

Comparison of Rediffused vs. no Rediffused Electrons

Data of Jan. 28, 2009, 45 bunches of 0.75
mA positrons at beam energy 2.085 GeV

Blue: Nominal rate of rediffused electrons

Red: No rediffused electrons

Beam-Averaged Density

Drift

rediffused

No rediffused

Dipole

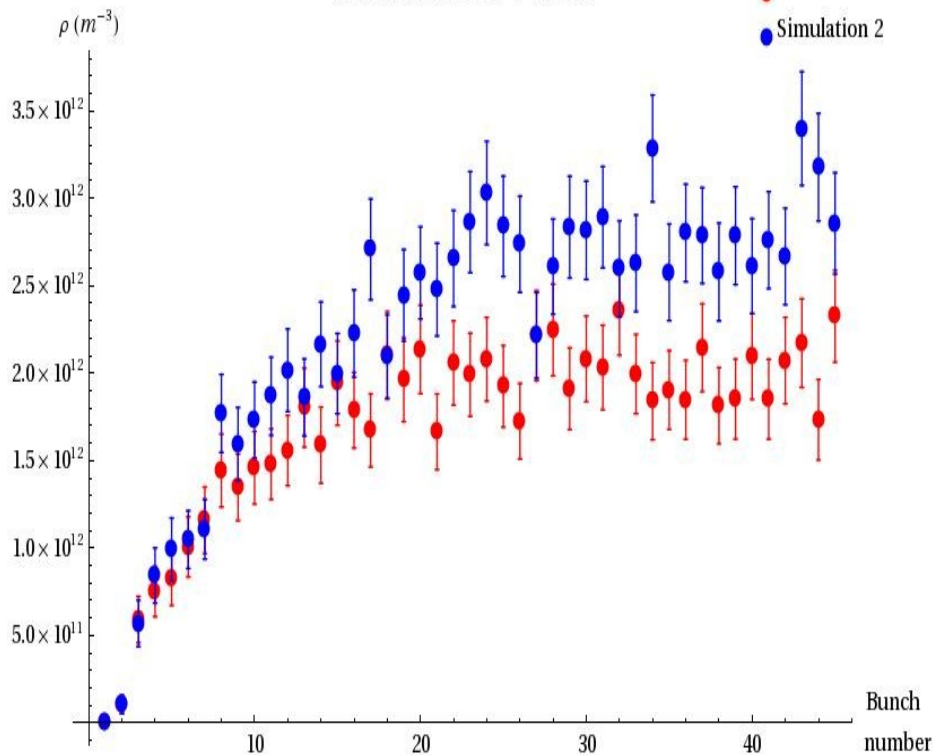
Beam averaged cloud density vs. bunch number
drift

Data code: 2.1-45x0.75-pos-20090128

Simulation 1: 1-1-10-1-50-100

Simulation 2: 1-1-5-1-50-100

● Simulation 1
● Simulation 2



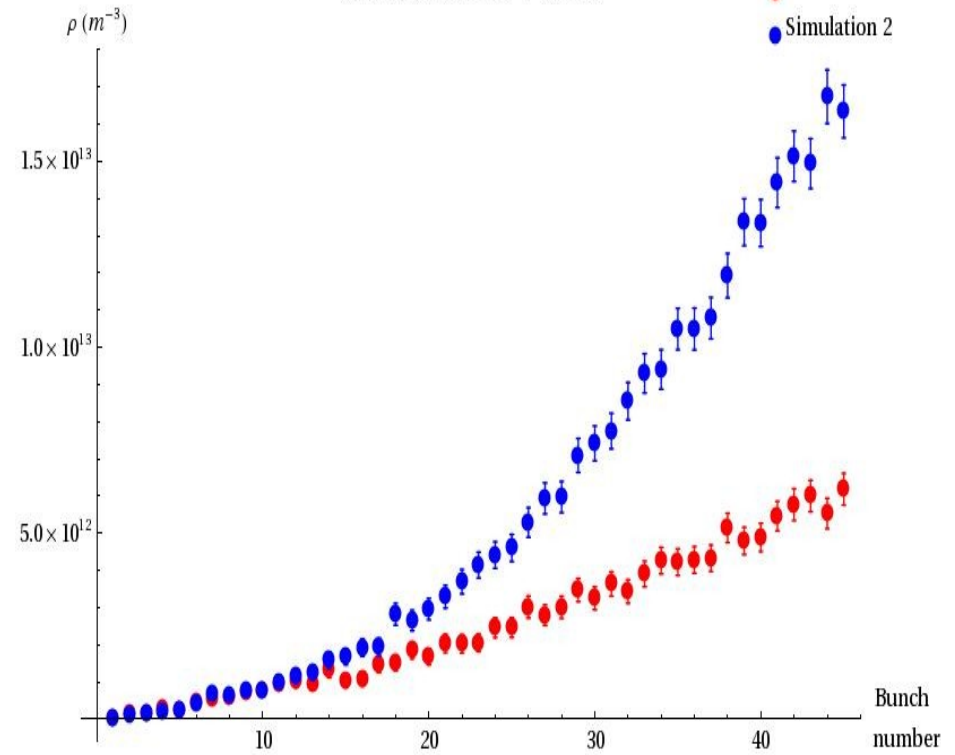
Beam averaged cloud density vs. bunch number
dipole

