

APEX Report:

January 15-16, 2008

Fulvia Pilat

Time Meeting, January 22, 2008

APEX Schedule January 15-16 2008

Injection	Injection BBQ	Ramps	Ramps	Store 6-12 bunches	Store BBQ
08-29 Profile with polarimeter Huang, Sivertz, +team	08-25 Chrom Jump @inj Montag	08-14 Collimation on the ramp Drees R-Demolaize	08-03 Longitudinal matching @transition Abreu Bai Blaskiewicz	06-31 8-27 ORM Corrections. Optics Satogata Bai	08-17 IP Knobs Ptitsyn Malitsky
08-28 Hybrid Tune Tracker Cameron +team	08-24 Au77 Trbojevic +team				

8pm

10pm

12am

2am

4am

6am

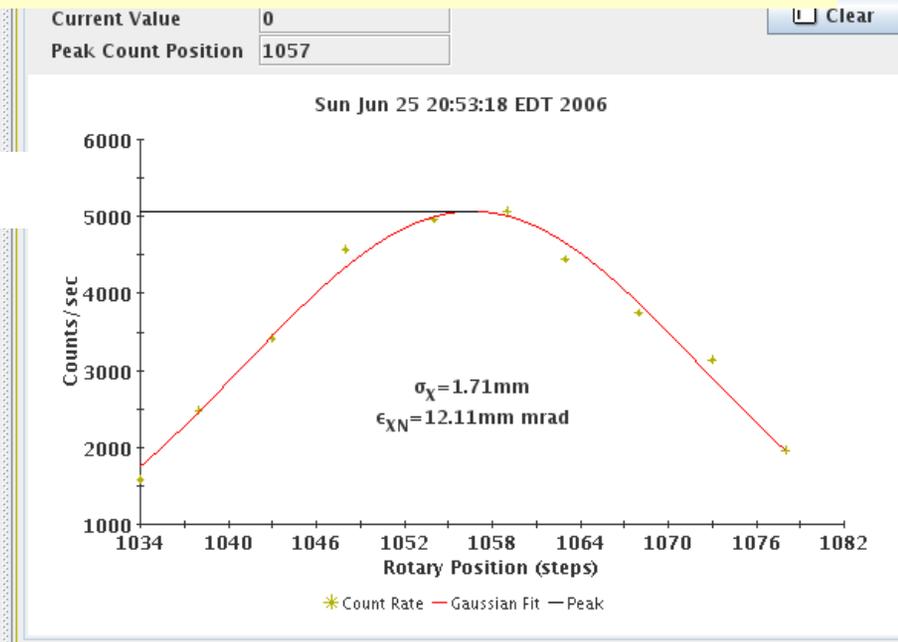
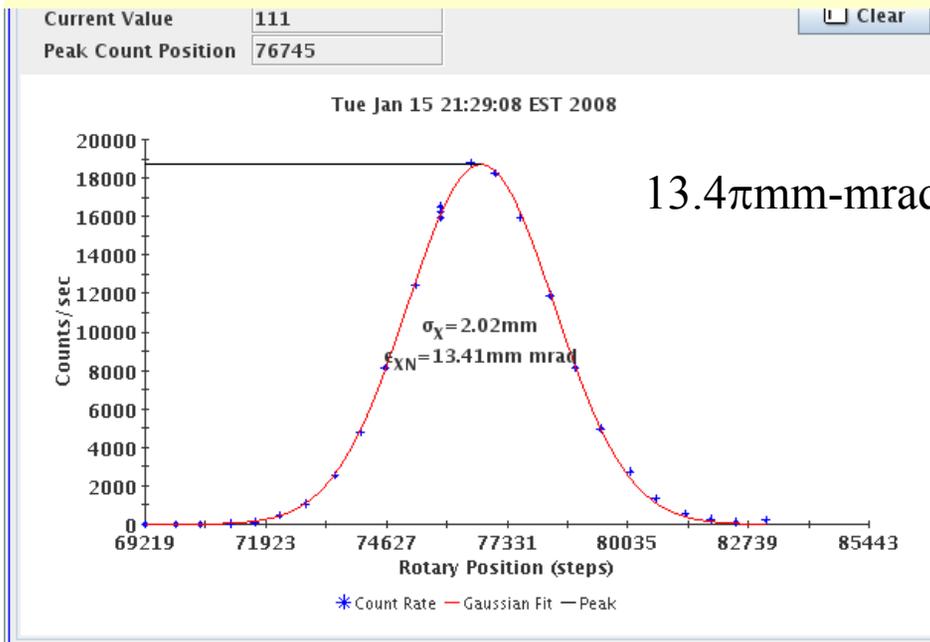
8am

7:00 am
Injectors
OFF

Horizontal Beam Profile (1)

Huang
Sivertz
Zelenski
+team

- Deuteron beam profiles (h & v) were taken with **one bunch**.
- Target scan was done and **eight** of them were found..
- **No chance to compare with IPM** (Booster RF problem, delayed schedule).
- Ask for one hour next time:
 - Take one bunch measurement to confirm the timing adjustment
 - **12-20 bunches to compare with IPM**
 - **Change RF freq. (+-) and measure profile again to get D_x**



