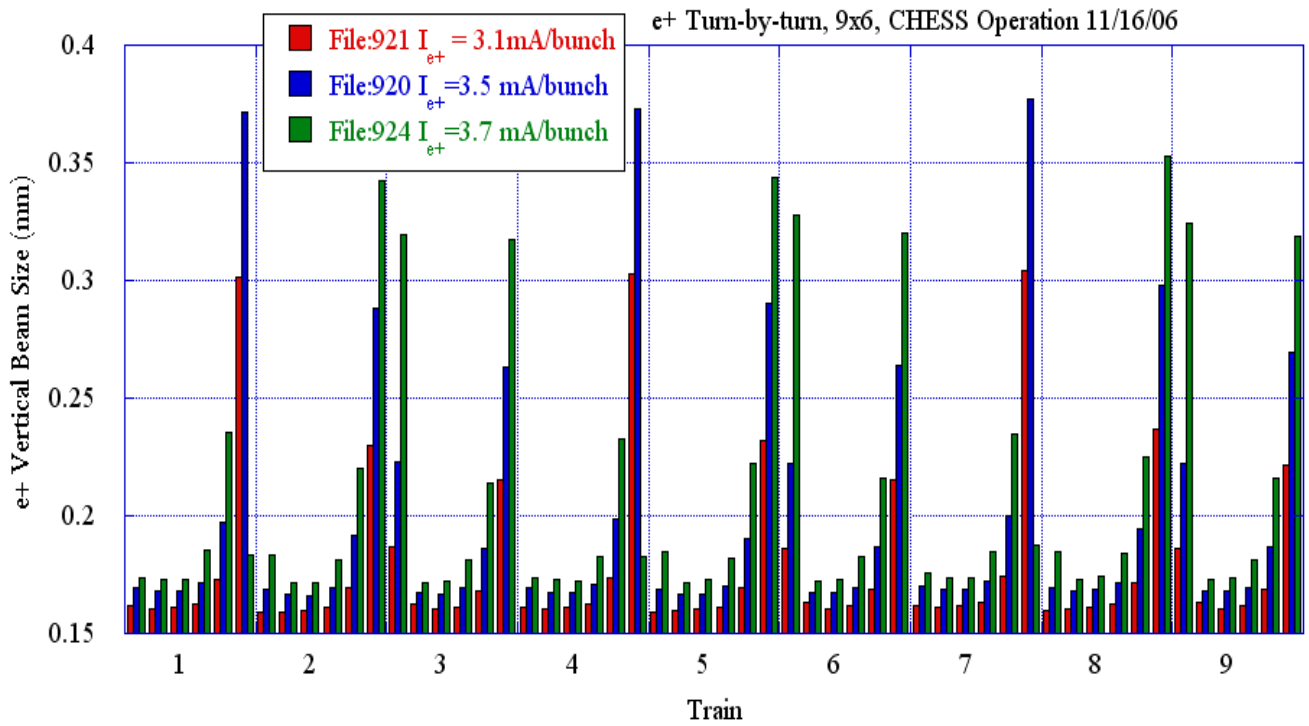


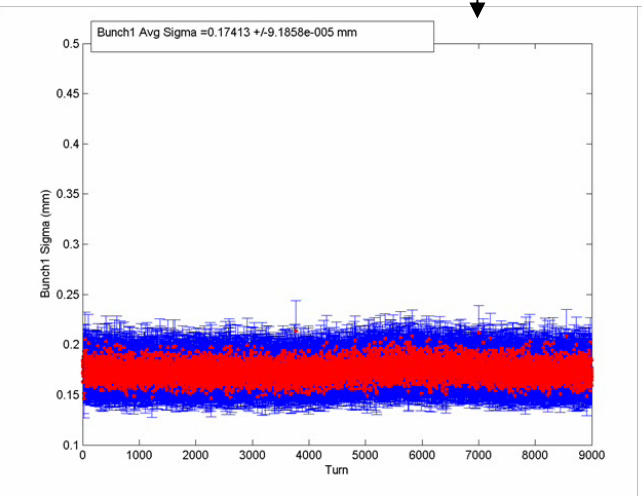
e+ σ_v along the train

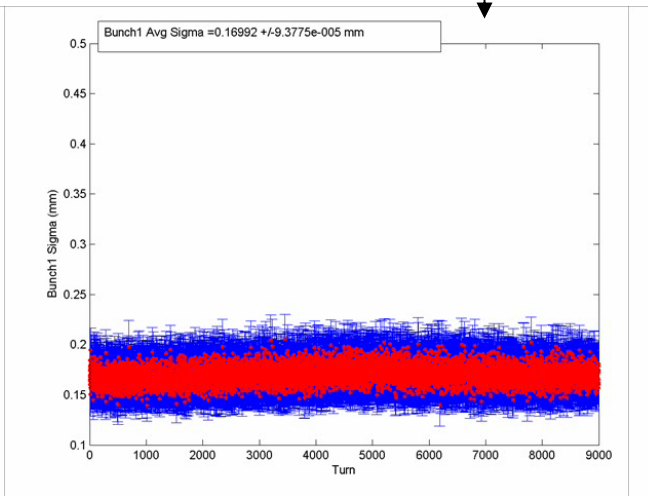
- σ_v 9,000 turns for 54 bunches.
- Significant vertical beam size growth along each train-especially at high I

