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## Beam Tuning to Maximize Accelerated Beam

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## Low Field & Capture Studies (4/16/74), Raker, Gill, Herrera

The machine was "tuned" in order to maximize the accelerated beam.

### Conditions

- 1) Lincac run very well after 0100, giving  $\sim 70$  ma for 140  $\mu$ sec. Max after multistart  $\sim 1.2 \times 10^{13}$  p/p.
- 2) Per J. Claus, lincac inductances were up by approximately 1.5 times their normal values.
- 3) Average ring vac  $\sim 3 \times 10^{-7}$  Torr.

### Results

- 1) The max beam accelerated was  $7.22 \times 10^{12}$  p/p, with  $7.5 \times 10^{12}$  on the early counter. The machine ran steadily in the  $7 \times 10^{12}$  region.
- 2) In order to achieve 1) it was necessary to compromise the early beam counter reading and the effective turns ratio.
- 3) At one point, we could get  $9.45 \times 10^{12}$  p/p on the early monitor with about 8 turns. However, horizontal coherence appeared at about 20 ms after injected and the beam was very erratic with maxima of about  $6.8 \times 10^{12}$  p/p. The  $v$  values under this condition were ( $v_H = 8.84$ ;  $v_V = 8.75$ ).

JGH, 4/19/74