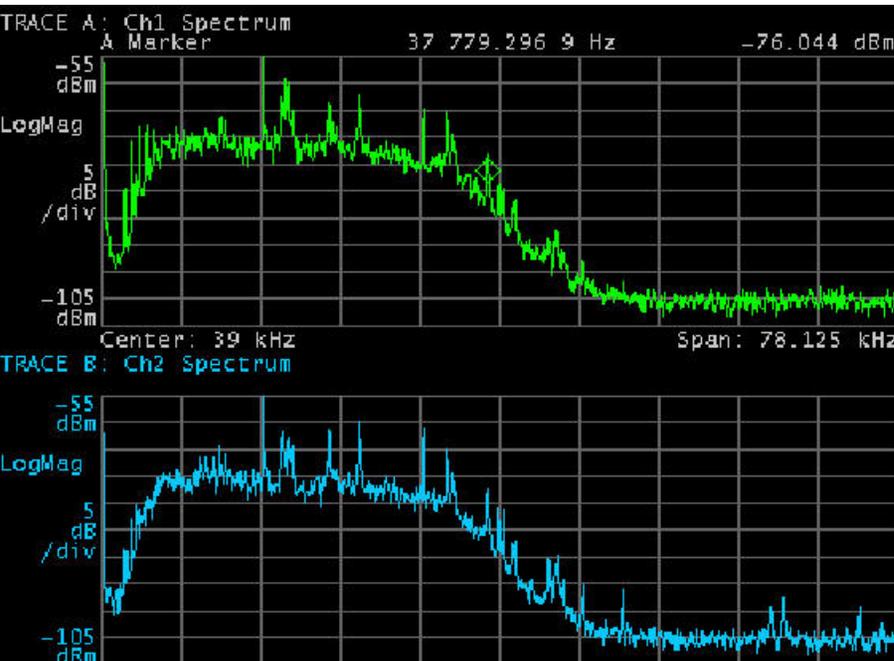
no deliberate beam excitation

Comparison of 3D AFE Signals from 1m BBQ stripline and resonant 245MHz pickup

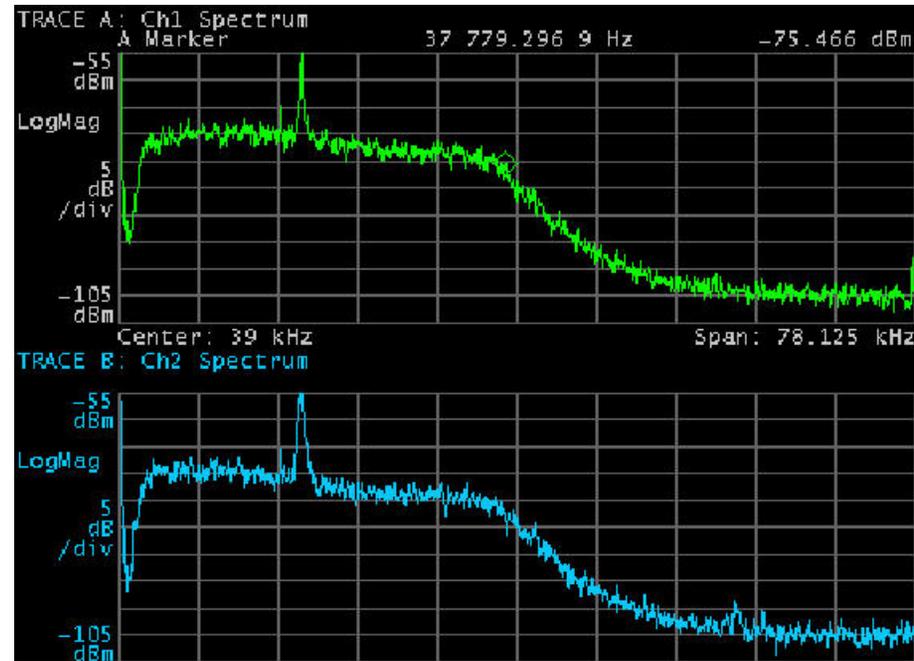
Cameron + team

BBQ

hybrid/245MHz



H

