APEX
RUN-14

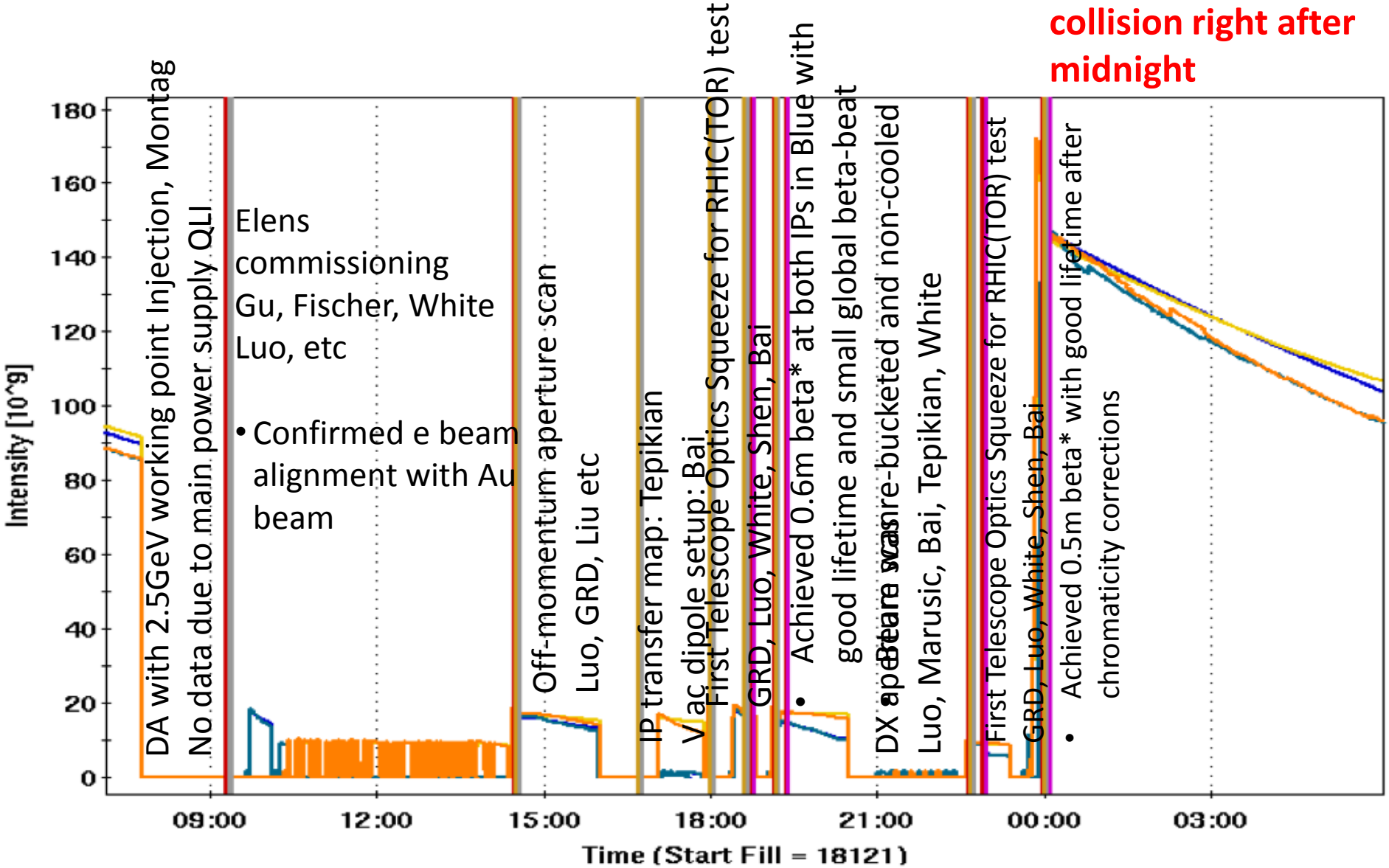
APEX Schedule April 1, 2014

Injection	Injection	Store	Injection	Store	Injection	Injection	
DA measurement with 2.5GeV working point **Montague**	**Elens commissioning** **Gu, Fischer, Luo, Simon**	**Momentum Aperture measurement** **Luo**	**Coupling matrix measurement** **Tepikian**	**ATS preparation** **GRD, Simon, Bai, Al**	**DX Aperture Scan** **Luo, Tepikian, Al, Bai**	**AC dipole setup** **Bai**	**Back2Physics**
8:00am	**10:00am**	**2:00pm**	**4:30pm**	**5:30pm**	**8:00pm**	**10:00pm**	**11:00pm**

