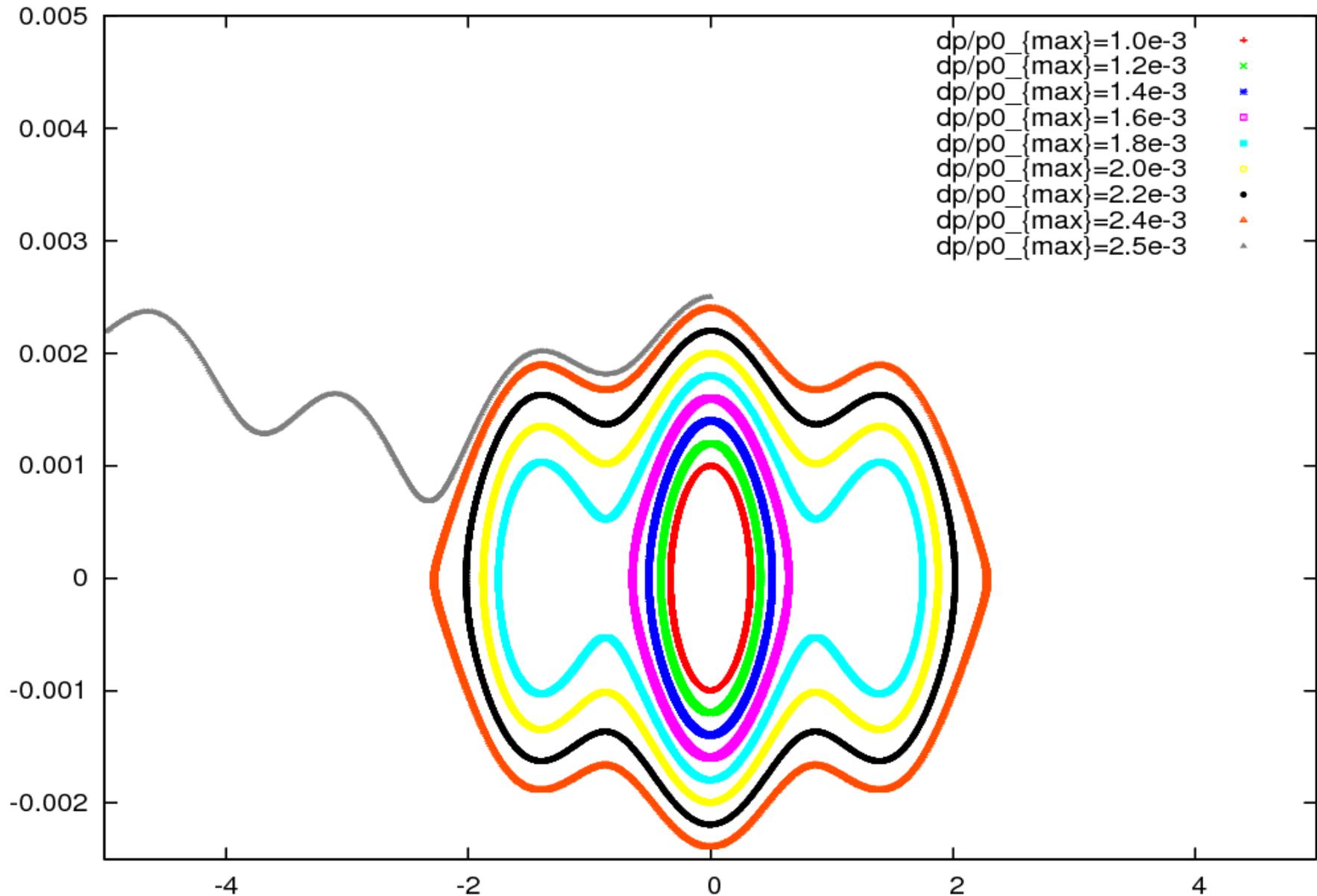


Measuring Maximum Momentum Aperture

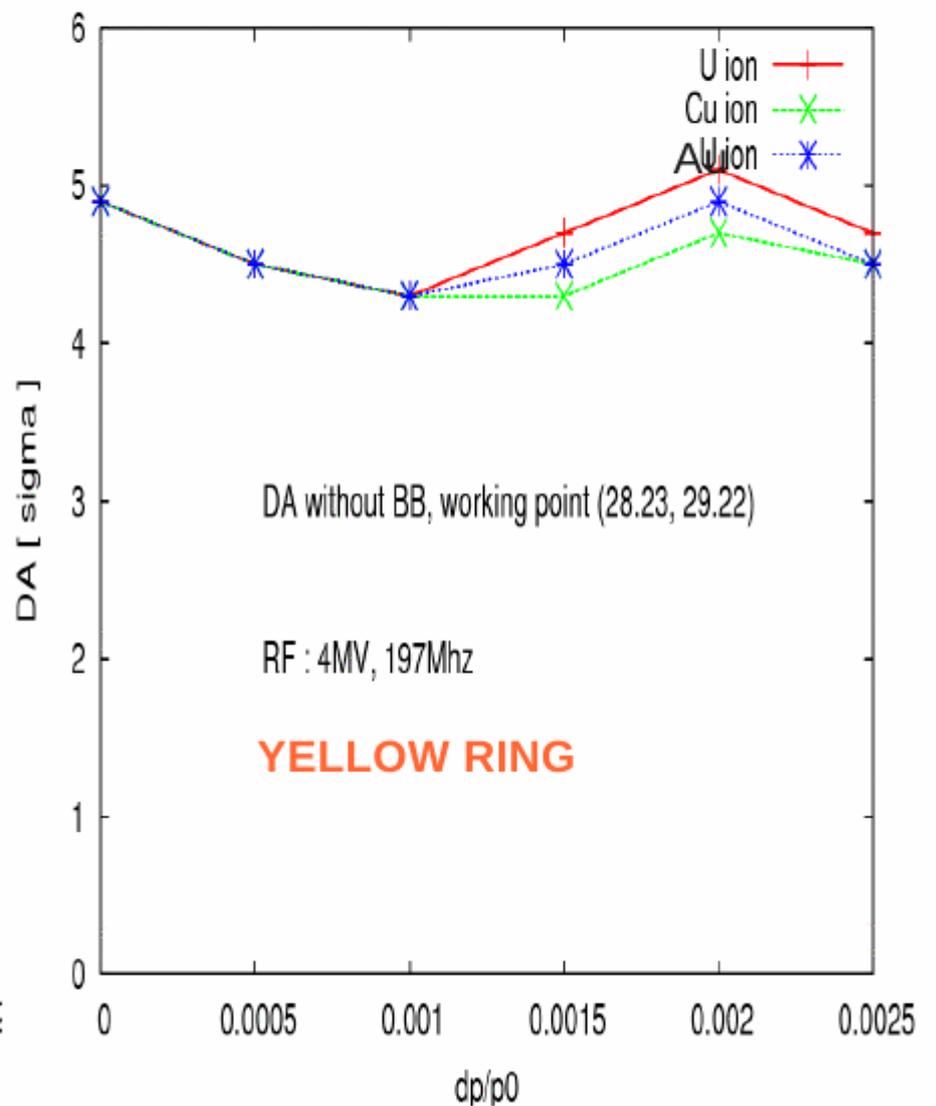