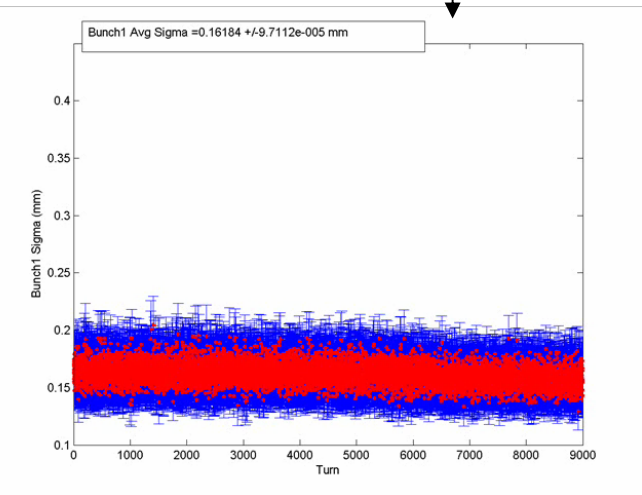
High I File:924
I_{e+}=3.7mA/bunch (movie)

Medium I File:920
I_{e+}=3.5mA/bunch (movie)

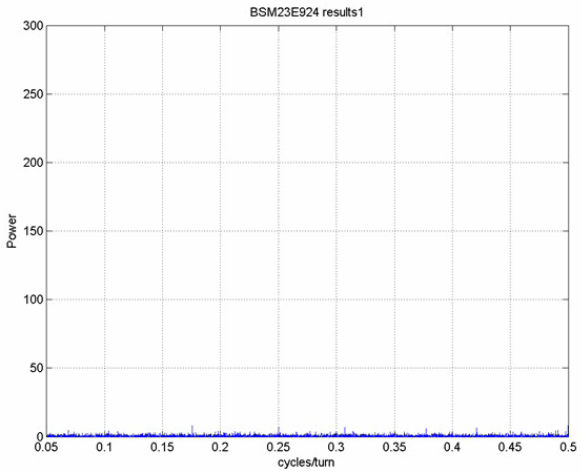
Low I File:921
I_{e+}=3.1mA/bunch (movie)

