

# PHENIX Run-15 Status

Douglas Fields

PHENIX Run-15 Run Coordinator

University of New Mexico



# MPC-EX Status [Good News]

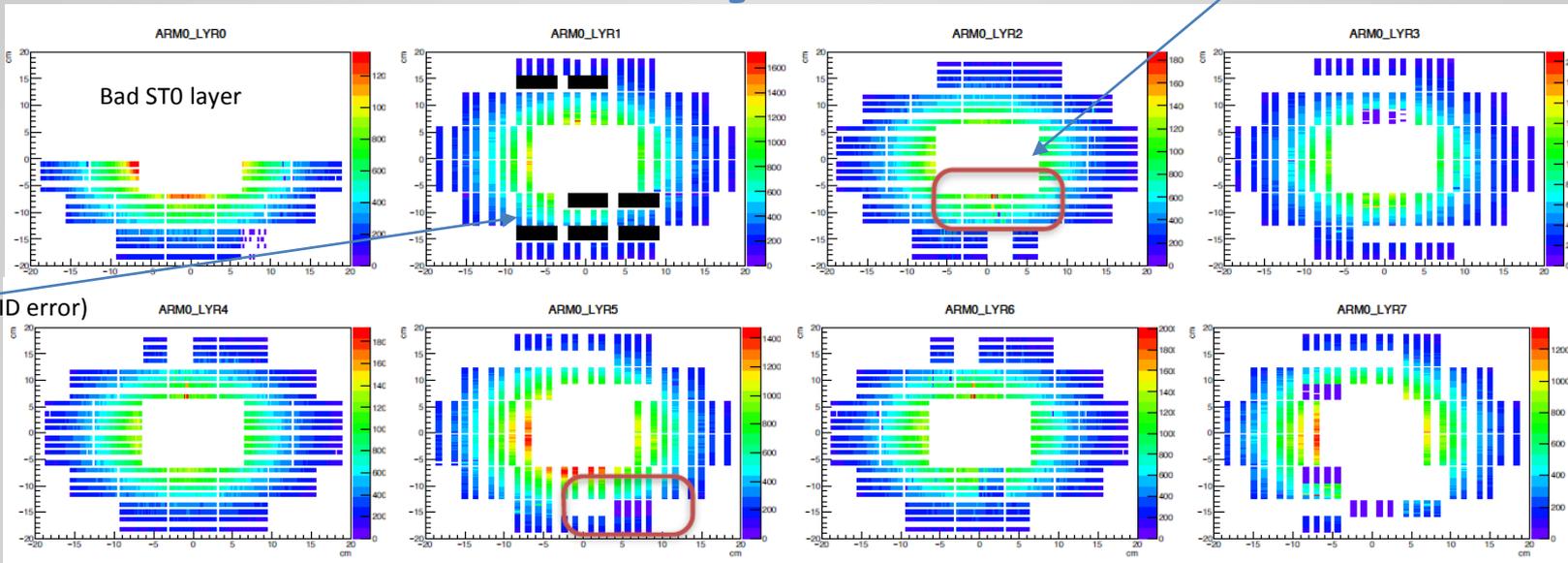
- Made the switch to p+Au running:
  - Updated ramp ranges (gain) for deep layers
  - Added spy channels (no zero suppression) to readout to track pedestals
  - Some concerns about beam losses and increased leakage currents (rad damage)
- Detector Status:
  - About 88% live channels in North, 80% in the south
    - South has bad layer ST0
    - Main loss is SVX's in position 1,3 in chain (masked off)
    - Another 1-2% for hot/uncalibrated channels