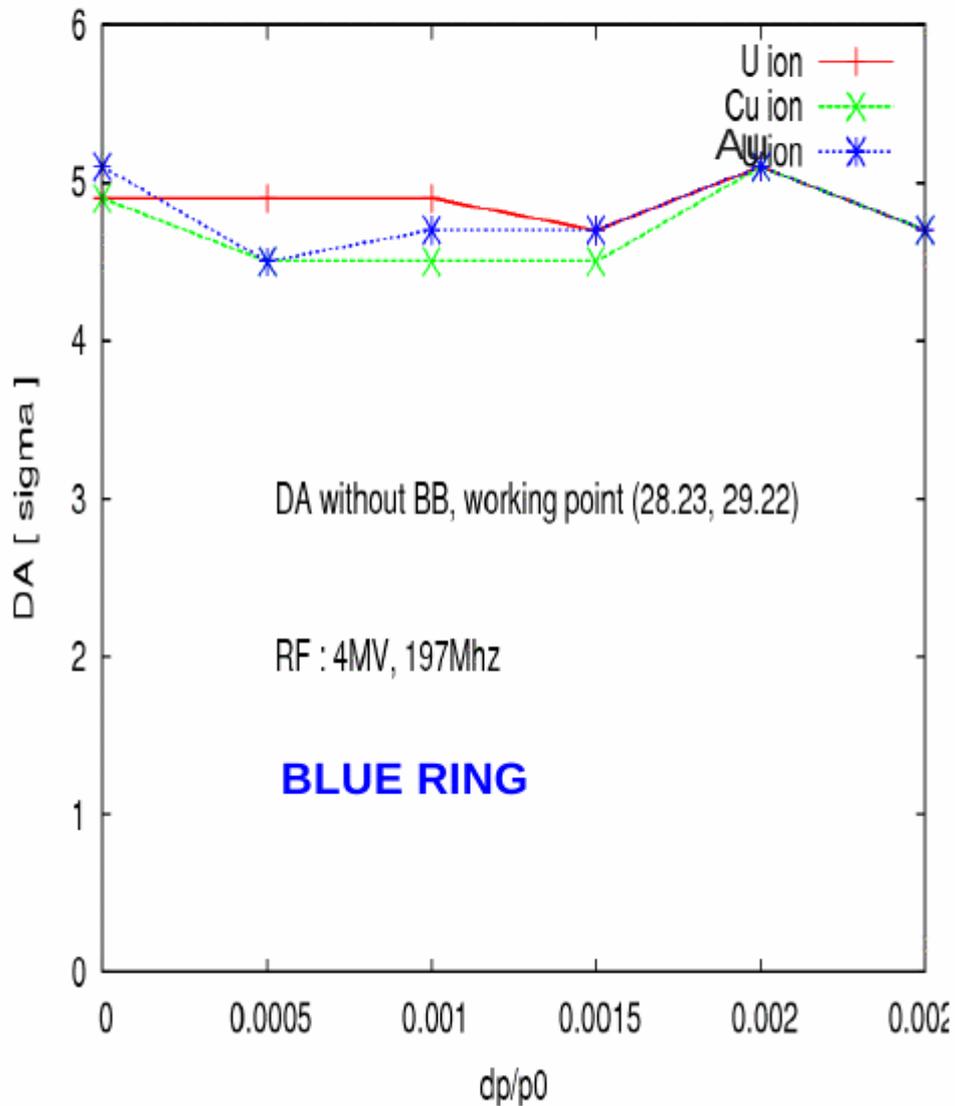
Y. Luo, M. Bai, M. Blaskiewicz, W. Fischer, A. Marusic