12:00pm

APEX Overview

Back to Physics collision right after midnight



Elens: Gu, Fischer, White, Luo, etc

Measured Orbit and Tune Shift

→ Both the tune and orbit distortion clearly observed

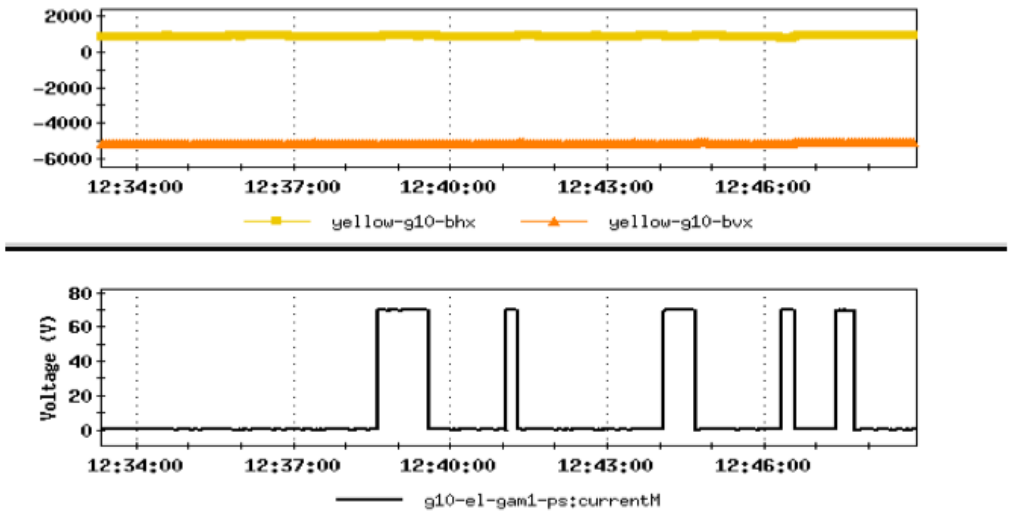
→ Looking at difference with elens ON/OFF as a function of separation

Elens: Gu, Fischer, White, Luo, etc

Summary

- Performed the first test of transverse alignment at injection energy:
  - Clear lifetime issue: low energy, beam mismatch. Should be solved at top energy
  - We were able to align the beams in both planes using orbit data: fits expectations
  - Also tested movement of electron beam
- Lots of data acquire: full analysis will take some time

