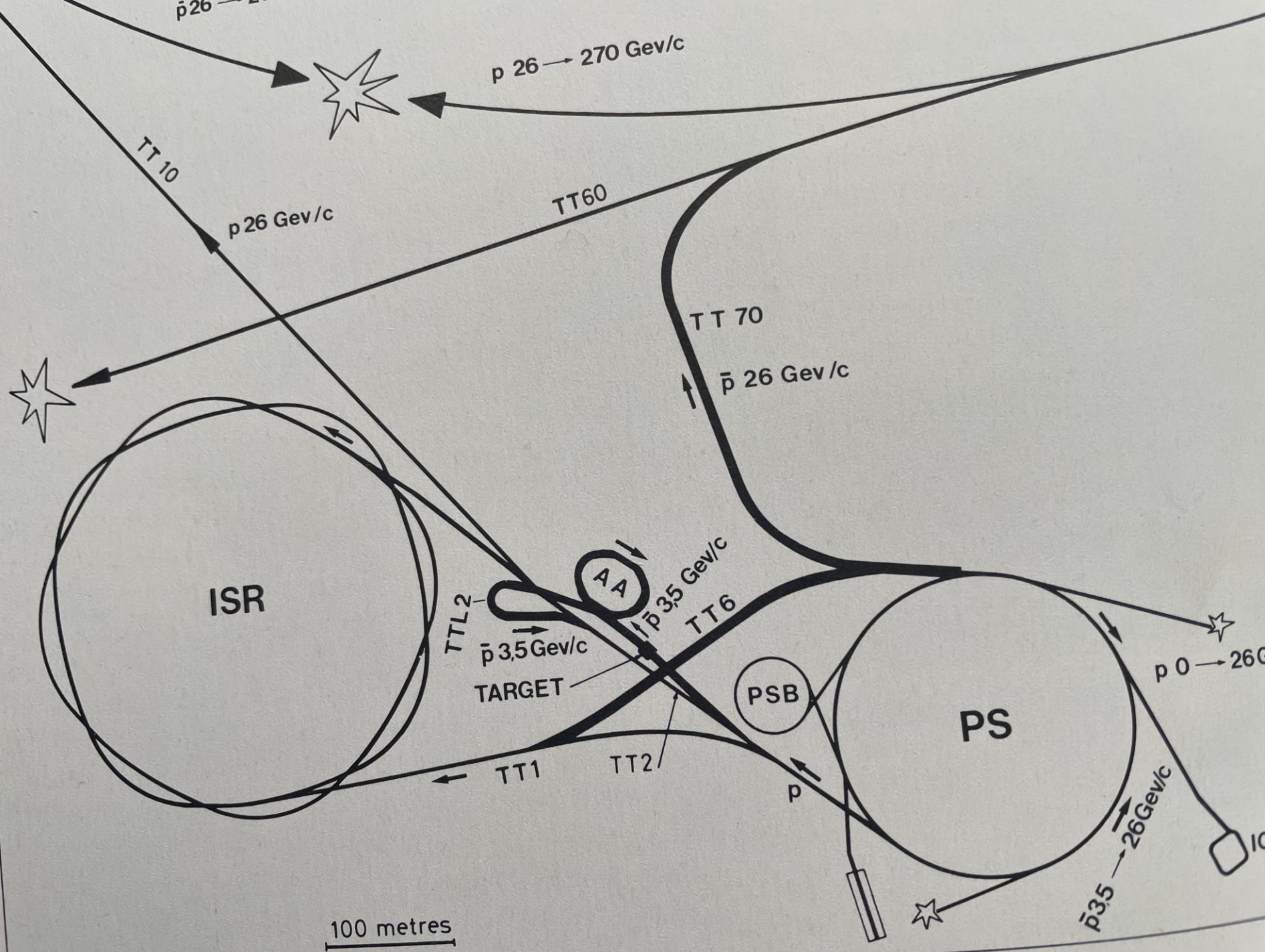




Modifications of the SPS



- Upgrade SPS injection to 26 GeV
- New transfer line for antiprotons
- Improved vacuum by 3 orders of magnitude
- Modified RF for 2 beams and improved noise level
- Two underground caverns for UA1 and UA2





