AGS FEB Studies

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Blumberg NO. 42

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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 ≈ 2.5×10^{12} the aperture at H-7 was −1.8 mm to ≥ +5.5 mm. With the FEB bumps on the H-7 aperature was +2 mm to +5 mm with a sharp almost total loss toward the inside and a gradual loss toward the outside (at ≈ 2.5×10^{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 PUE's at D-4 & D-18 (≈ λ/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.