

# RHIC pp Status – week 1

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<http://www.agsrhichome.bnl.gov/AP/Spin2005/>

# Status

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- Injection setup: March 24 2000 – March 27 2400
  - AGS extraction/AGS-RHIC synchro setup
  - Time in injection kicker with snakes off
  - Circulating beams right after the snakes were switched on and rf was then turned on to capture the beam
  - Instrumentation setup
    - BPM timing, polarity check, miss wiring check
    - Artus and injection damper timed in
    - WCM, IPM
  - Injection tuning
    - Ended with different dipole trim from last year in order to center both beams in the machine

|        | pp19                 | pp21                 |
|--------|----------------------|----------------------|
| Blue   | $6 \times 10^{-6}$   | $1.8 \times 10^{-5}$ |
| Yellow | $2.5 \times 10^{-5}$ | $1.8 \times 10^{-5}$ |

# Status

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- Ramp development started around midnight of March 27
- Ramp tuning activities
  - Replace the old local skew quad setting in the sector 5 triplet with the new values from Cu8. This triplet was unrolled during 2004 summer. This helps to ease the strong coupling problem in yellow after the flattop stone
  - Orbit corrections
    - Done for blue, vertical rms is around 0.5mm, H rms is below 1mm
    - Need to do this for yellow
  - Tune/chromaticity adjustments
  - Decoupling at store as well as ramp: working progress
- Ramped 37x37 bunches with  $0.9 \times 10^{11}$  protons/bunch. Ramp efficiency is above 90%
- Injected 110 bunches at injection without blowing up the vacuum
- Start to tune the rotator ramp