(RHIC APEX Session: May 2, 2012)

Backgrounds: 56 MHz RF Cavities



DA tracking(2012 non-IBS lattices)



Measurement with Radial shift

RhicChromaticity (on acuser01.pbn.bnl.gov)

File Setup Help

Functions

Acquisition: Single Shot **Artus/BBQ** **Measure** **Stop** **Radial Shift** **Extend** Ring: Both

Progress Ready

Blue Yellow

Stone

Chromaticity

Artus-H

Artus-V

BBQ-H

BBQ-V

BBQ-H (Skew)

BBQ-V (Skew)

Functions

Raw Data

Eigen Tunes vs Momentu

Radial Shift Selector (on acuser01.pbn.bnl.gov)

Radial Shift [mm]

Time (with no extend) [sec]

Radial

Select Number of Steps

Radial Shifts

Step	Shift [mm]	Blue d(P)/P	Yellow d(P)/P
1	1	0.000900451	0.00090318
2	2	0.0018009	0.00180636
3	1	0.000900451	0.00090318
4	0	0	0
5	-1	-0.000900451	-0.00090318
6	-2	-0.0018009	-0.00180636
7	-1	-0.000900451	-0.00090318

OK **ShiftMax** Reset Open... Save... Cancel

GammaT

Order

Chrom[2]

