New BPM installed in BC2

Thanks to:

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And many more…
T1 - T2 = T3

D = T3 * c

dE/E = D / R16

~300mm
simulation and oscilloscope readout

8 GHz

resolution < 3um

40 GHz
Scope in tunnel

~ 150 um resolution

=> 5*10^-4 resolution
$D_{\text{phase}} = \frac{(-E_{\text{tot}} + E_{\text{gun}} + E_{\text{acc1}} \cos(\pi \times \text{phase} / 180))}{E_{\text{tot}}}$

Scope in tunnel
Beam position ($\alpha = 18.0$ deg)

Scope in tunnel

~ 150 um resolution
=> 5*10^{-4} resolution

chicane BPM scope traces for 12-16 MV/m gradient

BPM amplitude

BPM slope

Volts

0
-10
-20
-30
-40
-0.4 -0.2 0 0.2 0.4 0.6 0.8

time (ns)

Scope in tunnel

BPM amplitude

BPM slope
Beam position ($\alpha = 18.0 \text{ deg}$)

Scope in tunnel

BPM amplitude

BPM slope

slope at zero crossing (V/ps)
Beam position ($\alpha = 18.0$ deg)

- Out-of-tunnel

Cable length correction: Red->Black

BPM amplitude

- Gradient (MV/m)

BPM slope

- Slope at zero crossing (V/ps)
Beam position ($\alpha = 18.0$ deg)

Cable length correction: Black->Blue
- Looked at synch light monitor
- Scanned in y
- Stopped when beam appeared to be approaching beam pipe