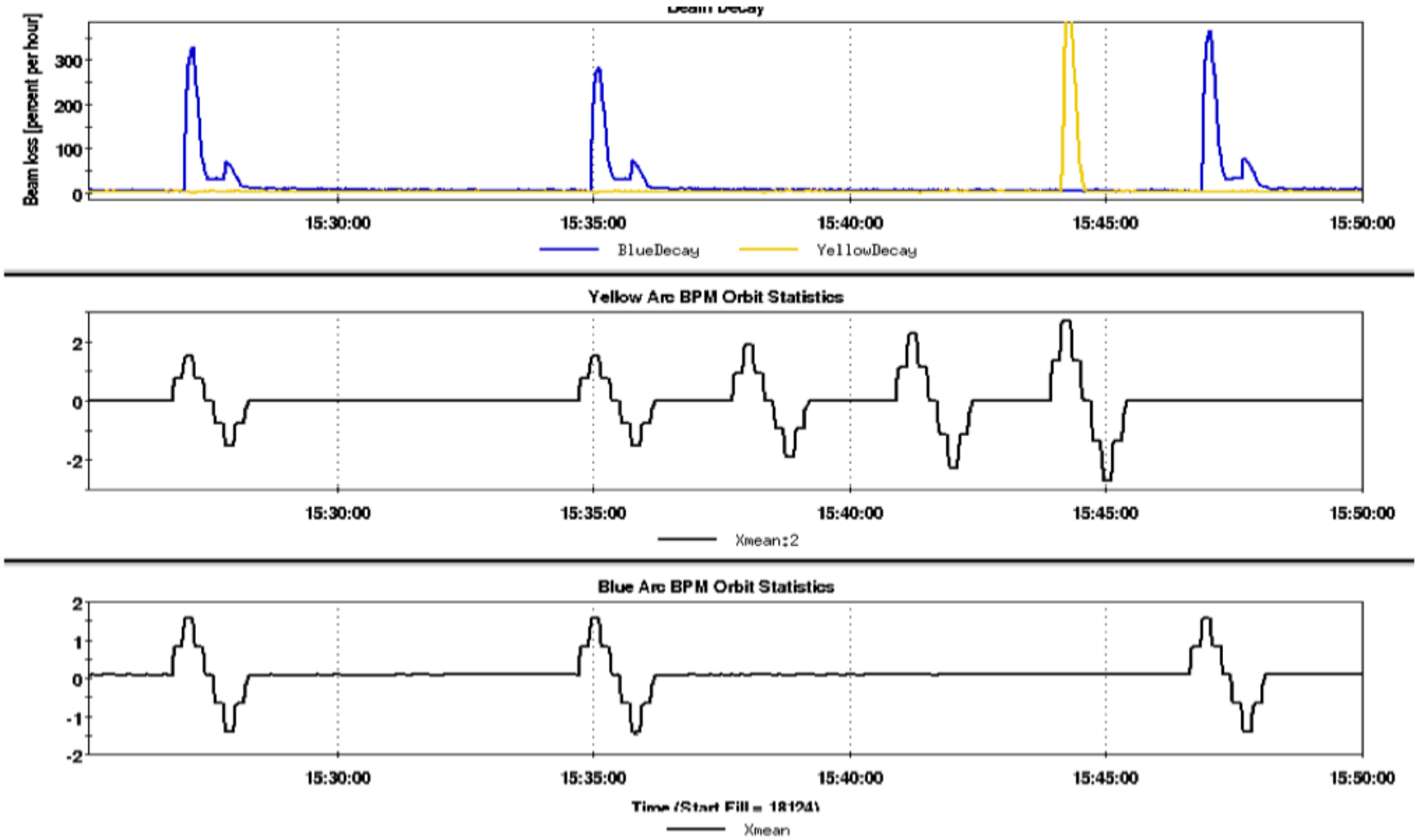
Beams aligned in X and Y: almost no difference in rms orbit whether the elens is ON or OFF