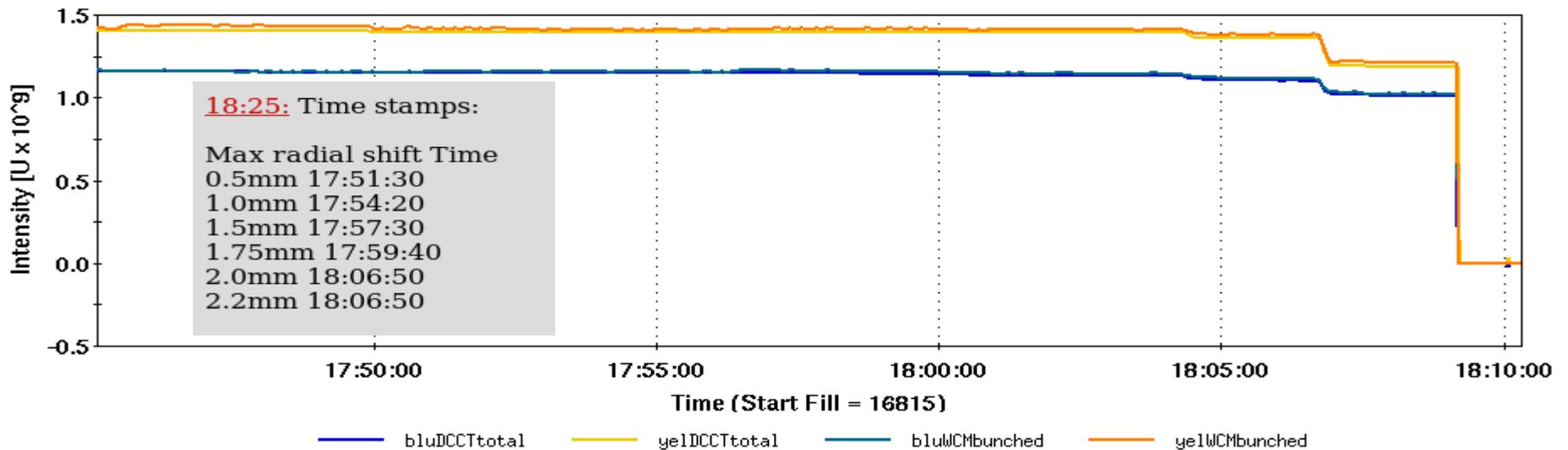
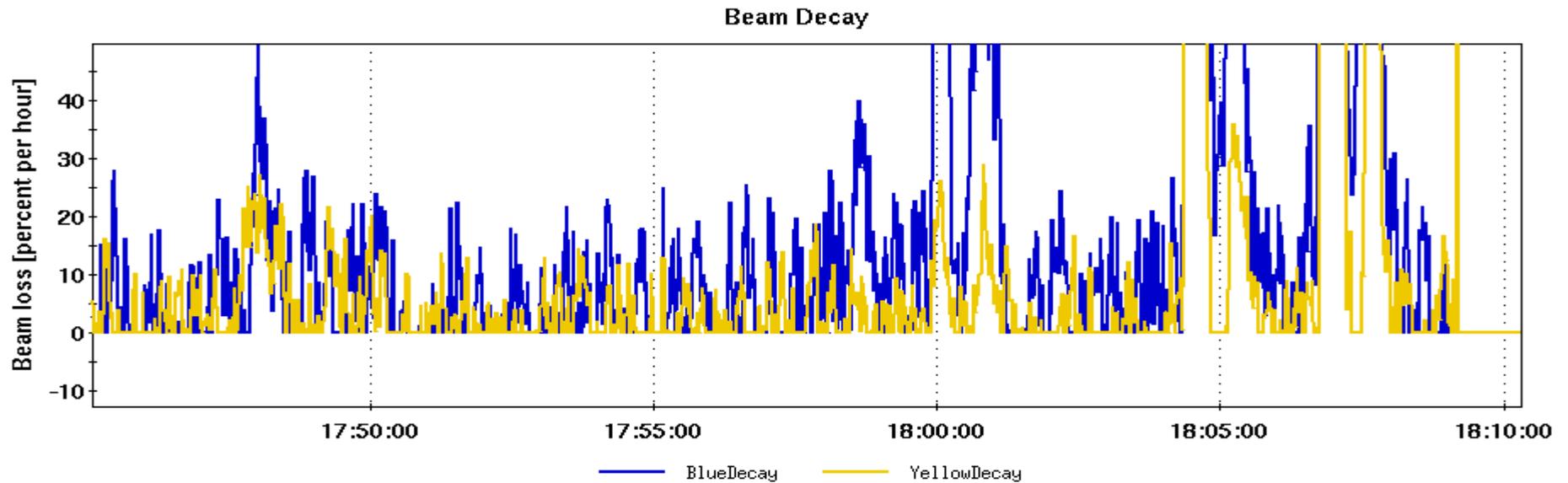
+-Sigma

