

Simulations of Tuneshifts for *Electron* Beams

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Cesr-TA Experimental data (April07)

Т

T

• Train

Witness

500

Electron Beam (0.75 mA/bunch, 1.9 GeV)

т

0.10

0.05

-0.05

-0.10

-0.15

-0.20

-0.25

-0.30

-0.35

0

*

100

II

200

300

Time (ns)

400

ΔQy (kHz)

0.00 🕂



Comments



- Simulations done for 11 bunch trains. No witness bunches. All bunches offset horizontally or vertically by same amount (as indicated in slides)
- For **drifts**, in the horizontal plane the averaged electric field along the bunch train is positive and largely independent of the bunches offset. The estimated tuneshift is positive but this may not be very meaningful and the estimate may change if one assumes a different closed orbit (presently closed orbit is assumed to occupy the center of the chamber).
- For dipoles in the vertical plane, the ratio <Ev>/dy differ by about 30% as dy is varied from 0.5 to 5mm; in drifts the ratio seems about independent of dy

DRIFT:: Input parameters of POSINST runs,etc.



- E=1.885 GeV
- betax=19.64 m; betay=18.82m; L_{drift} =174.86m
- sigmax =2.2mm; sigmay=0.16mm; sigmaz =12.6mm
- N=1.2E10 part/bunch
- photpbppm = 0.2343 [=Photons/m per part]; queffp=12% [QE]
- B=0
- blensig =4
- refl=0.15



DRIFT:: Horizontal motion (dx= +/- 0.5mm)





DRIFT:: Horizontal motion (dx= +/- 5mm)



DRIFT:: Vertical motion (dy=0.5mm and 5mm)

FFFFFF



Regular DIPOLE:: input parameters in POSINST runs, etc



- E=1.9 Gev
- betax=15.9 m; betay=18.94m; L_{regular-dip} =377.99m
- sigmax =1.8 mm; sigmay=0.18mm; sigmaz =9mm
- N=1.2E10 part/bunch
- photpbppm = 0.467 [=Photons/m per part]; queffp=10% [QE]
- B=0.0715 T
- blensig =6
- refl=0.15

Notice that some of the beam parameters e.g. the sizes are 8 slightly different from the "drift" case

DIPOLE:: Vertical motion (dy=0.5mm and 5mm)





DIPOLE:: Horizontal motion (dx= +/- 0.5mm)