APEX RUN-14

Momentum Aperture Measurement

*Al, cait, chuyu, grd, Mei, Michiko, **Yun***

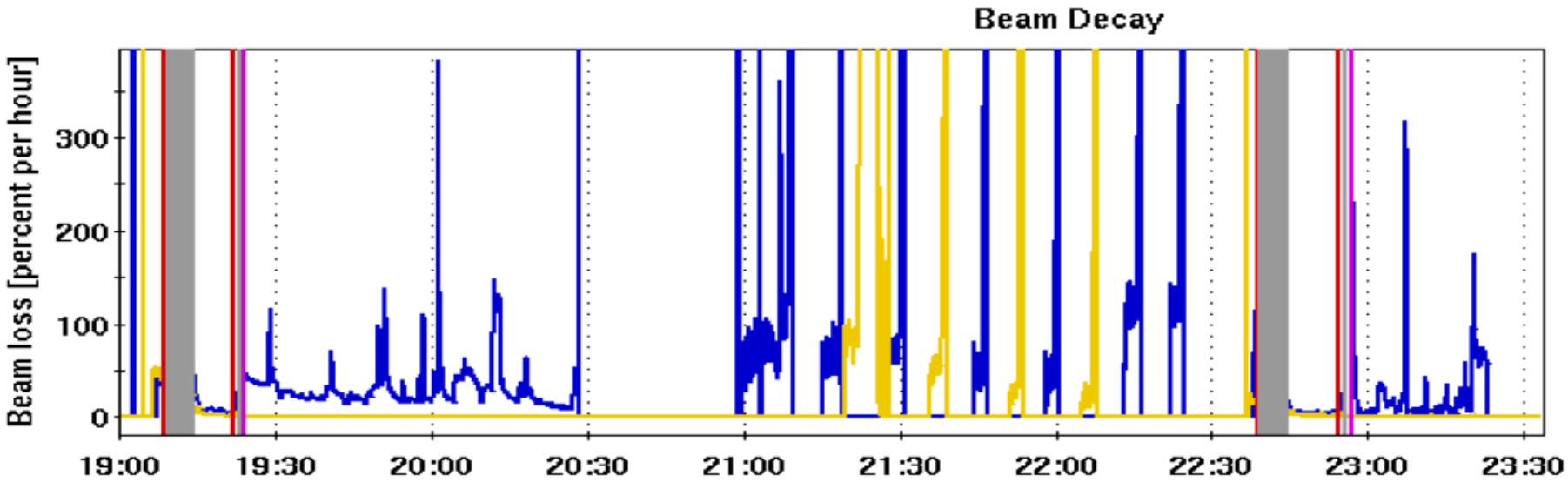


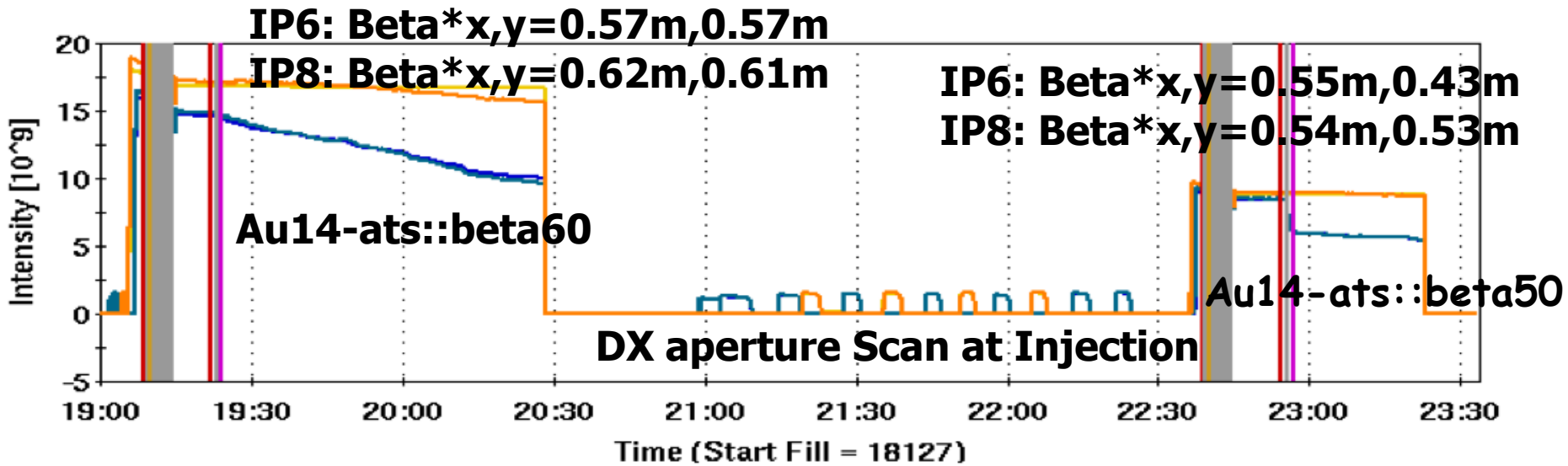
Blue ring: 1.0mm (asked), 1.5mm (measured). (dp/p)_max = 0.9e-3
Yellow ring: 1.5mm (asked), 2.7mm (measured). (dp/p)_max = 1.4e-3