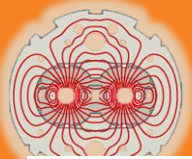
Carlo 10th July 1981

THIS MORNING AT

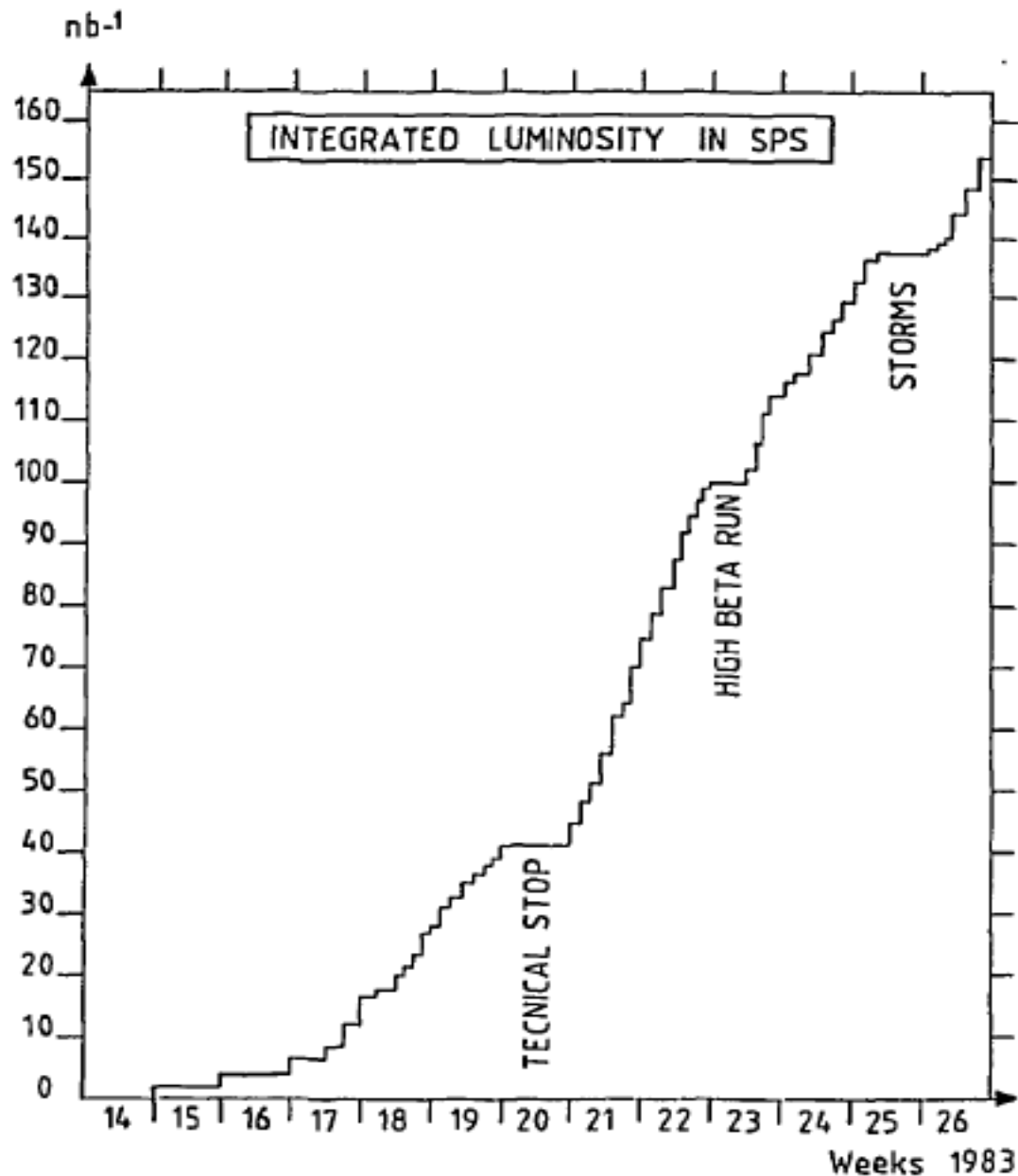
4.15⁰⁰ AM.