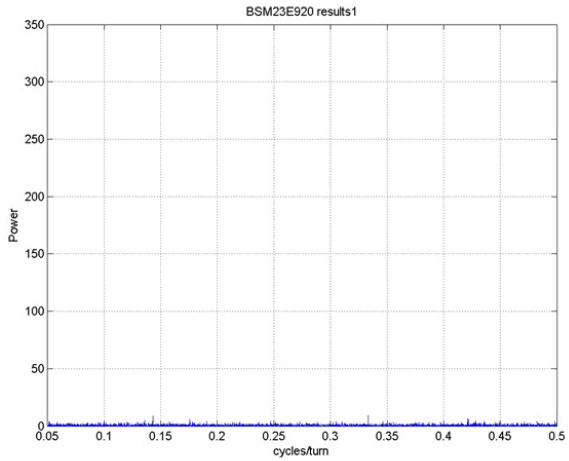


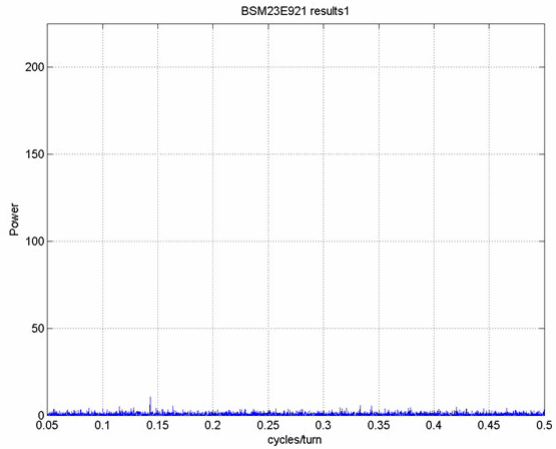




e+ high frequency σ_v oscillation frequency-FFT of σ_v for 9,000 turns





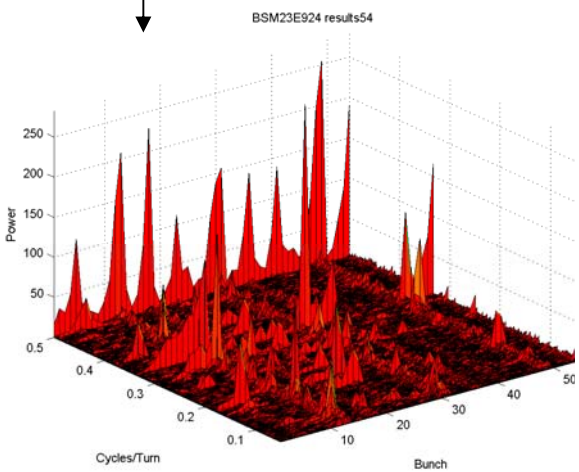


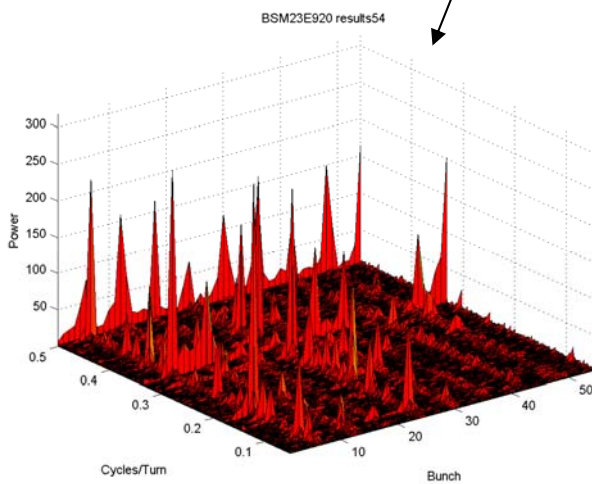
- FFT of σ_v for all 54 bunches
- No clear oscillation frequency in the vertical beam size-incoherent oscillation.

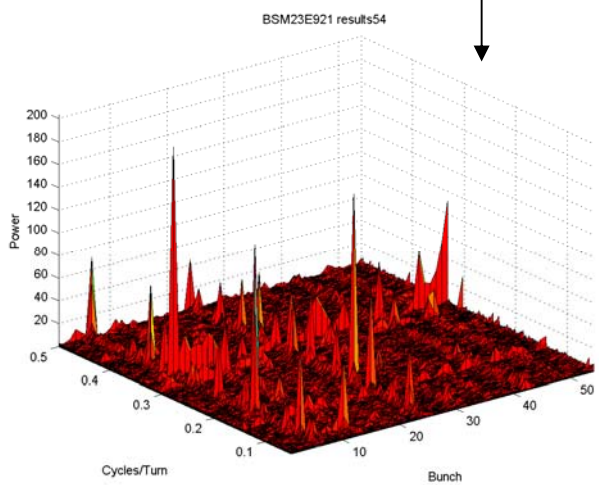
High I File:924
I_{e+}=3.7mA/bunch (movie)

Medium I File:920
I_{e+}=3.5mA/bunch (movie)

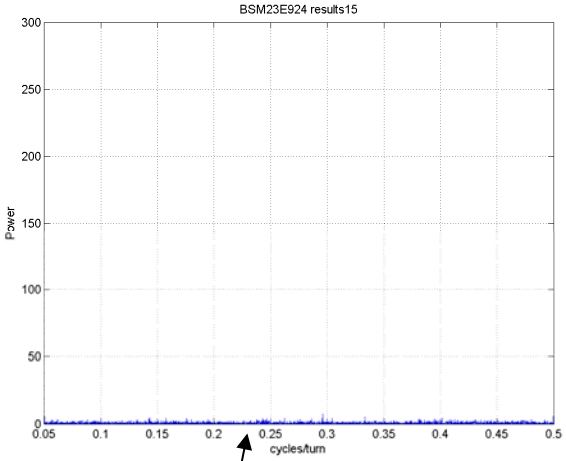
Low I File:921
I_{e+}=3.1mA/bunch (movie)