APEX RUN-14

First Telescope Optics Squeeze for RHIC test

GRD, Marusic, Shen, White, Luo, Tepikian, Bai





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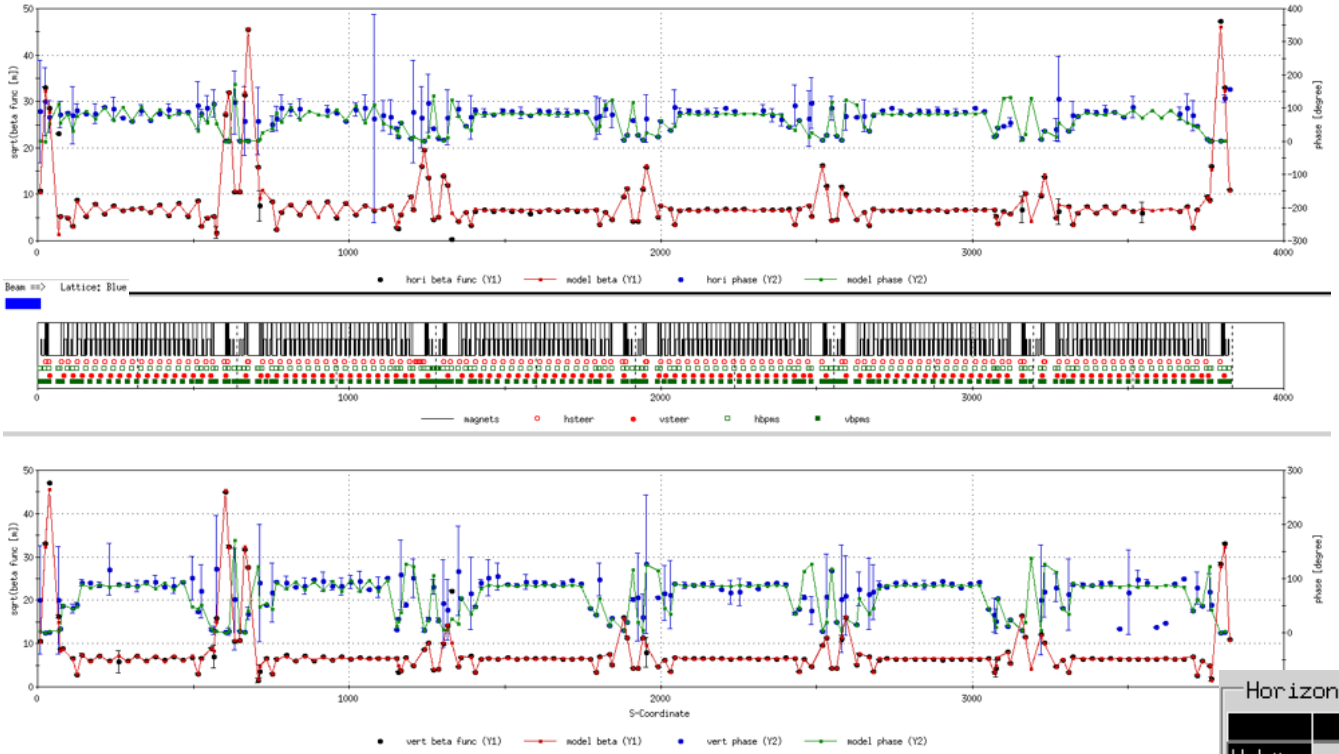
First Telescope Optics Squeeze for RHIC test

GRD, Marusic, Shen, White, Luo, Tepikian, Bai



Au14-ats::beta60

Horizontal Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	4.72	6.73	0.57	0.62	3.35	5.15
H_bIP	4.72	6.77	0.58	0.72	3.37	5.16
H_s*	0.08	0.56	-0.06	0.24	-0.23	0.22
H_mu	358.645	143.979	199.892	189.516	355.760	263.604

Vertical Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
V_b*	5.12	4.63	0.57	0.61	6.47	5.03
V_bIP	5.12	4.73	0.57	0.71	6.47	5.04
V_s*	0.14	-0.67	0.01	0.25	0.13	0.11
V_mu	165.2	105.9	212.7	162.5	178.7	135.6