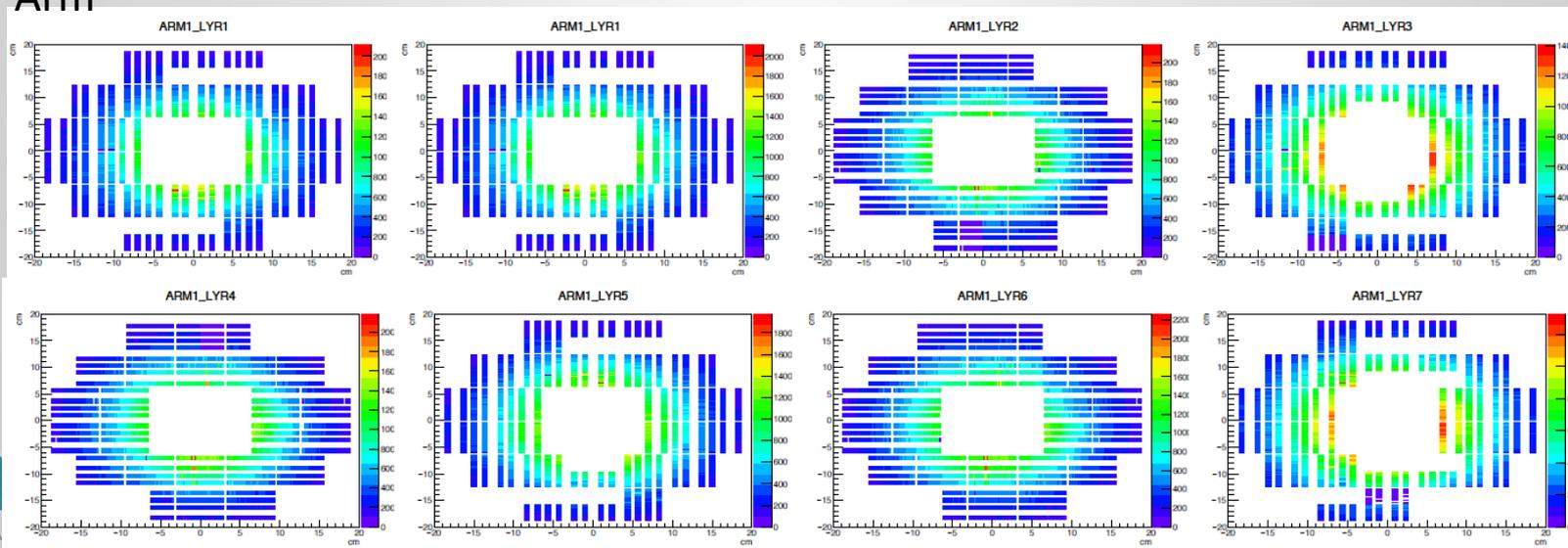
# Density of MIPs

South Arm

hot channel



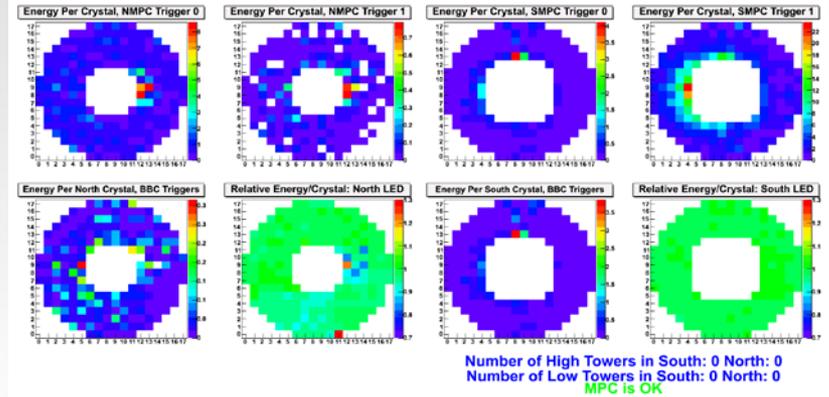
North Arm



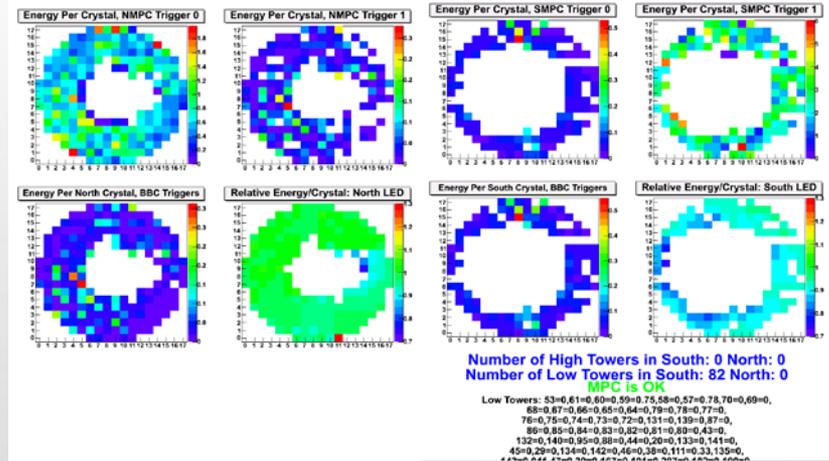
# MPC-EX Status [Bad News]

- Monday at around 1am everything is fine in the MPC.
- By Monday at 3pm, there are significant losses in the MPC, especially in the South.