PROTONS AND ANTI PROTONS
COLLISIONS HAVE BEEN
PRODUCED IN SPS AND
CLEARLY DETECTED IN
THE FORWARD TELESCOPES
OF EXPERIMENT UA1.

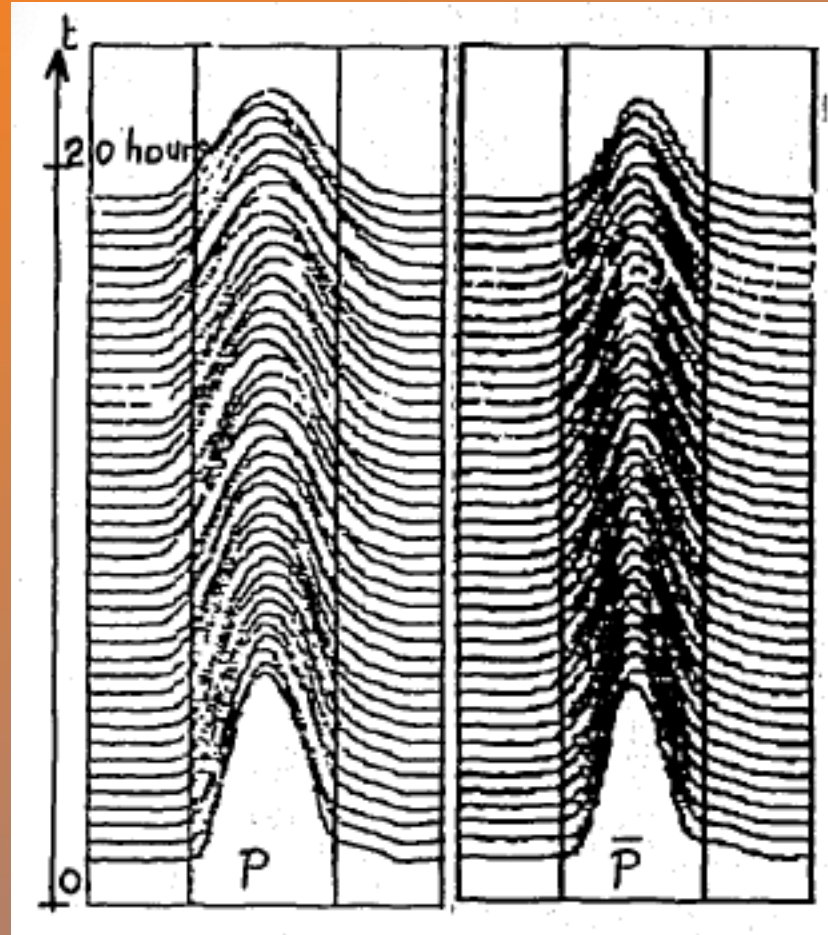


Integrated luminosity 1983



Energy 270 GeV
Integrated luminosity 150 nb^{-1}
Peak luminosity $1.6\text{E}29$

Intrabeam scattering



AA and AC (1987)



1988

Energy 315 GeV
6 bunches per beam
Luminosity $2.5E30$

1990

Luminosity $5E30$

Lausanne Workshop 1984

**LARGE HADRON COLLIDER
IN THE LEP TUNNEL**

Vol. I

PROCEEDINGS OF THE ECFA-CERN WORKSHOP

held at Lausanne and Geneva,
21-27 March 1984