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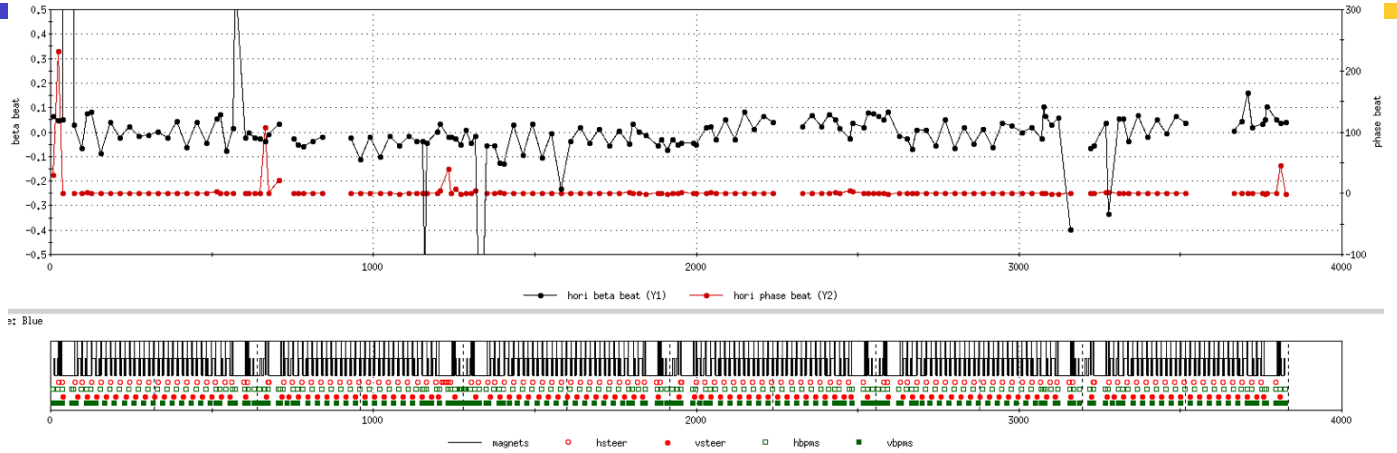
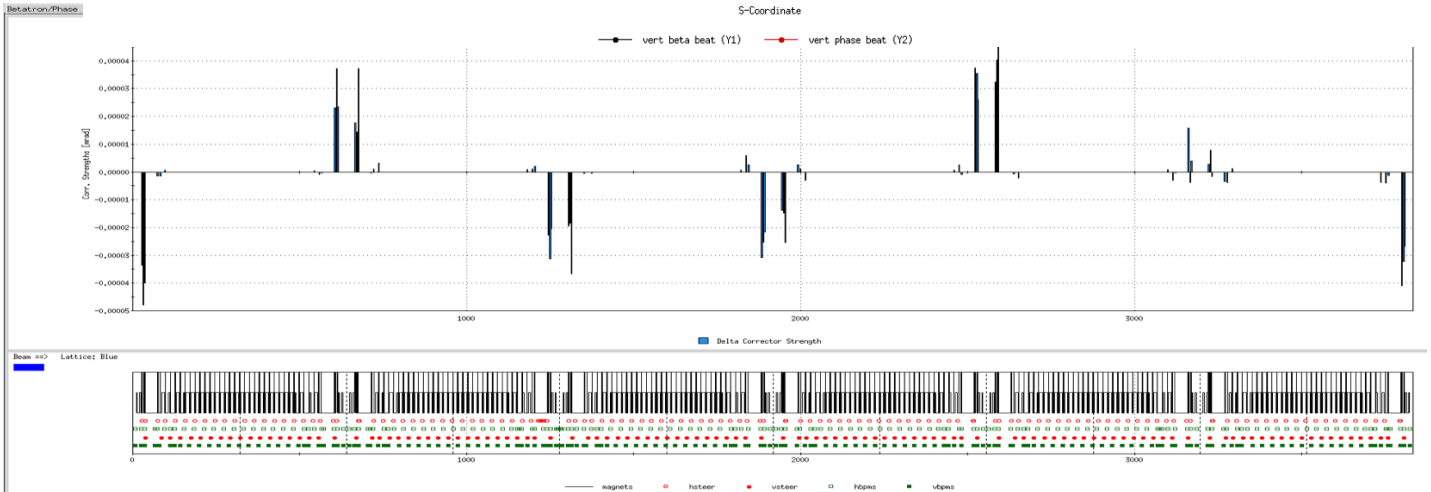
First Telescope Optics Squeeze for RHIC test