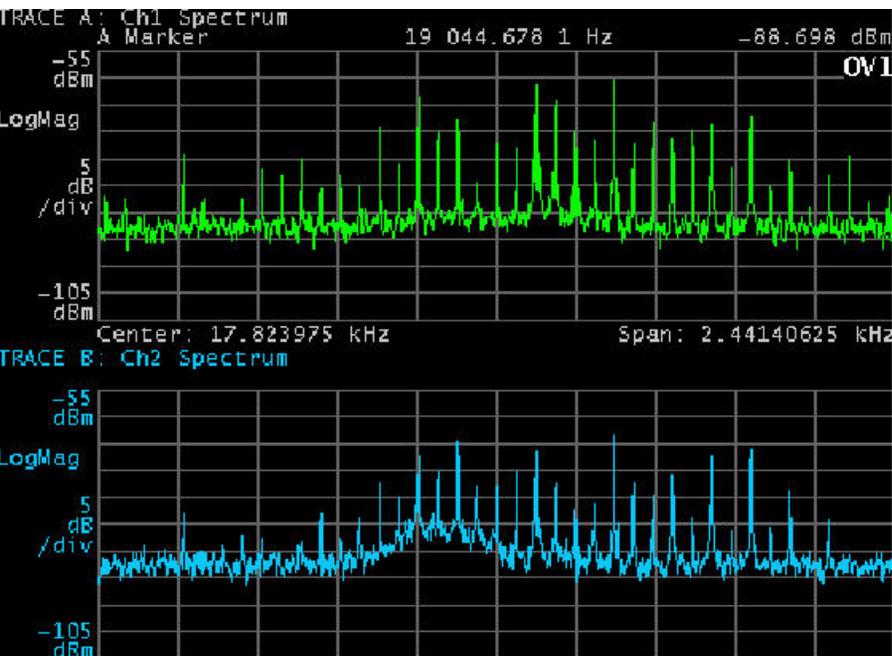


V

no deliberate beam excitation

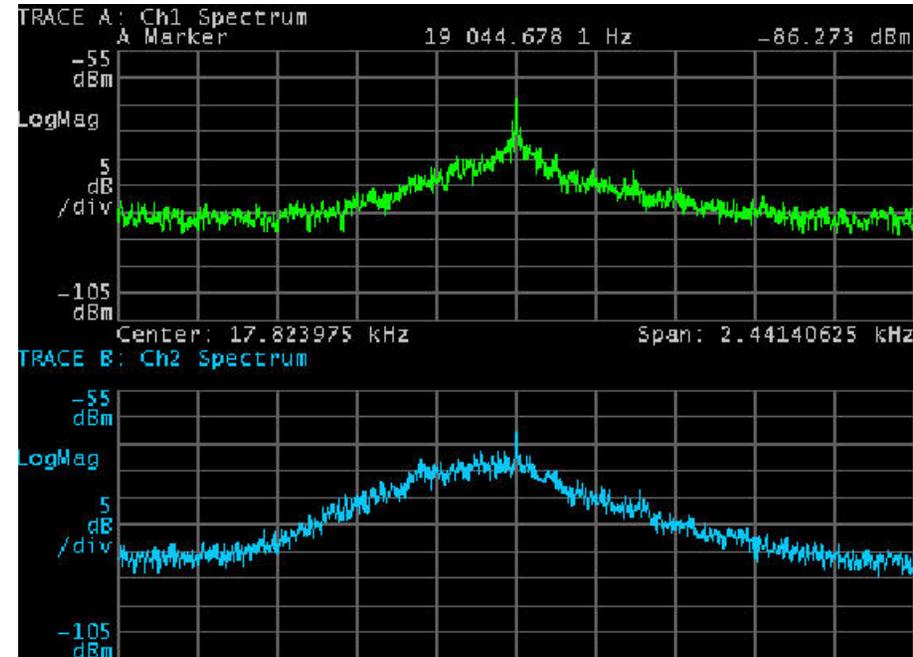
Zoom on Betatron Line of Previous Slide

BBQ



H

hybrid/245MHz



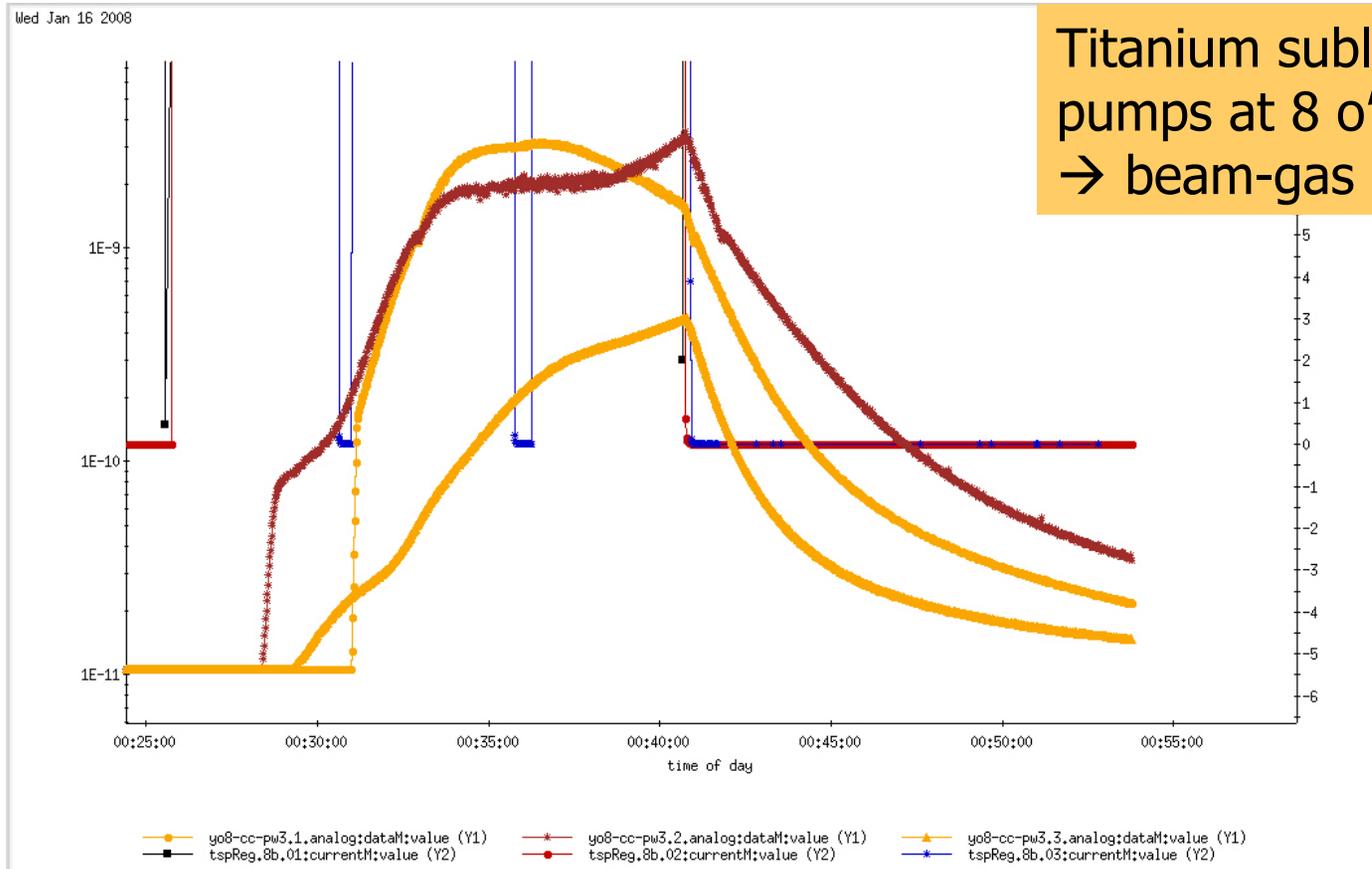
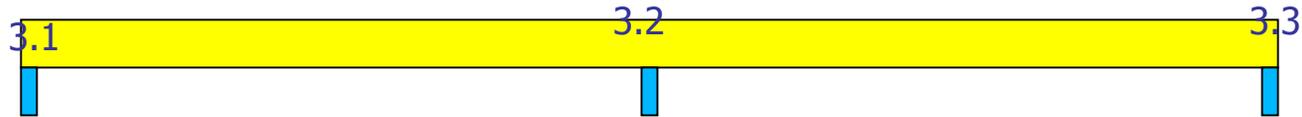
V