MPCMON\_4 Run 433285, Time: Mon May 11 00:54:38 2015 MPCMON\_2 Run 433285, Time: Mon May 11 00:54:38 2015

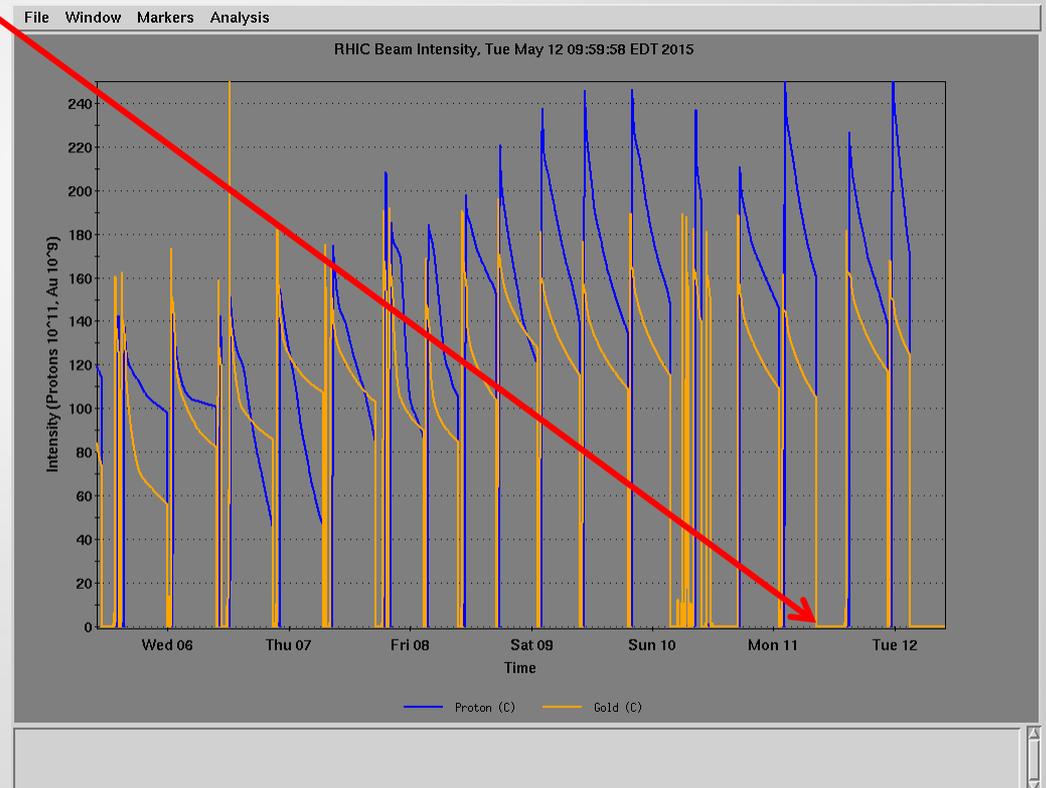


MPCMON\_4 Run 433396, Time: Mon May 11 15:44:09 2015 MPCMON\_2 Run 433396, Time: Mon May 11 15:44:09 2015