# Outstanding issues

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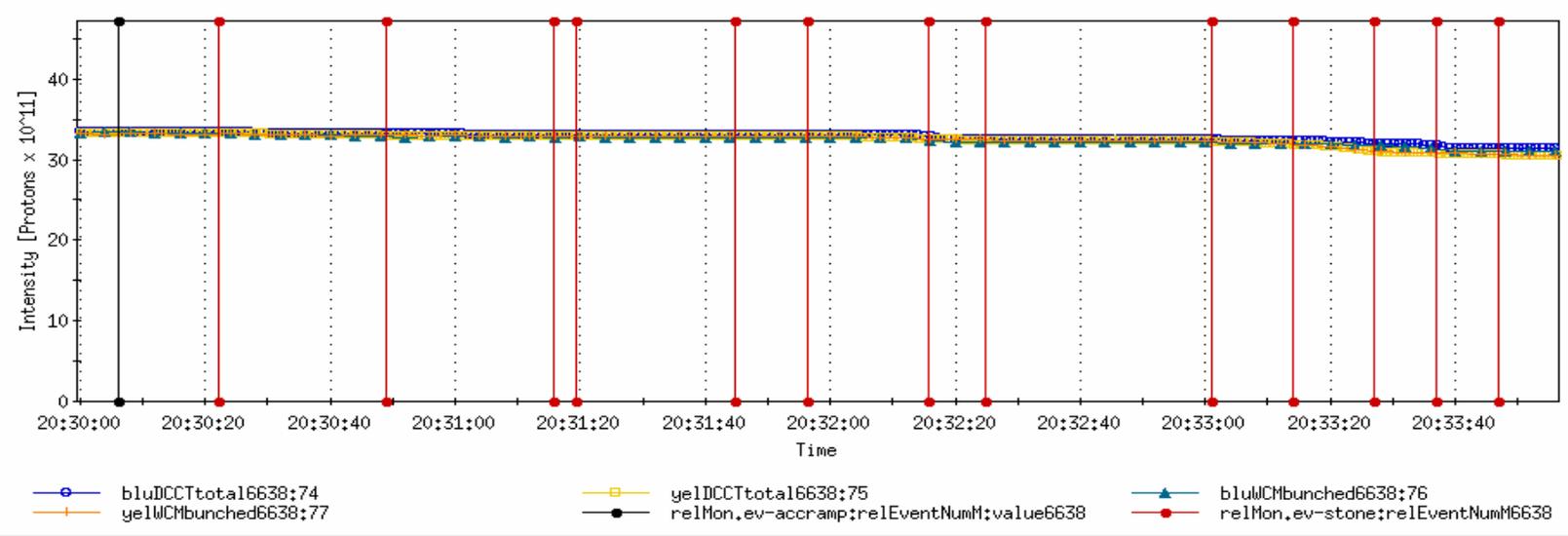
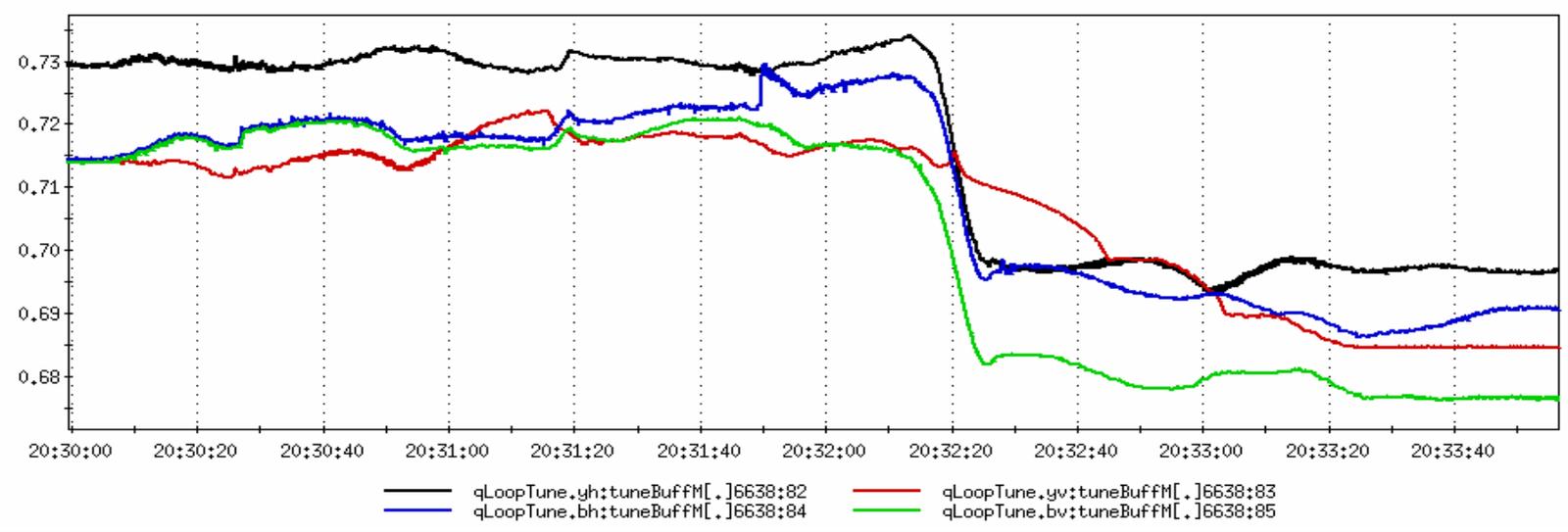
- Large vertical dispersion function at IP6&8
- Currently, can't ramp more than 37 bunches to store due to beam-beam
  - Keep both beam vertically separated during the whole ramp
  - Anti-cogging both beam during the ramp
  - In order to ramp more than 56 bunches, we need to investigate what's the maximum vertical separation we can get
    - Correct the vertical dispersion at IP6&8
    - Minimize the crossing per IP
- Can CNI polarimeter handle fill pattern with mixed bunch separation of 3-buckets and 6-buckets?