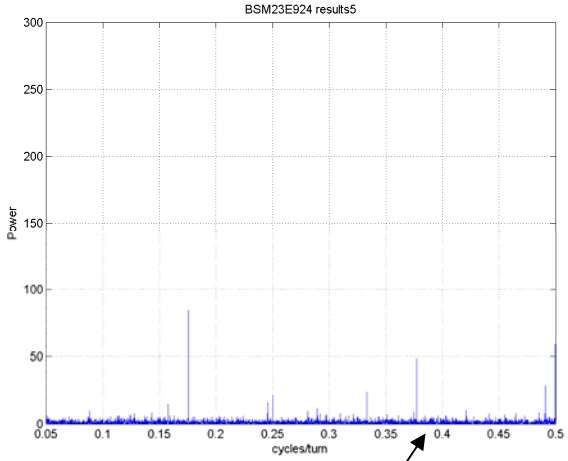


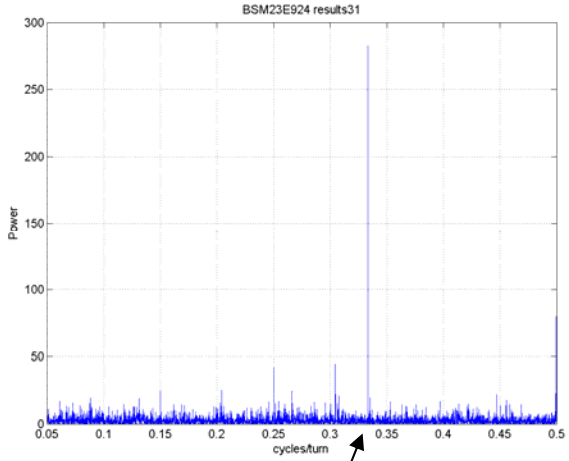




e+ high frequency σ_v oscillation frequency - FFT of σ_v - High I





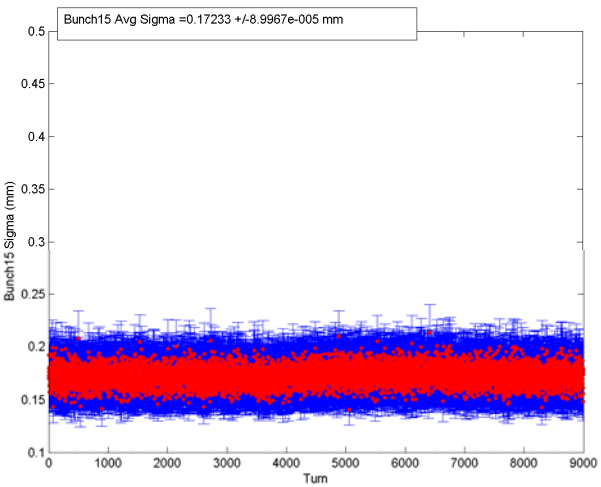


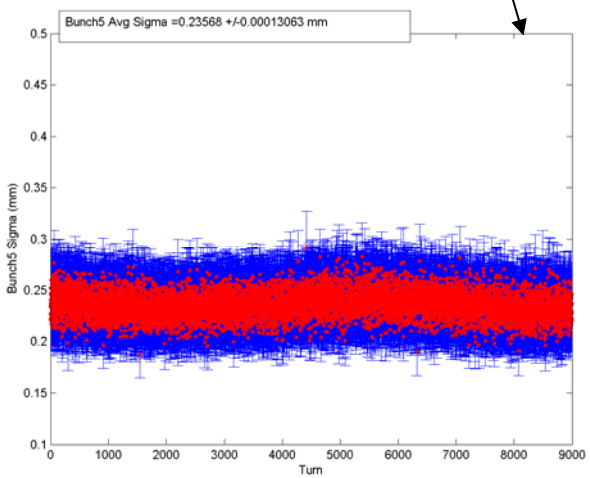
Bunch 15
Peak Power=12@195.2kHz
σ_v=0.172mm
Std=0.009mm

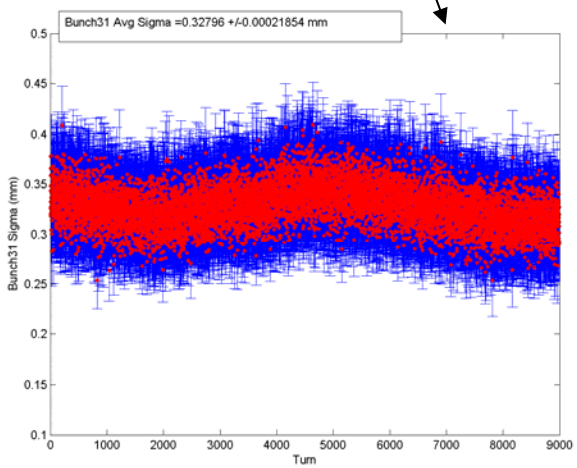
Bunch 5
Peak Power=116@195.2kHz
σ_v=0.236mm
Std=0.012mm

Bunch 31
Peak Power=283@260.3kHz
σ_v=0.328mm
Std=0.021mm

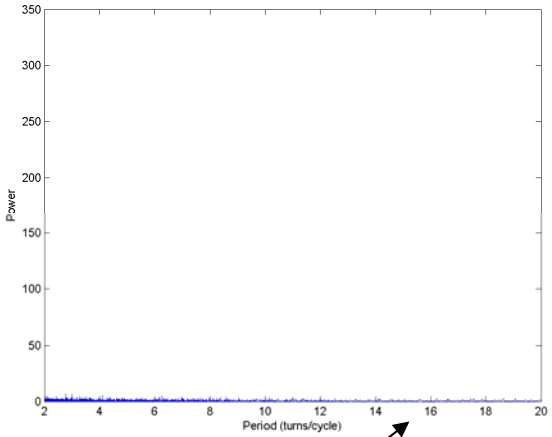
File 924 I_{e+}=3.7mA/bunch
- Noisy FFT spectrum correlates with an increased σ_v.