Tune Below

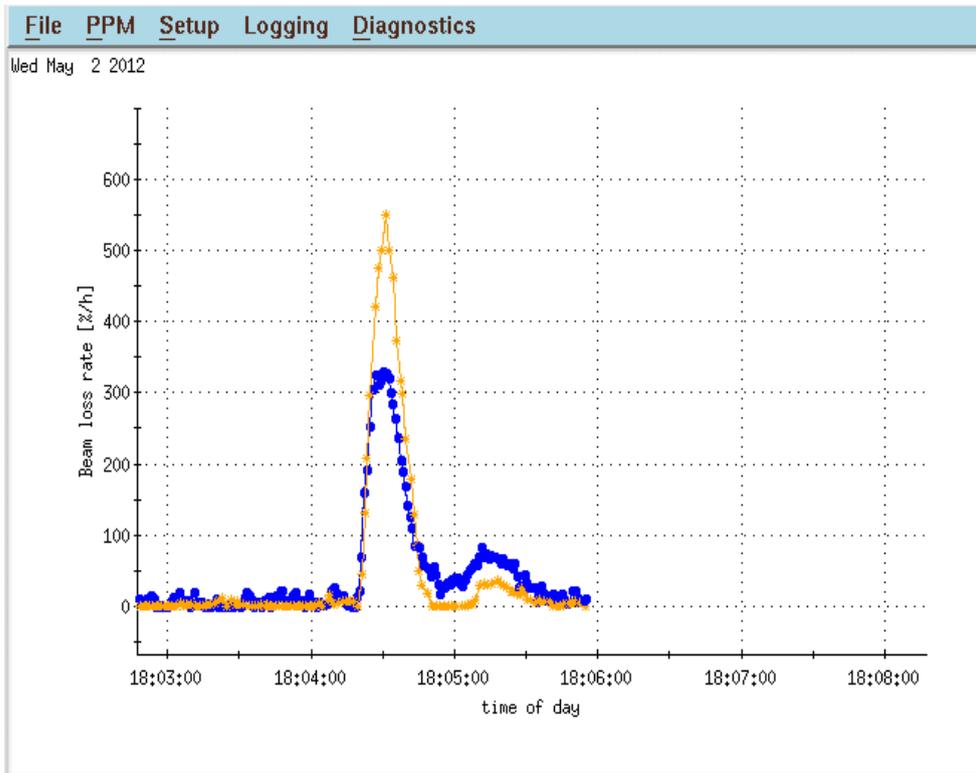
Status

Ring	Stone	Brho [T-m]	RF State	RF Freq [Hz]	Xmean [mm]	Gap Cleaner	BBQ Kickers
Blue	U12-v1s::store	831.76299	Store Hold	28149374	0.063	OFF	OFF
Yellow	U12-v1s::store	831.76299	Store Hold	28149374	0.000	OFF	OFF

Beam loss Observation



Conclusion



- With 2.0mm radial shift, we observed 500%/hour beam loss. 2.0mm corresponds to 0.0018 dp/p_0 change.
- There is no clear debunching beam.
- Considering the bunch dp/p_0 spread is about 0.0004, the maximum dp/p_0 of the beam is above 0.002.

(BTW, 1.75mm radial shift gives Blue beam 100%/hour decay, Yellow less than 20%/hours.)