## Plan for Week 2

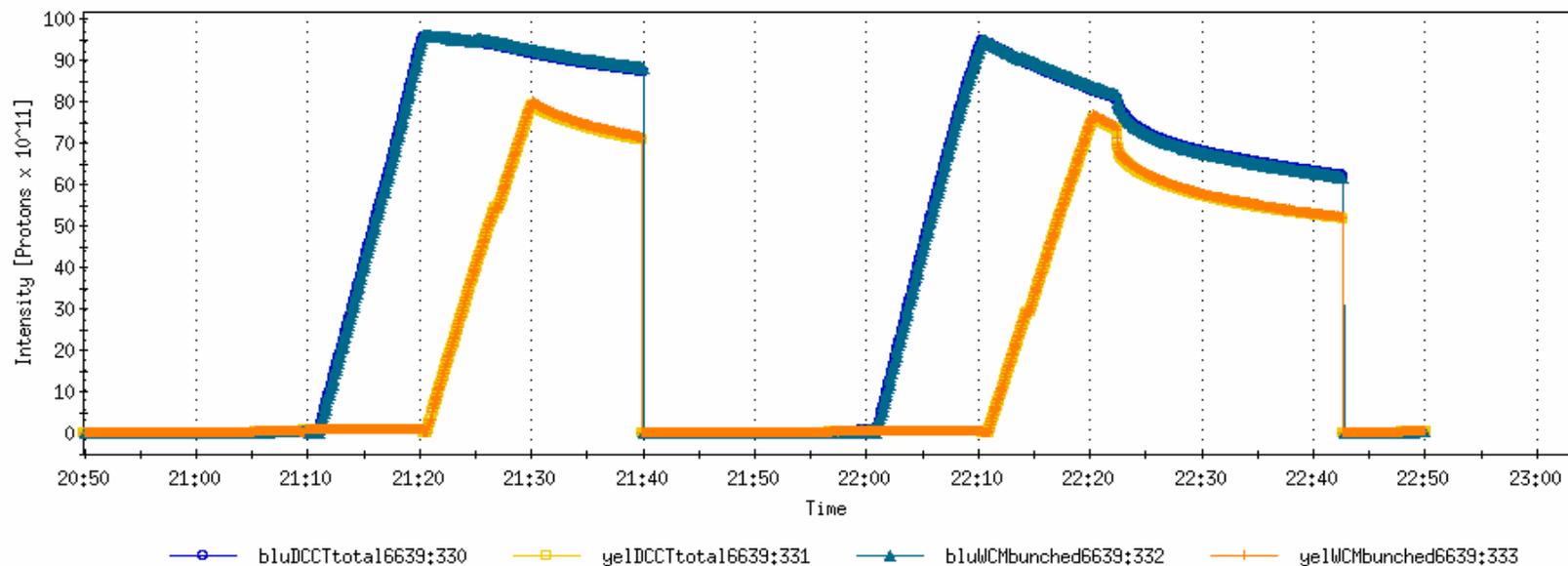
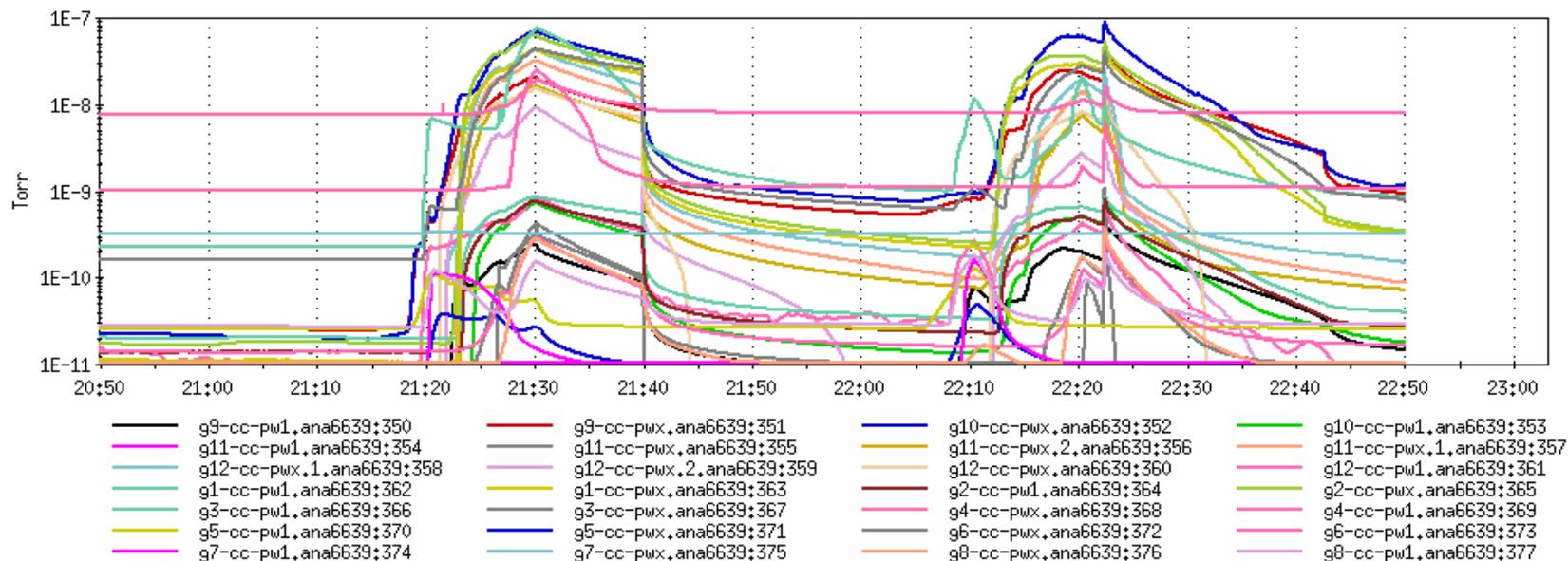
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- Access from March 30 0800 – April 1 0000
  - Jet installation
  - CNI polarimeter target/detector replacement
  - AGS cold snake installation
- resume machine setup
  - ramp development
    - improve the orbit rms along the ramp
    - Flatten the tunes/chromaticity
  - Tuning rotator ramp
  - CNI polarimeter commissioning
    - once this is available, snake current scan at injection
  - H-Jet polarimeter setup