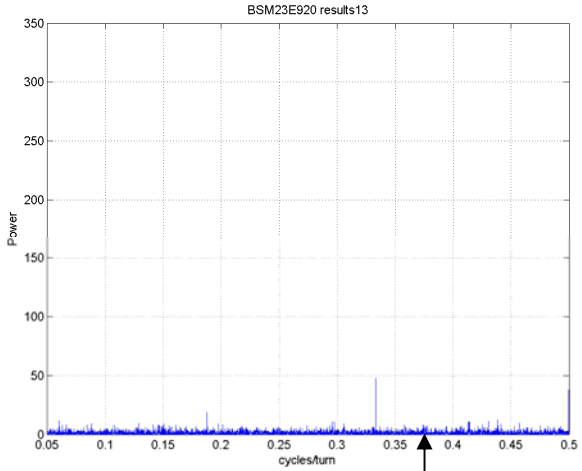


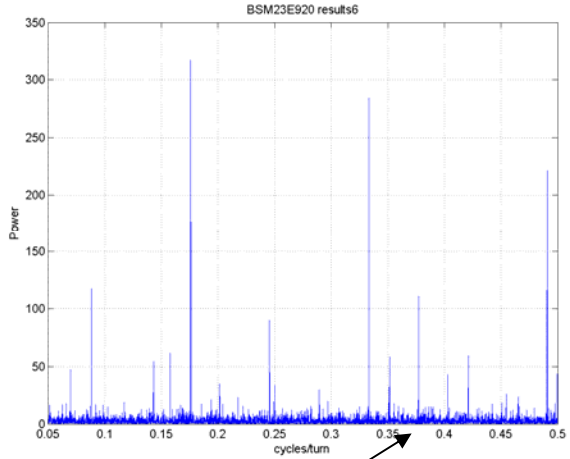




e+ high frequency σ_v oscillation frequency - FFT of σ_v – Medium I







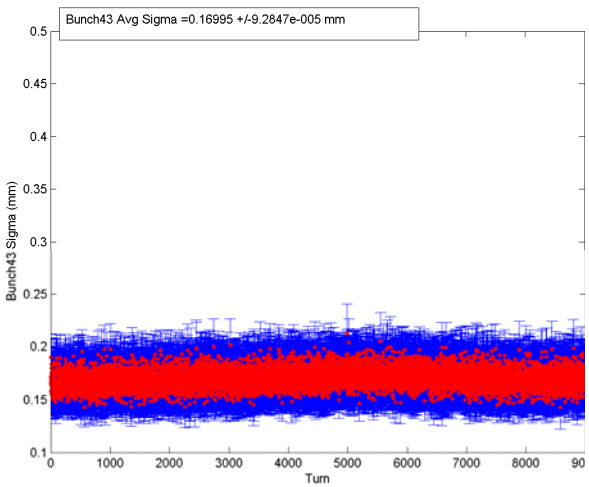
Bunch 43
Peak Power=8@195.2kHz
σ_v=0.170mm
Std=0.009mm

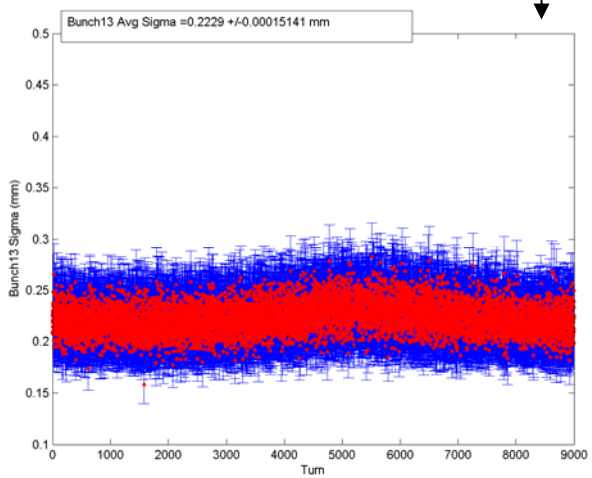
Bunch 13
Peak Power=73@195.2kHz
σ_v=0.223mm
Std=0.014mm

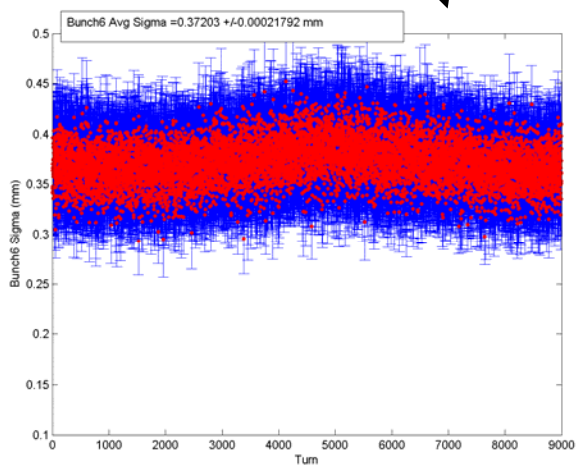
Bunch 6
Peak Power=78@312.8kHz
σ_v=0.372mm
Std=0.021mm

File 920 I_{e+}=3.5mA/bunch

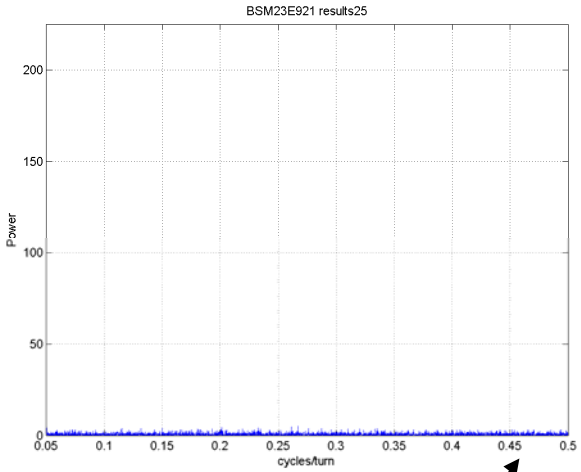
- Noisy FFT spectrum correlates with an increased σ_v.