GRD, Marusic, Shen, White, Luo, Tepikian, Bai





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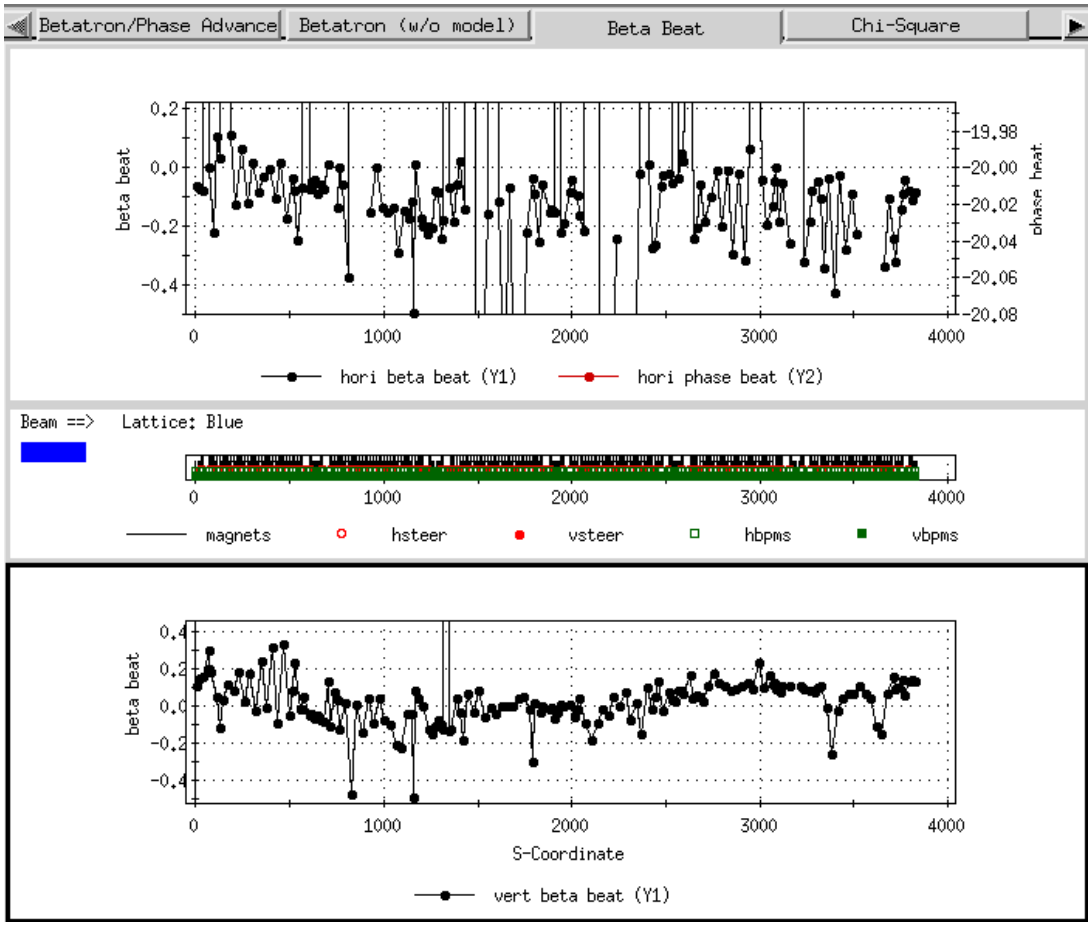
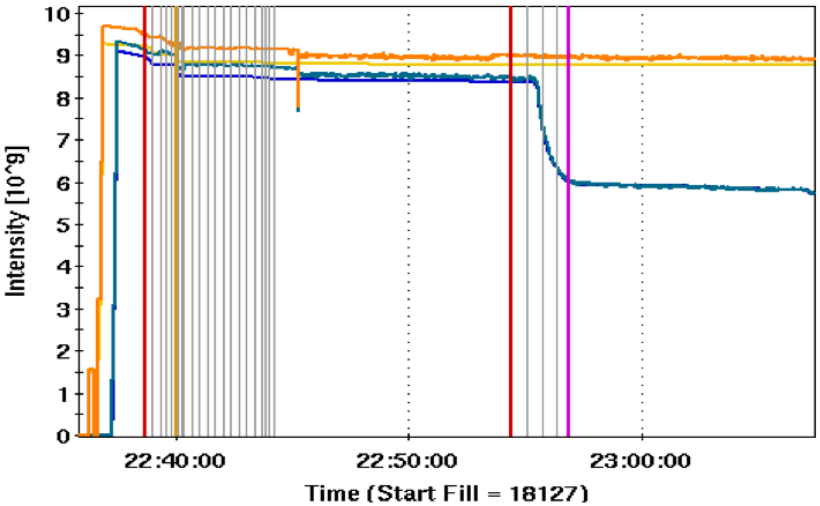
First Telescope Optics Squeeze for RHIC test