# Fill #6638, 37x37 bunches with $0.9 \times 10^{11}$ protons/bunch

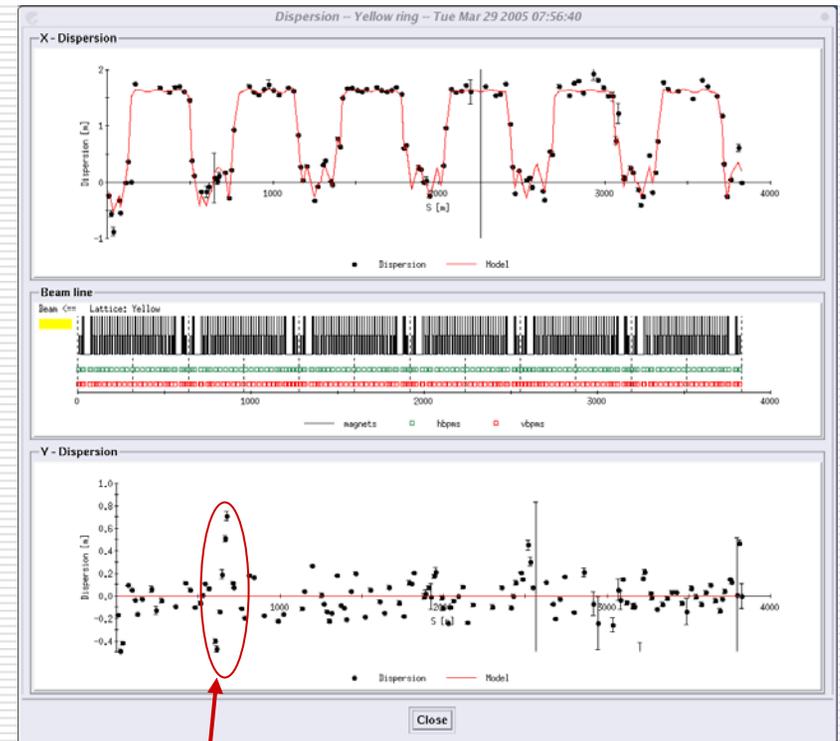
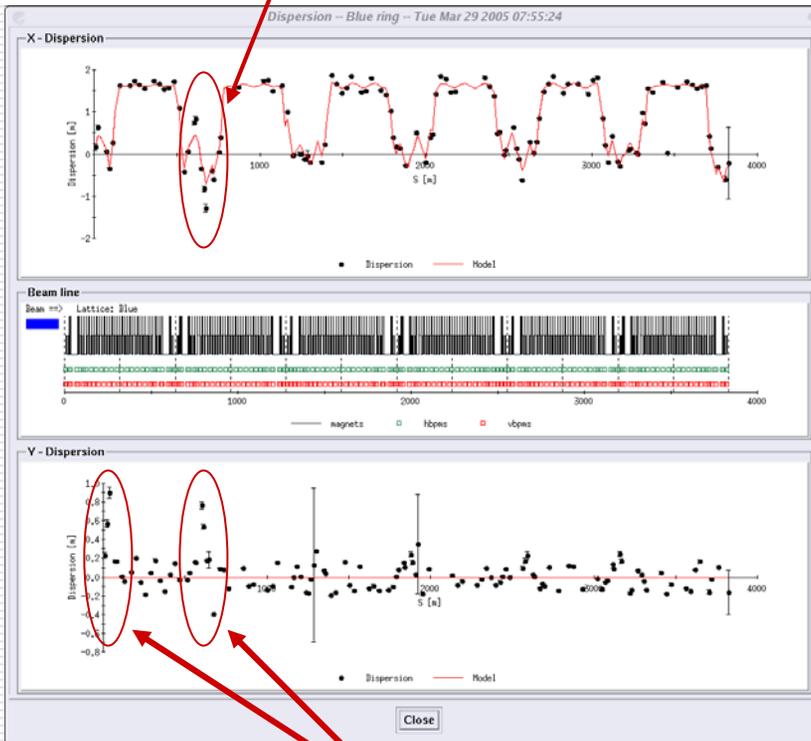