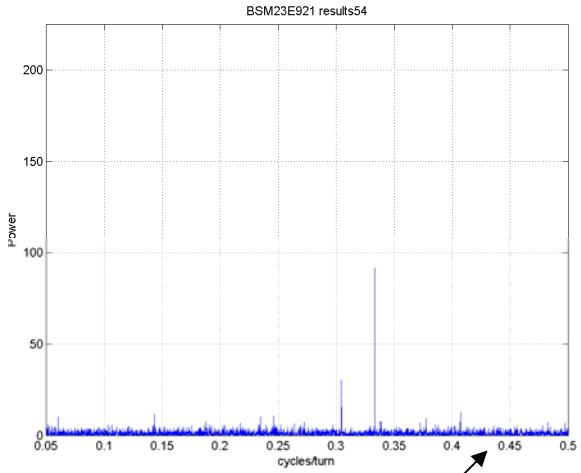


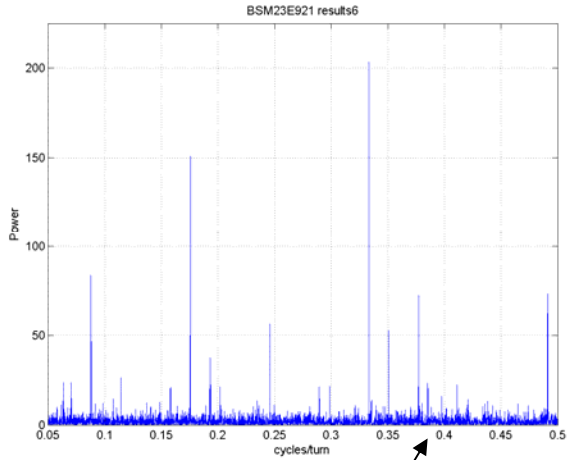




e+ high frequency σ_v oscillation frequency- FFT of σ_v - Low I





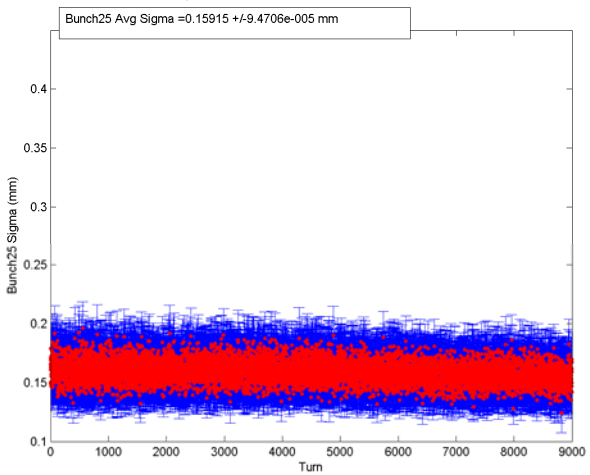


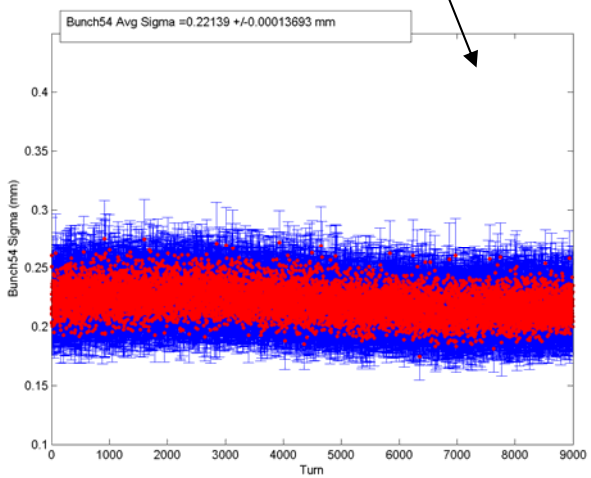
Bunch 25
Peak Power=55@286.2kHz
σ_v=0.159mm
Std=0.009mm

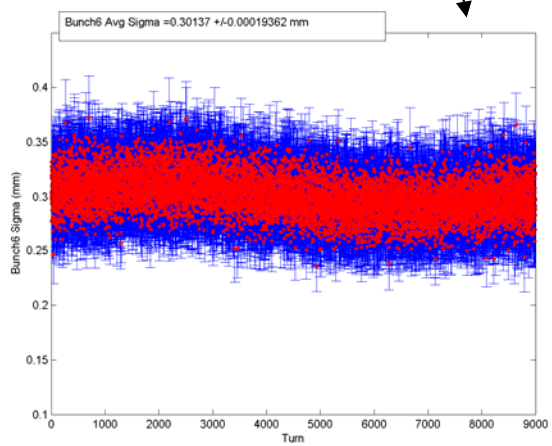
Bunch 54
Peak Power=91@260.3kHz
σ_v=0.221mm
Std=0.013mm