GRD, Marusic, Shen, White, Luo, Tepikian, Bai



Poor data quality due to lower bunch intensity



Au14-ats::beta50

APEX

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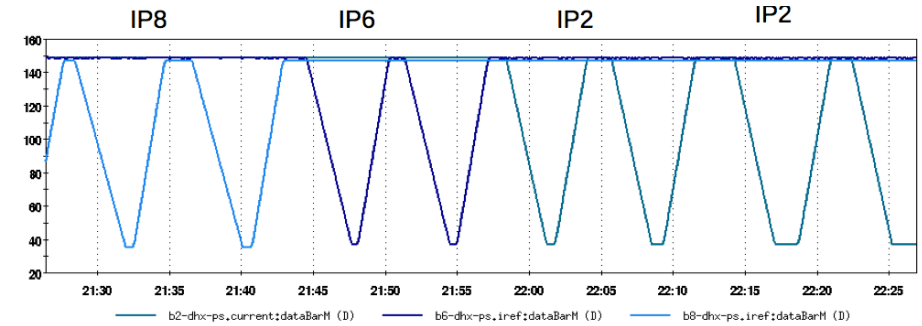
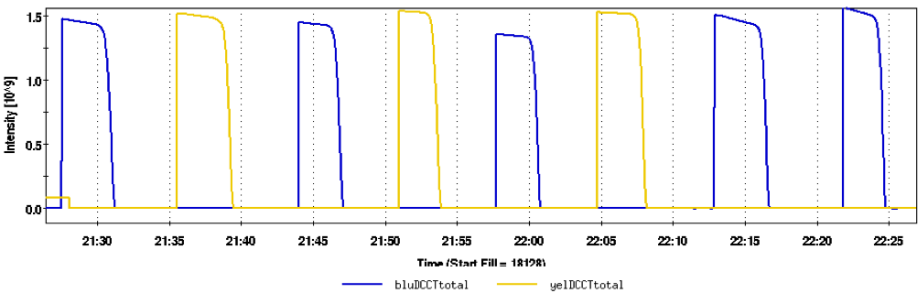
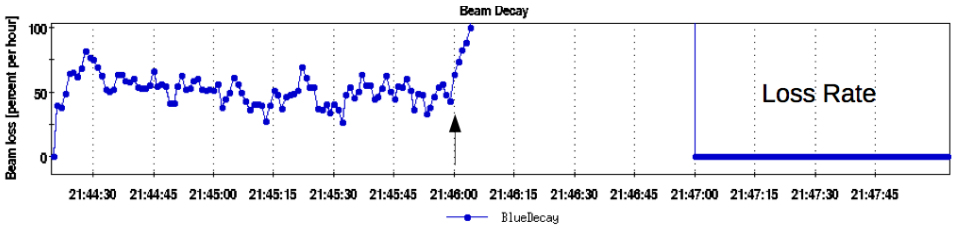
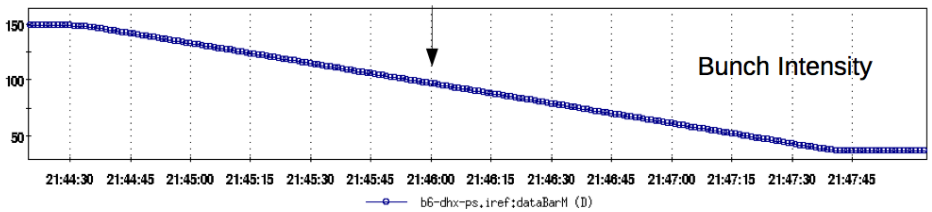
DX Aperture Scan

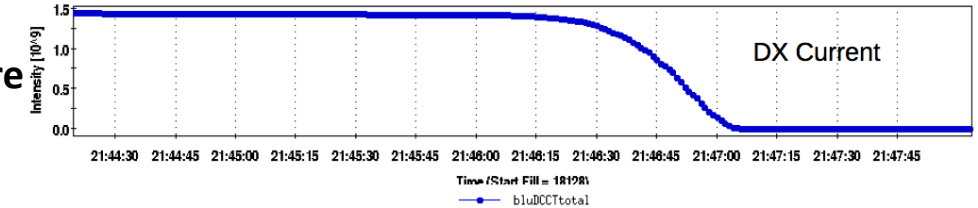
Marusic, Luo, Tepikian, Bai











Summary & Plan

1. Full sets of data taken at injection Measurement done at injection after a dipole QLI

2. Detailed data analysis is under way

likely beam began to loss at 1.6mrad (half of maximum)

3. May repeat this experiment once → one confirmation at injection → one confirmation at store