# 110x110 bunches with $0.85 \times 10^{11}$ protons/bunch at injection



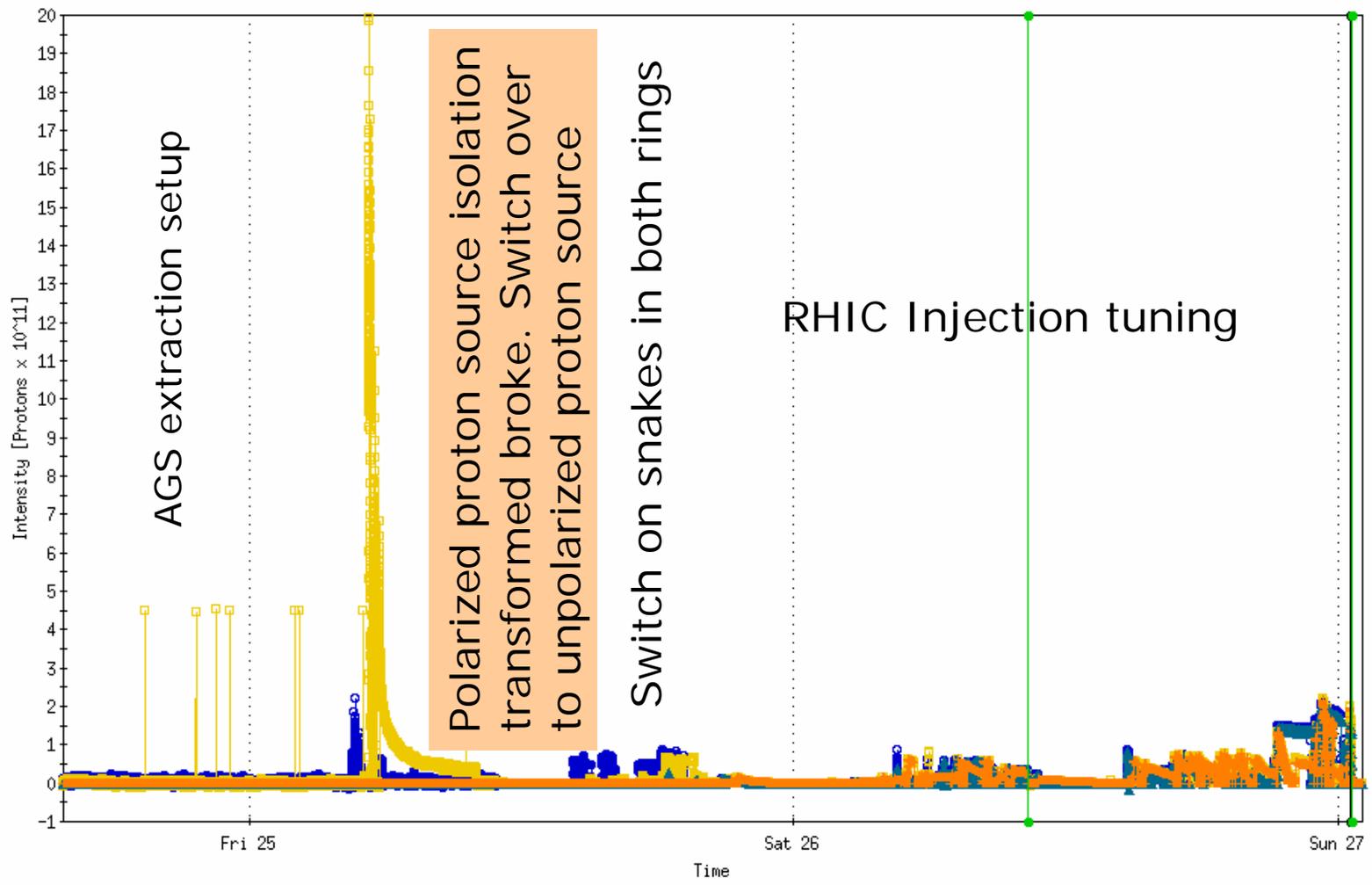
# Dispersion measured at store(pp21)