Bunch 6
Peak Power=204@260.3kHz
σ_v=0.301mm
Std=0.018mm

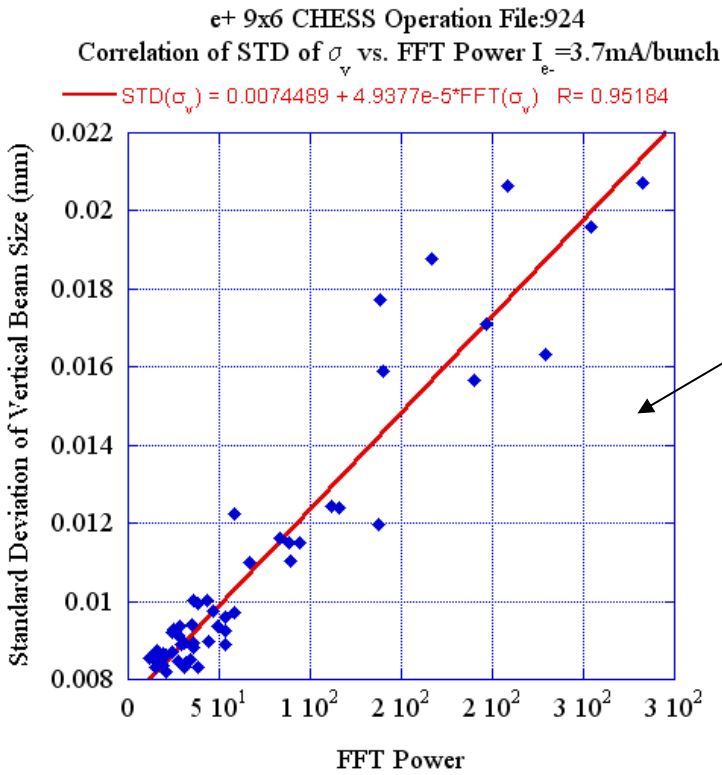
File 921 I_{e+}=3.1mA/bunch
- At low I the vertical beam size growth is reduced (still correlates with FFT noise).
- σ_v is largest for last bunch in each train.



