Blumberg

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Objectives: (1) Test U16 insulated plate as external beam monitor.
(2) Optimize H10 magnet position using U16 plate.
(3) Test horizontal and vertical profile arrays.
(4) Attempt total beam extraction by increasing capacitance (and thus duration of current pulse) in C15 kicker power supply.

Results:

The most significant result of this study is that we set up the same conditions as May 8 run and the extraction was identical. The method appears to be reproducible, stable, and simple, as advertised.

(1). The U16 plate (.010" Al at 45° to beam) gives 3.5 volt integrated signal on C=.0033 μF capacitor for ~10^{12} ppp.

(2). We moved H10 magnet radially to maximize ratio U16/C34 and find clearance of ~.2", which implies separation between circulating and extracted beam of ~.3" at H10. This for E10 septum at maximum kick, ~1.4 mrad. Above measurement agrees with the ~5/16" separation seen on H10 flag. It still seems premature to say that H10 septum could be made thicker — separation will be smaller with larger circulating beam intensity than the 1.5×10^{12} ppp we use here.

(3) Both profile arrays work fine. Spot size seemed quite reproducible on pulse-to-pulse basis.

(4) Added 1μF to the .2μF of C15 capacitor bank. At 20 KV on bank, the peak current went from previous 5000 A to 8000 A and pulse duration from 2.4 μsec to ~6μs. With only C15 on, essentially all circulating beam removed from ring. Externally we see 15 bunches — most partially shaved. A guess would be that we extracted about 80% of AGS in 3μsec using only one kicker.