→ Ready to test on the ramp

Collisions of the Helium like Gold ions Au^{+77} with CH_4

Experimental set-up

Two photon decay

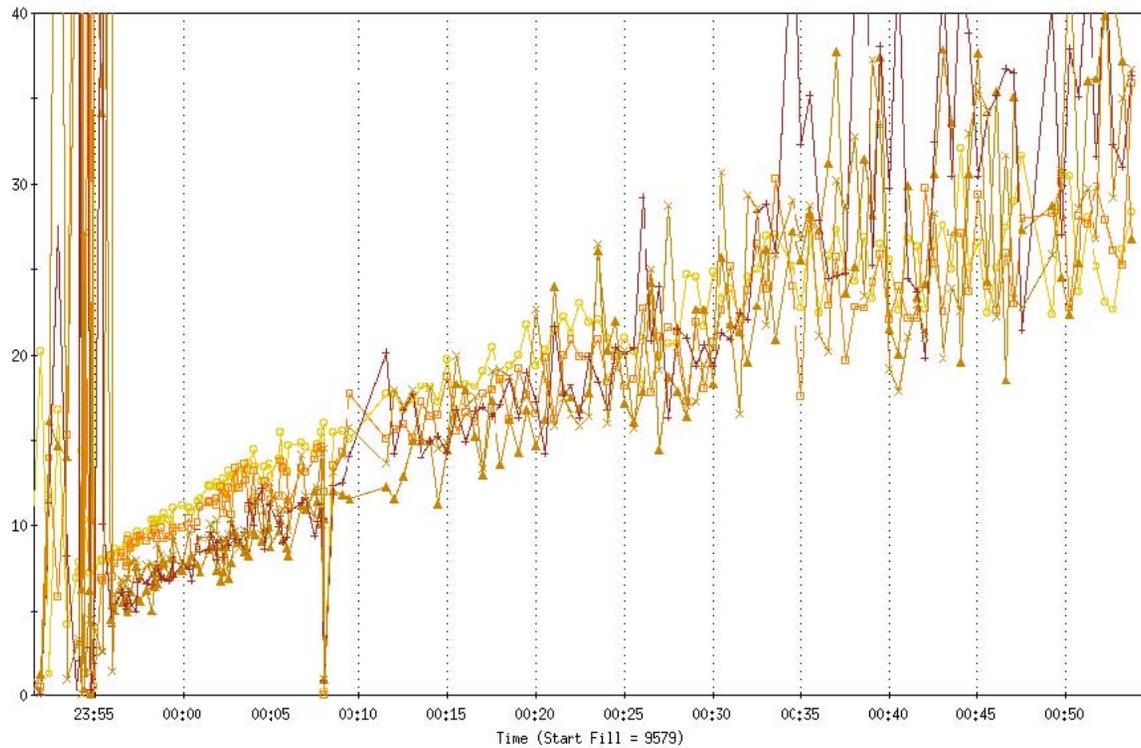
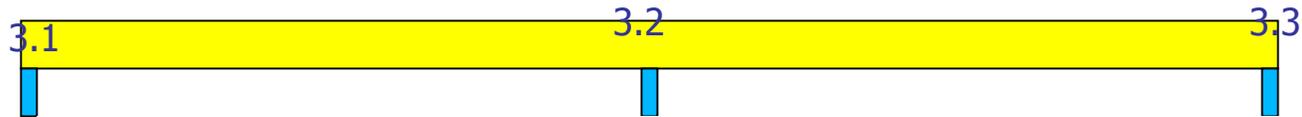


