

ISR-MA/KNH/rh

29th November 1972

ISR PERFORMANCE REPORTRun 259 - 22 November 1972Ring 2 - 22 GeV/c - 20 bunches - Working line 22FPDisplacement of a stack by change of the main magnetic fieldPurpose of the experiment

The aim of the experiment was to observe the influence on beam qualities of a radial displacement of the beam. This experiment was carried out about a year ago with a less encouraging result<sup>1)</sup>.

Beam displacement and Q-shifts

The beam was stacked in the interval  $-10 \text{ mm} < x < 30 \text{ mm}$  using the standard stacking procedure for physics preparation. The working line 22FP was chosen because it is straight and therefore easy to shift. The beam was shaved by 50 % in order to make an eventual vertical blow-up easier to observe. The final beam current was 5.8 A.

The main magnetic field was changed linearly during 8 seconds to a value corresponding to a displacement of 10 mm using the new digital to analogue converter. The poleface winding currents were changed simultaneously keeping the stack in place in the  $Q_H/Q_V$  diagram, using the computer program TACC.

Background counting

The 'background' was counted in I5. The initial stack showed 9700 counts/sec. After the displacement to the centre of the vacuum chamber, 5400 counts/sec. were measured. The beam was moved three times more: to stacking position, to centre position and back to stacking position with the following results: 4400 counts/sec., 3900 counts/sec. and 4100 counts/sec.



Vertical blow-up

The beam was scraped away vertically in steps of 0.2 mm using the Montague-scrapers. The change of beam current was taken as a measure of beam intensity.

A stack similar to the initial one was built and scraped in the same way.

No difference in the vertical beam distribution was observed.

Conclusion

No negative influence on the beam quality was observed using this rather primitive method. It would be interesting to verify the results with a beam-beam measurement.

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Reference

- 1) ISR Running-in Report, Run 129, 1 December 1971, ISR-MA/KNH/rh of 9th December 1971.

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