

ISR PERFORMANCE REPORTMeasurements of beam blow-up as a function of momentum  
(corrected version)

Since July 1980, an instrument to measure the height of the ISR beam by means of the Sodium Beam Curtain Monitor has been installed in the SRC<sup>(1)</sup>. This instrument was constructed around a 8080 microprocessor, the programming being done in assembler language. Measurements of the beam height at any one position in one ring could be made and displayed.

With the advent of the Small Development System using the 6809 micro-processor with PASCAL as the program language, it was decided to replace this instrument by a more sophisticated device which could make continuous measurements across the whole of the aperture and so check for any beam height changes.

During the whole of Run 1314, a prototype system was installed in the SRC, and measurements of the beam height across the aperture of Ring 1 were taken for 2 days. The aperture profiles for Ring 1 after stacking Ring 1, accelerating Ring 1, stacking Ring 2 and accelerating Ring 2, are shown in Fig. 1, with the relevant parameters.

It is interesting to note that between stacking Ring 1 at 26.5 GeV/c and accelerating it to 31.4 GeV/c, beam blow-up occurred mostly at the top of the stack, whilst during acceleration of Ring 2, the beam blow-up of Ring 1 was mostly at the bottom of the stack. Very little blow-up occurred when stacking Ring 2.

(1) ISR Beam Height Measurement, ISR-OP/TN.56, 23.6.80.



Date + Time	Curve No.	I <sub>1</sub> Amps	E <sub>1</sub> GeV/c	I <sub>2</sub> Amps	E <sub>2</sub> GeV/c	Average height across R1 aperture mm
<u>29.11.82</u>						
14.00	1	37.8	26.9	0	-	5.8
15.00	2	35.3	31.4	0	-	6.4
20.00	3	same		38.8	26.5	6.5
<u>30.11.82</u>						
08.00	4	same		34.9	31.5	7.0
<u>01.12.82</u>						
13.00	5	same		same		7.3

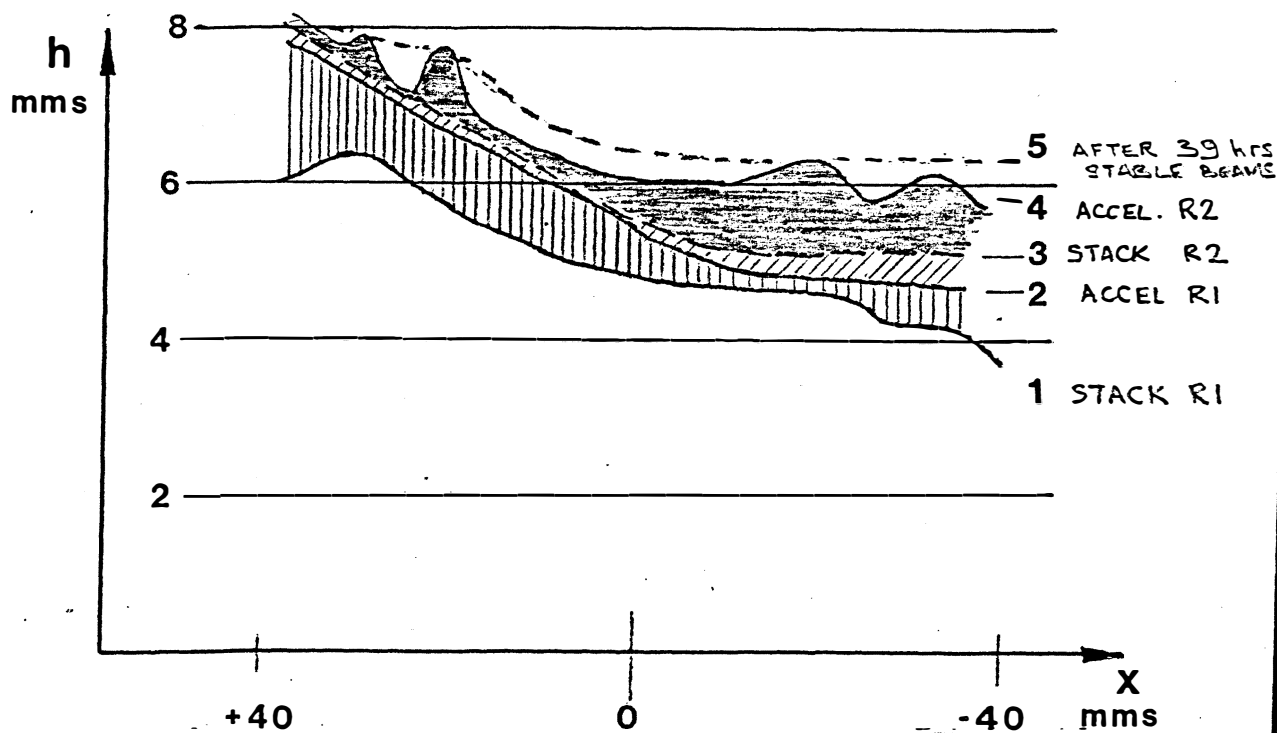


Fig. 1

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