Titanium sublimation pumps at 8 o'clock
→ beam-gas interaction

Collisions of the Helium like Gold ions Au^{+77} with CH_4

Experimental set-up

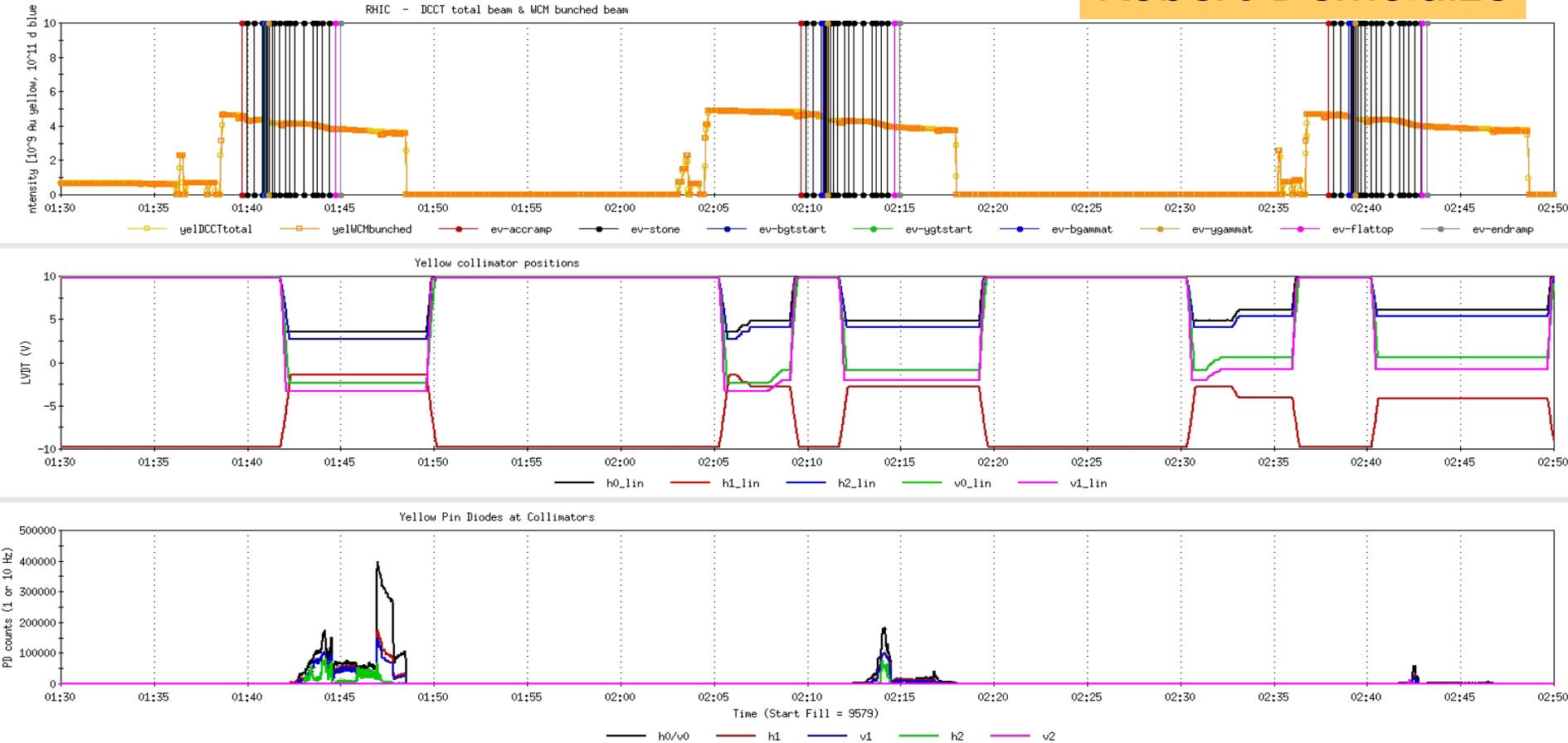
Two photon decay



- RhicIpMManager.yellow_vert:normEmitt:valueAndTime[.][0]
- RhicIpMManager.yellow_vert:normEmitt:valueAndTime[.][1]
- RhicIpMManager.yellow_vert:normEmitt:valueAndTime[.][2]
- RhicIpMManager.yellow_vert:normEmitt:valueAndTime[.][3]
- RhicIpMManager.yellow_vert:normEmitt:valueAndTime[.][4]
- RhicIpMManager.yellow_vert:normEmitt:valueAndTime[.][5]
- RhicIpMManager.yellow_vert:normEmitt:valueAndTime[.][6]
- RhicIpMManager.yellow_vert:normEmitt:valueAndTime[.][7]
- RhicIpMManager.yellow_vert:normEmitt:valueAndTime[.][8]