Data code: 2.1-45x0.75-pos-20090128

Simulation 1: 1-1-10-1-50-100

Simulation 2: 1-1-5-1-50-100

● Simulation 1
● Simulation 2



Coherent Tune Shifts vs. Bunch Number

data

Horizontal

No rediffused

Vertical

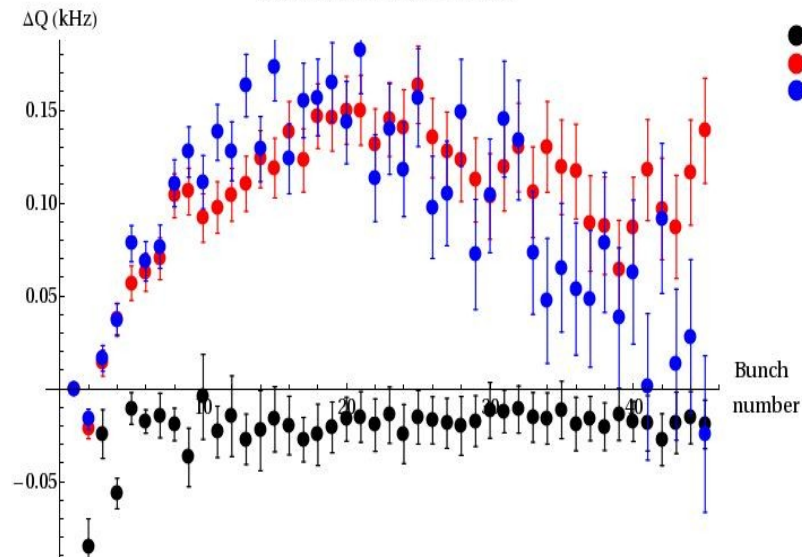
rediffused

Horizontal Coherent tune shift vs. bunch number
field differences

Data: 'Tune shift data 2.100 GeV 45 bunch train 0.75 mA/bunch positron 20090128 00:03:30 (07578 to 07582)'

Simulation 1: 1-1-10-1-50-100

Simulation 2: 1-1-5-1-50-100

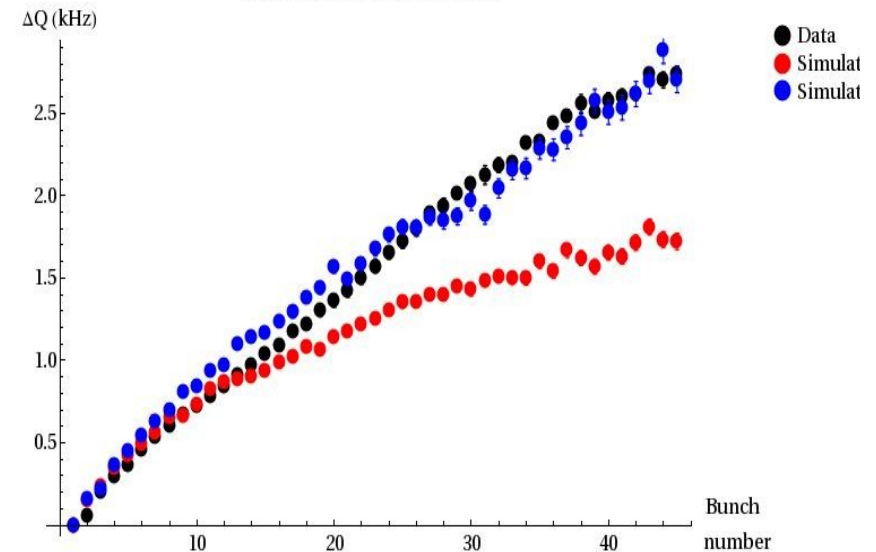


Vertical Coherent tune shift vs. bunch number
field differences

Data: 'Tune shift data 2.100 GeV 45 bunch train 0.75 mA/bunch positron 20090128 00:03:30 (07578 to 07582)'

Simulation 1: 1-1-10-1-50-100

Simulation 2: 1-1-5-1-50-100



Tune Differences from Data

No rediffused
rediffused

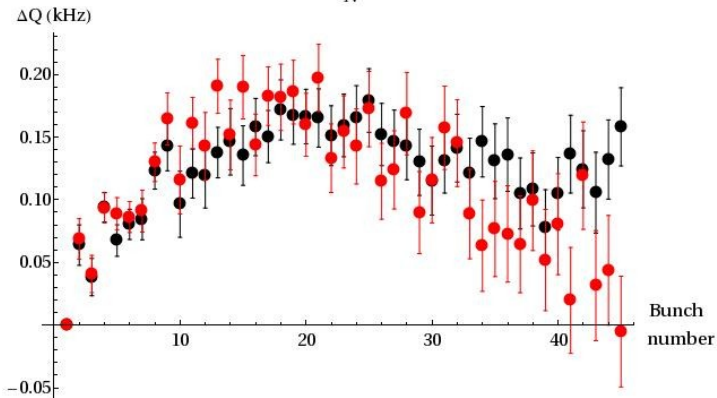
Comparing simulated tune shifts from field differences with data

Horizontal Coherent tune shift vs. bunch number

Data code: 2.1-45x0.75-pos-20090128

Simulation 1: 1-1-10-1-50-100 $\frac{\chi^2}{N} = 31.6052$ (train), = (witness)

Simulation 2: 1-1-5-1-50-100 $\frac{\chi^2}{N} = 26.6899$ (train), = (witness)



Comparing simulated tune shifts from field differences with data

Vertical Coherent tune shift vs. bunch number

Data code: 2.1-45x0.75-pos-20090128

Simulation 1: 1-1-10-1-50-100 $\frac{\chi^2}{N} = 91.9277$ (train), = (witness)

Simulation 2: 1-1-5-1-50-100 $\frac{\chi^2}{N} = 10.1462$ (train), = (witness)