Blue H dispersion at IP8, twice larger than model

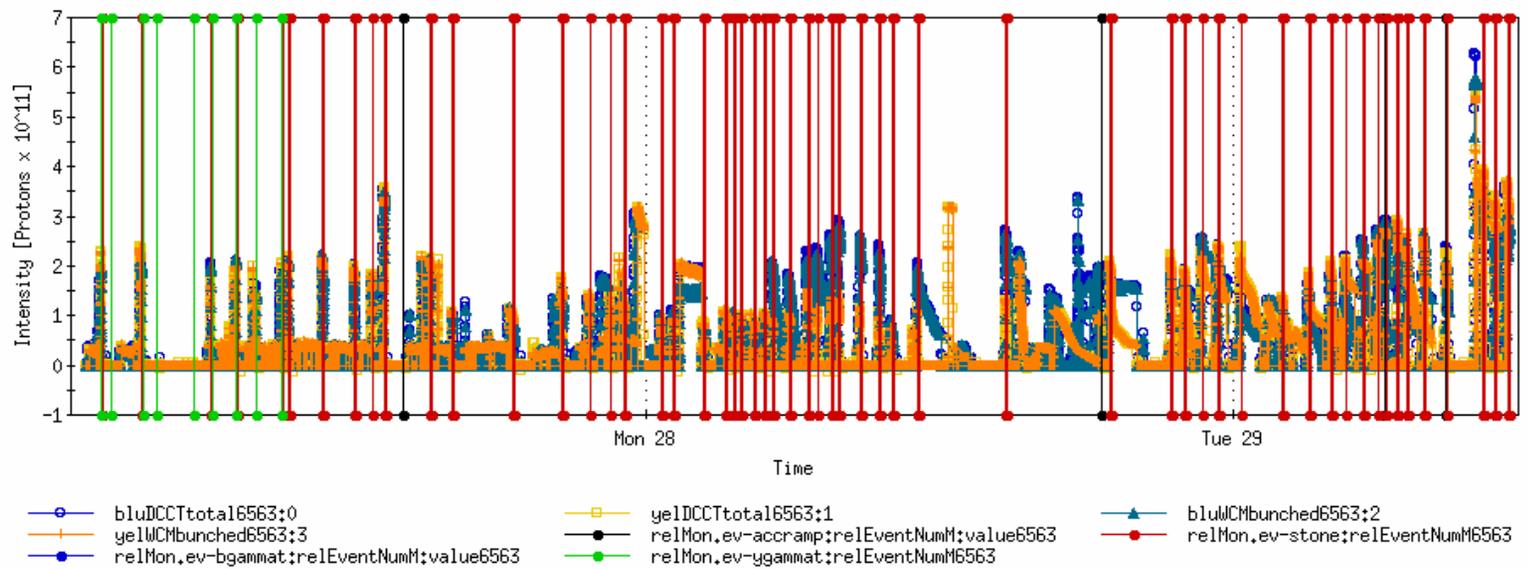
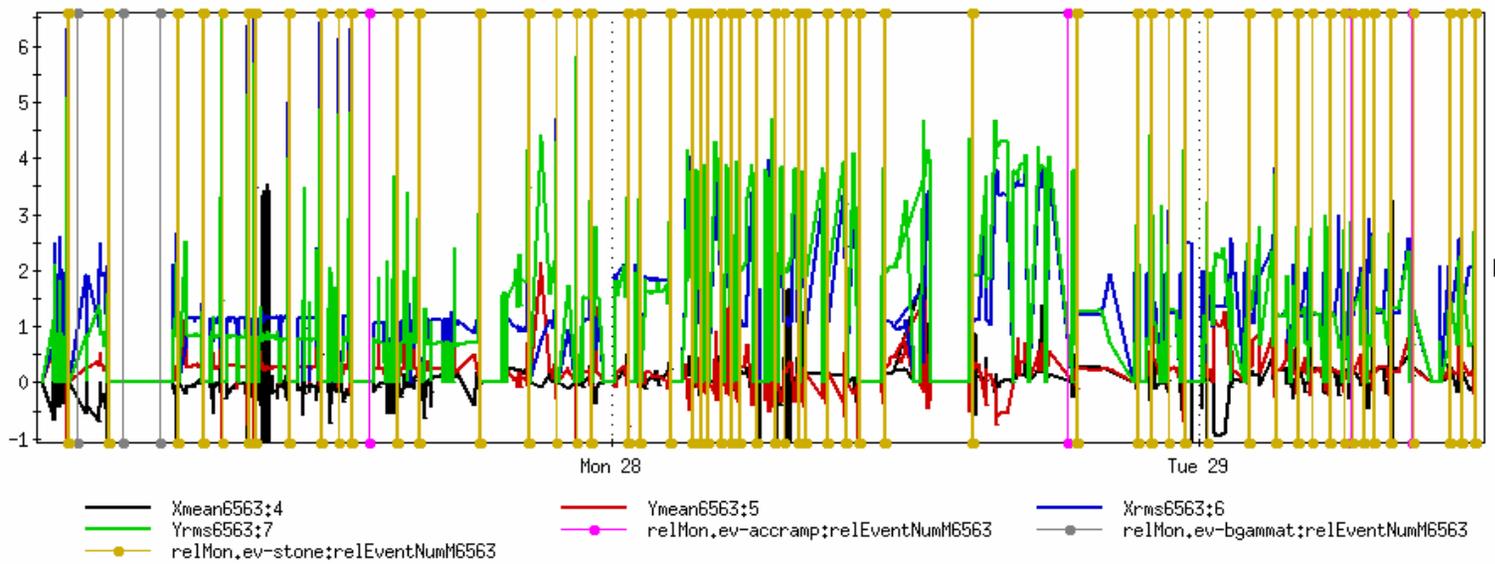