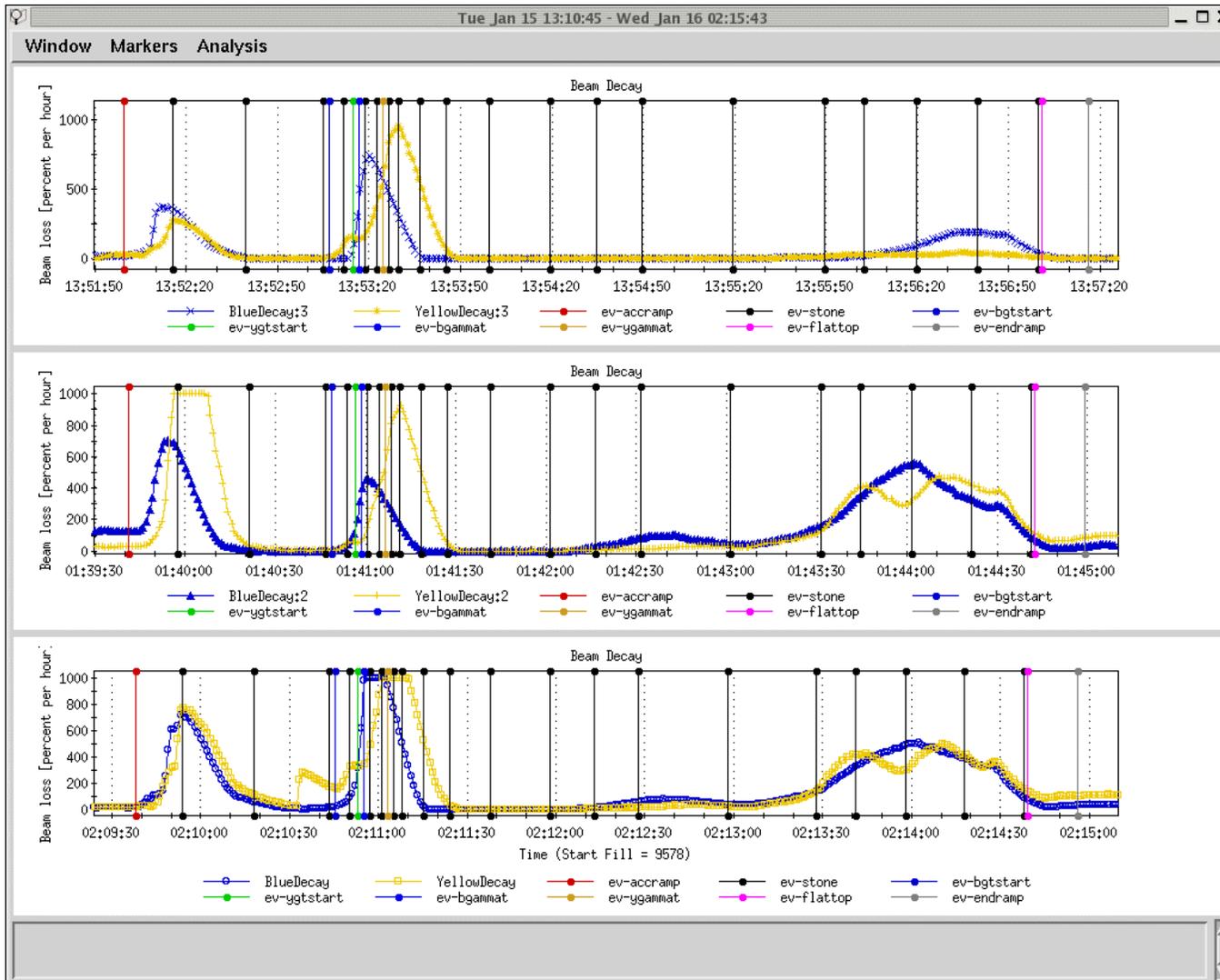
Collimation on the ramp

Drees
Robert-Demolaize



- bring the collimator jaws towards the beam after transition to scrape away the halo particles
- try different set of positions depending on beam decay signal

Comparing beam decay with nominal ramp



last physics ramp

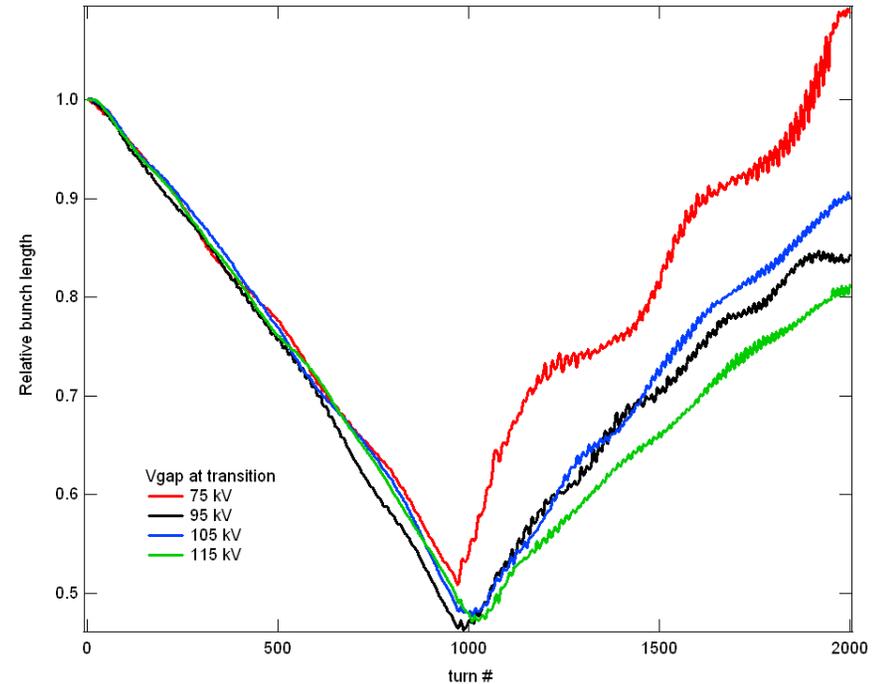
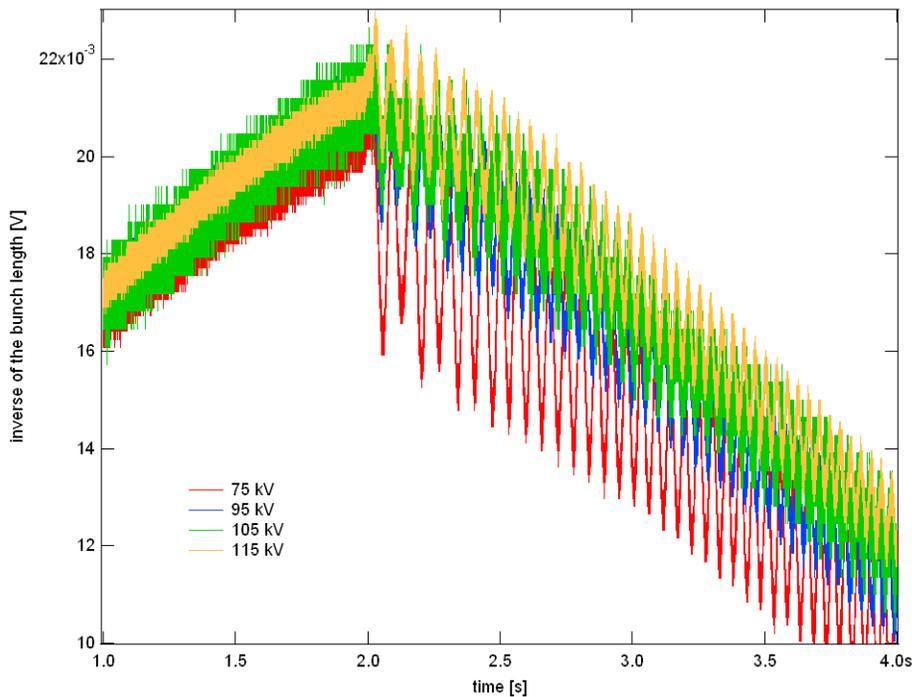
1st APEX ramp

