

EXPERIMENT : E_V of Pilot Pulse on Ejection Orbit

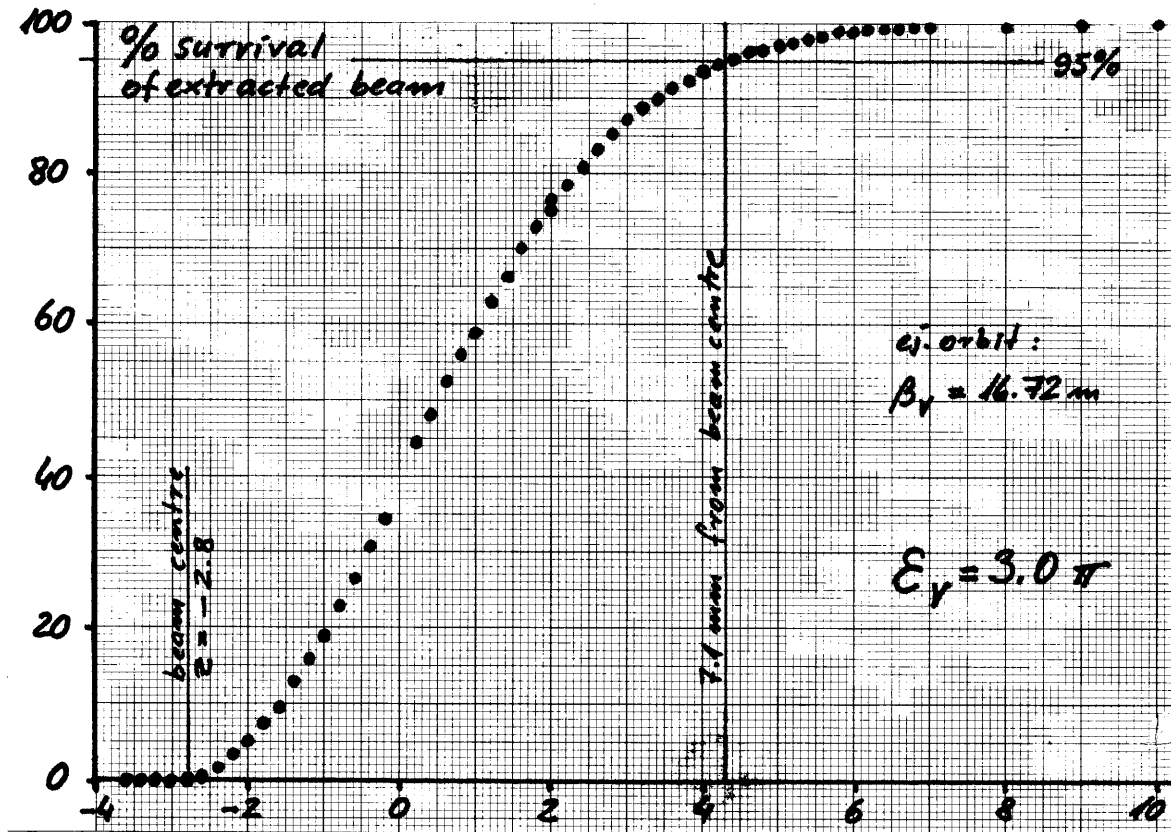
Experimenter : H. Koziol

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1. Aim Determine whether, after 20 min of cooling without accumulation, E_V of pilot pulse corresponds to E_V of stack.

2. Data During accumulation and subsequent cooling, attenuation on the stack core cooling system was 9 dB on Δp , V_{new} , H_{new} .

t (min)	action	E_U	E_V	%
	$1.5708 * 10^{11} \bar{p}$			
0	stop accumulation, leave all cooling on			
2	stack emittances, Schottky scan	3.9	3.3	95
8	stop stack tail cooling ($\Delta p, V$)			
22	stop stack core cooling, i.e. after 20 min of cooling without accumulation			
24	stack emittances, Schottky scan	2.5	2.7	95
27	begin automatic measurement of stack emittance with scrapers SHV 1302; meaningless, loss rate of $10^7 \bar{p}/\text{min}$ halted measurement	(16.0	24.7	99.9)
39	stack emittances, Schottky scan	3.1	2.8	95
	$1.5622 * 10^{11} \bar{p}$			
53	with "single asynch. shot" extracted pilot pulse: 50 Hz, $3 * 10^9 \bar{p}$, kept bunched capture: 1854.66 kHz, stack centre: 1854.86 kHz			
58	begin scraping down extracted beam with SLV 2105 TOP, hor. pos. centred on ej. orbit beginning of measurement: $1.5595 * 10^{11}$ end $1.5302 * 10^{11}$ survival curve see next page, result	—	3.0	95
78	stack core cooling on BTF measurements (C. Taylor)			
120	after a total cooling time of ~ 20 min within the last 42 min: stack emittances, Schottky scan	2.6	2.6	95



3. Conclusion After 20min of stack core cooling without accumulation, the vertical emittance of a pilot pulse corresponds closely to the vertical emittance of the stack, as measured with Schottky scan for 95% of the particles.

It would be interesting to measure also the horizontal emittance (requires adiabatic debunching) and also after shorter cooling times, e.g. 5min, 10min.

H.K.