Large vertical dispersion at IP6&8 about 1m

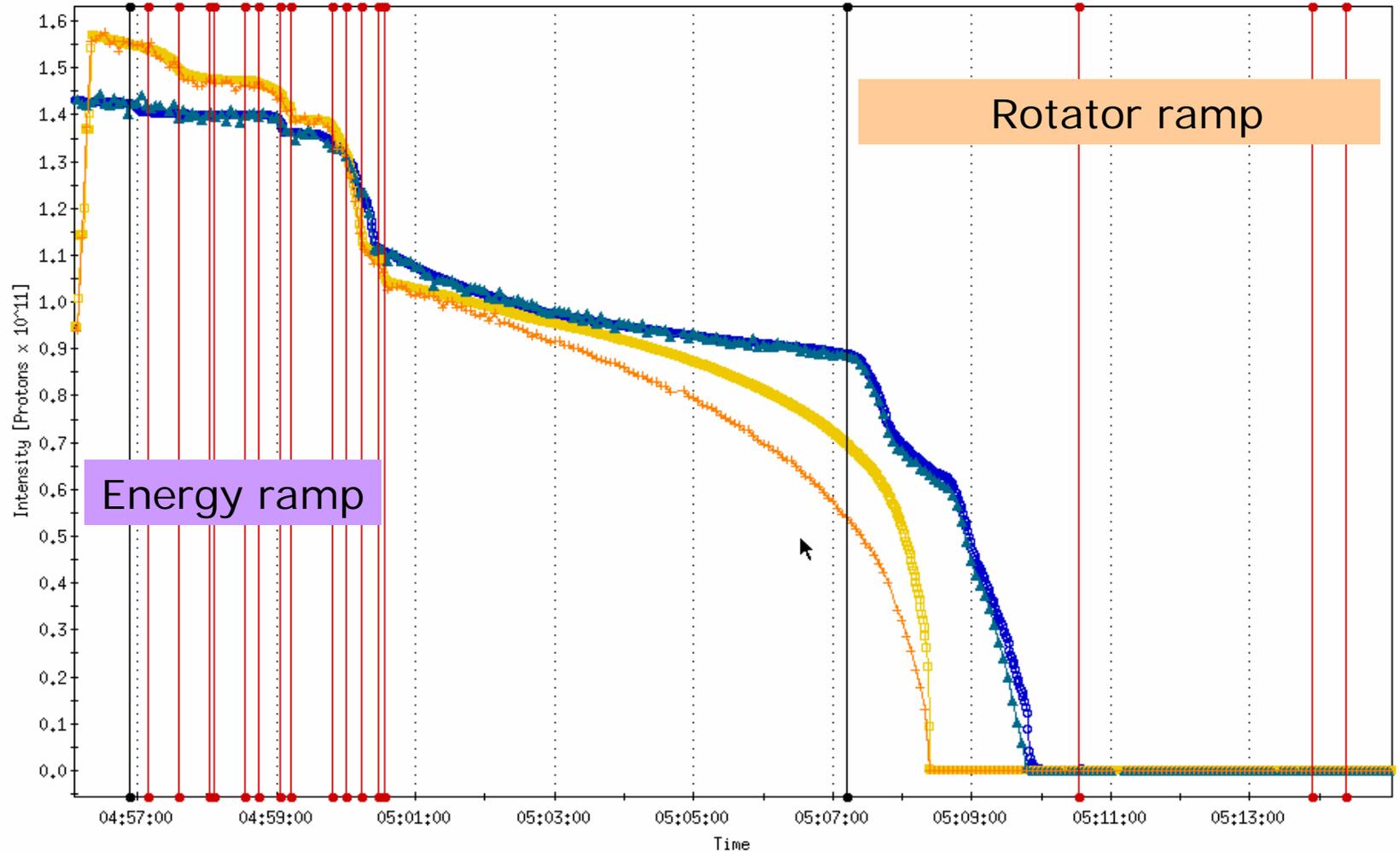
Window Event



- bluDCCTtotal6559;110
- ye1WCMbunched6559;113
- relMon.ev-bgammam;relEventNumM;value6559
- ye1DCCTtotal6559;111
- relMon.ev-accramp;relEventNumM;value6559
- relMon.ev-ygammam;relEventNumM6559
- bluWCMbunched6559;112
- relMon.ev-stone;relEventNumM6559



# Fill #6647, pp21+rot3



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ye1WCMbunched6647:415

ye1DCCTtotal6647:413  
re1Mon\_ev-accramp;re1EventNumM:value6647

bluWCMbunched6647:414  
re1Mon\_ev-stone;re1EventNumM6647

March 30, 2005

RHIC Wednesday Meeting  
BNL, Upton