2nd APEX ramp

RF matching at transition - yellow

Abreu
Bai
Blaskiewicz

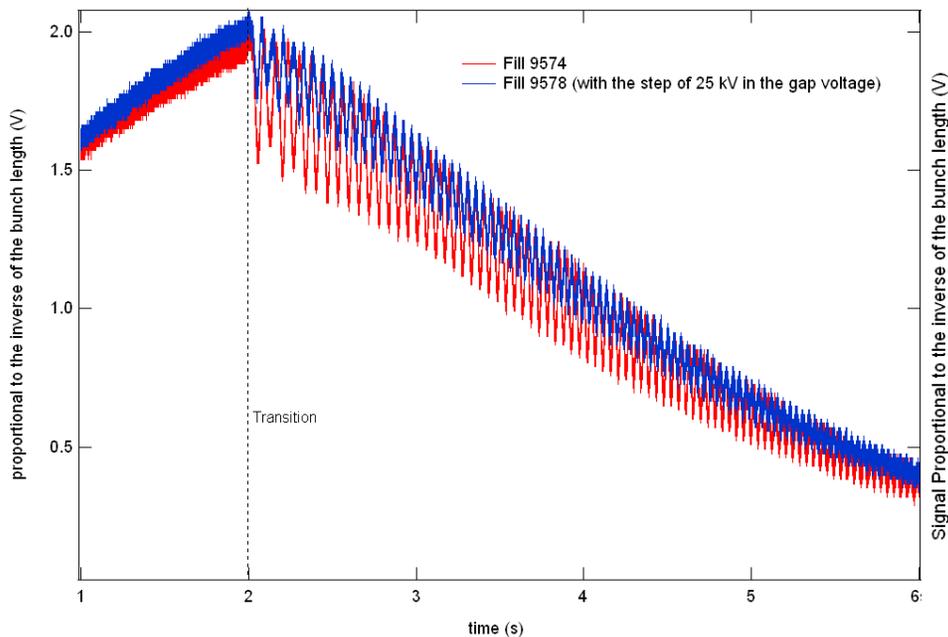
Vgap	Before	After	Ratio	Emittance Reduction
75	9.82	7.09	0.72	
95	10.00	6.95	1.44	0.96
105	9.75	5.65	1.73	1.31
115	9.75	5.75	1.70	1.21



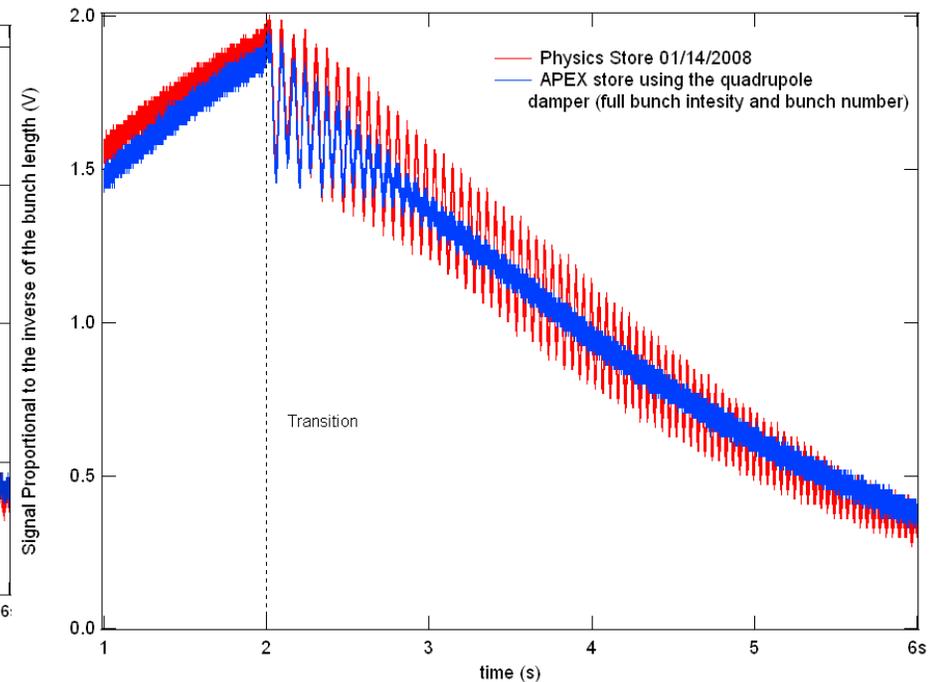
Longitudinal Damper

- Longitudinal emittance \rightarrow 36% smaller (max) and on average 10%.