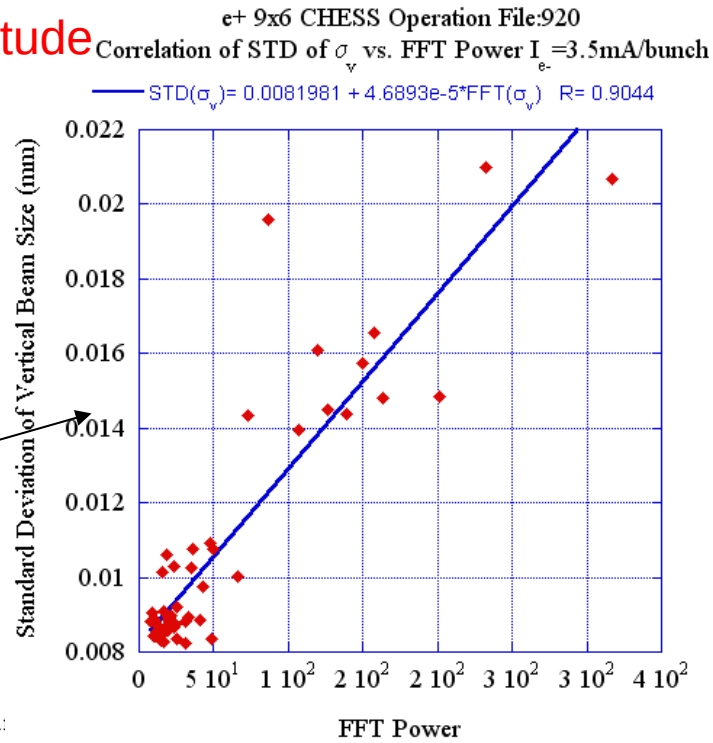




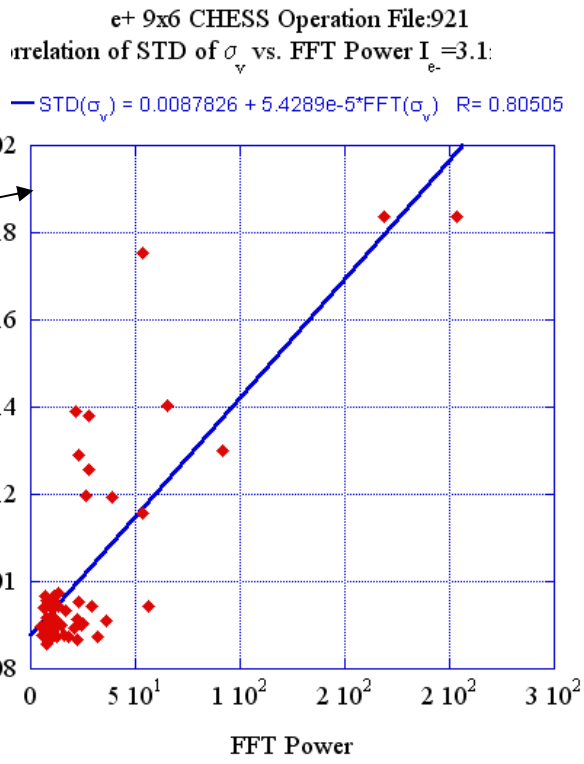
e+ σ_v oscillation amplitude



High I File:924
I_{e+}=3.7mA/bunch



Medium I File:920
I_{e+}=3.5mA/bunch



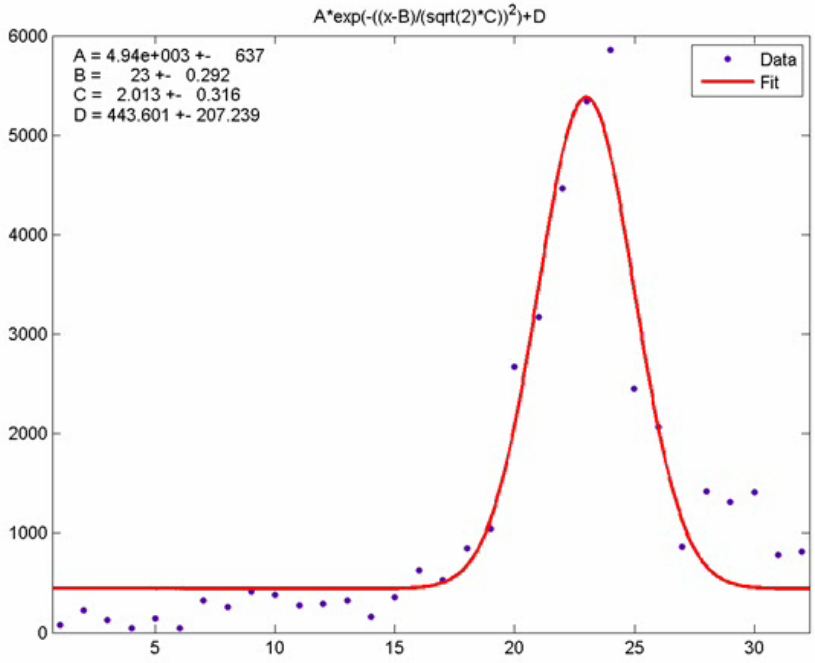
Low I File:921
I_{e+}=3.1mA/bunch

e+ σ_v oscillation amplitude (standard deviation of σ_v) correlates with FFT power.

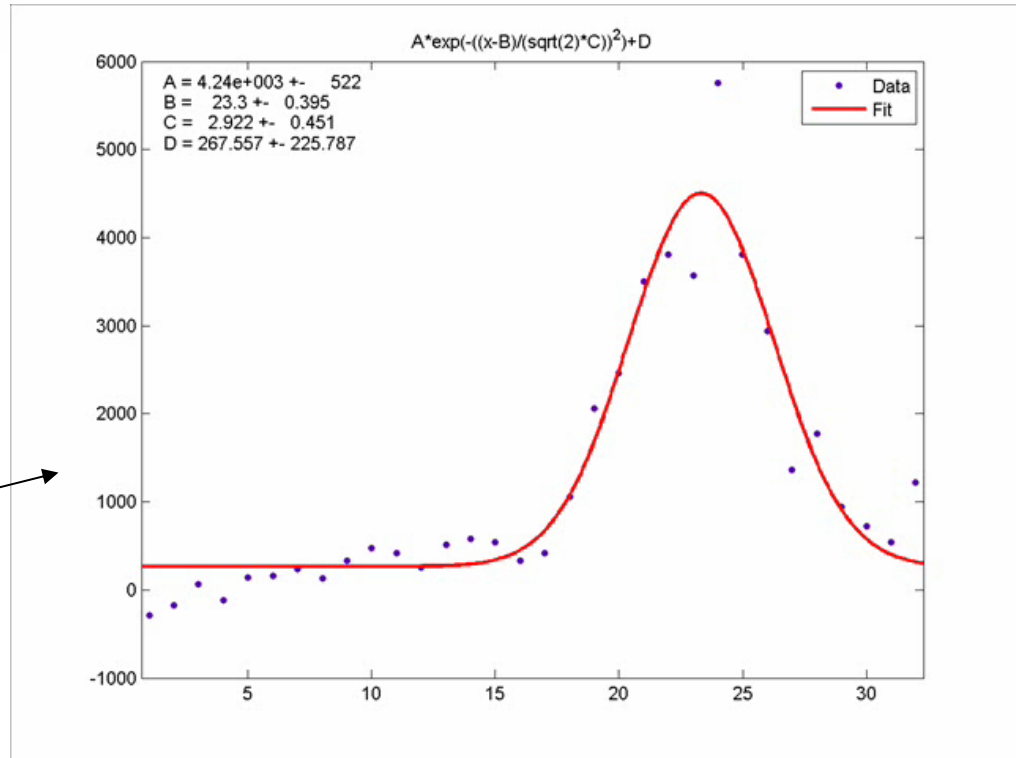
III. e- turn-by-turn measurements

e- single bunch vertical bunch distributions from the PMT array.

- 9,000 turns of all 54 e+/e- bunches.
- High I File:923 I_{e-}=4.3mA/bunch
- Note difference in σ_v



e- Bunch 1 Train 1
1st ten turns (movie)



e- Bunch 5 Train 6
1st ten turns (movie)