

Measure Aperture on 28.5 GeV/c Flattop

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During the first part of the run the available aperture at ≈ 28.5 BeV/c was explored by shifting the radius of the bunched beam on a flat top starting at ≈ 630 msec. Without the E-10, H-10 bumps and at $\approx 2.5 \times 10^{12}$ the aperture at H-7 was -1.8 mm to $+5.5$ mm. With the FEB bumps on the H-7 aperture was $+2$ mm to $+5$ mm with a sharp almost total loss toward the inside and a gradual loss toward the outside (at $\approx 2.5 \times 10^{12}$). At 4.5×10^{12} the aperture was about the same except that some vertical blow-up occurred at $+4$ mm and without loss.

With the H & V quads powered to the normal SEB values the aperture with bumps on was $+2.7$ mm to $+5$ mm; at full intensity $+2.5$ mm and $+4.5$ mm. The radial position of the beam prior to the radius shift used to explore the aperture had a slight effect on the observed aperture.

Using the new PUEs at D-4 & D-18 ($\approx \lambda/2$ apart) and summing them one found that the inside aperture with the bumps on was -1.7 mm and outside 3.5 mm. Thus one can conclude that the inside limitation using the single electrode pair at D-7 was due to an interaction between the bumps and the radial control system.