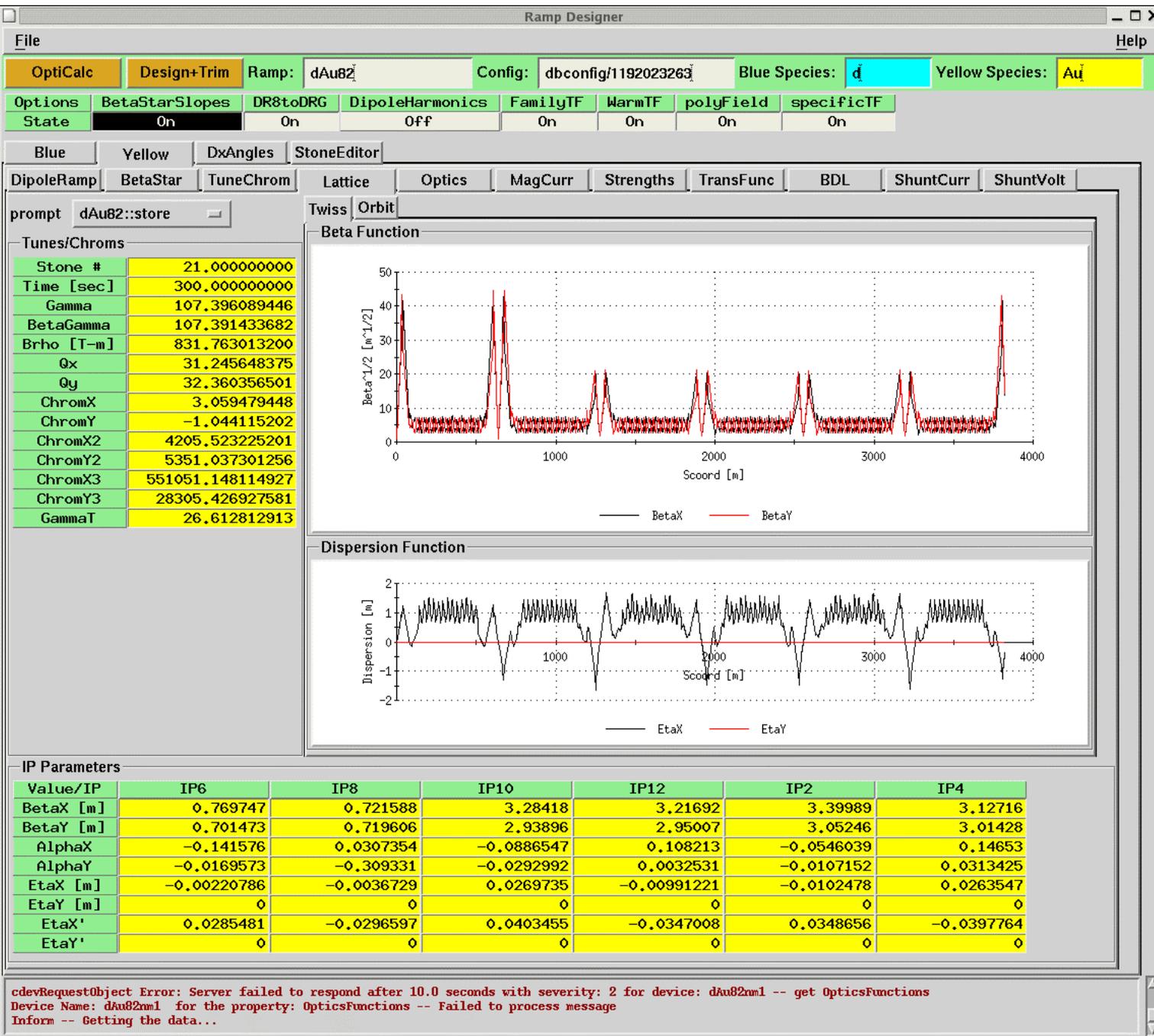
Step in the voltage



Longitudinal Damper



Malitsky Ptitsyn Bai



IR8 knob:

$$\Delta\alpha_y = -0.3$$

$$\alpha(0) = s^*/\beta^*$$

AC Dipole Measurements for IR8 knob

IR8 knob:
 $\Delta\alpha_y = -0.3$

- Yellow beta* and waist at IP8 before the knob
 - V beta*: **1.03**+/-0.02@-0.18
- Yellow beta* and waist at IP8 after the knob
 - V beta*: **0.83**+/-0.02@0.04
- working point was also changed:
 - before: Qx=0.2297, Qy=0.2336
 - after: Qx=0.2312, Qy=0.2278

APEX Schedule

January 23 2008

Injection	Injection AC dipole	Injection BBQ	Ramps	Store Ramps	Ramps	Store BBQ (both)
08-29 Profile with polarimeter Huang, Sivertz Zelenski, et al	08-34 Beta Beat Calaga	08-25 Chrom Jump Montag	08-31 Transition Instability modes	06-31 8-27 ORM Correct. Optics Satogata Bai	08-14 Coll. on the ramp Drees Robert-D	08-06 Nonlinear Chrom measure Luo
<i>Prep impedance measure Calaga</i>	08-27 Gradient errors Bai	08-24 Au77 Trbojevic +team	Ptitsyn +team	08-28 Hybrid Tune Tracker Cameron +team		08-17 IR nonlin measure Pilat
						Back 2 physics

5am

6am

8am

9am

11am

1pm

3pm

5pm