# Pre-fire

- There was a abort kicker pre-fire at 8:28am Monday morning



# Consequences

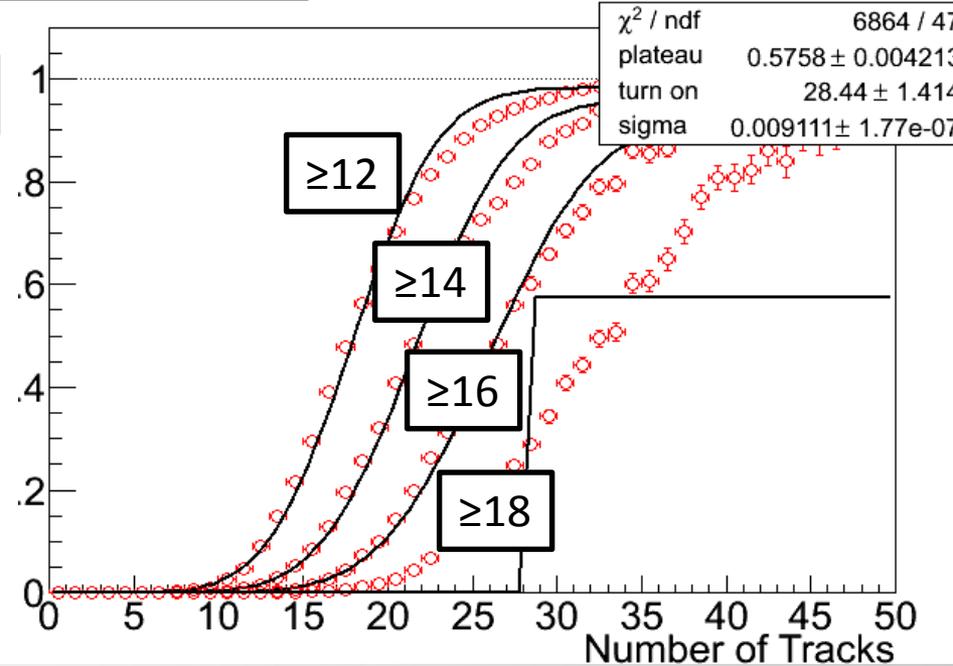
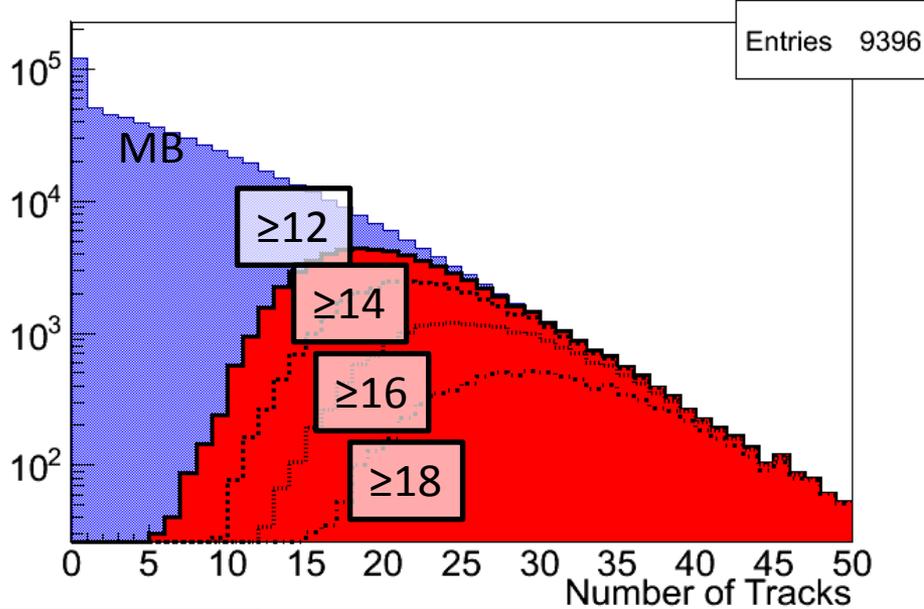
- North is still mostly OK, so direct photon physics for Au low-x is still feasible, but with some loss in acceptance.
- Polarized physics is still OK with the same loss in acceptance (since north is p-going direction).
- South is mostly lost, so high-x physics in Au is lost.



# FVTX Trig Threshold Dependence (South Au-going)

GL1 Invert Efficiency

Number of Tracks per Event (South)



#track Threshold	12	14	16	18
Rates [kHz]	60	32	18	8.6
Purity $\geq 25$	0.31	0.46	0.65	0.79

The trigger performance of Au-going direction is much better than pp case.  
We are running at threshold  $\geq 18$  which provides about 80% purity.

Time Meeting



# High Multiplicity Trigger

Trigger	Allocated Rates	Total Expected Trigger
BBC Centrarity	500 Hz	500 Mevents
FVTX South HighMult	100 Hz	100 Mevents
FVTX North HighMult	100 Hz	100 Mevents

- The main triggers will be Au-going side trigger.
- South FVTX High multiplicity trigger will have 100Mevents whose purity is about 80%. Thus we will have 80M real high multiplicity events on data.



# p+Au Luminosity Goals

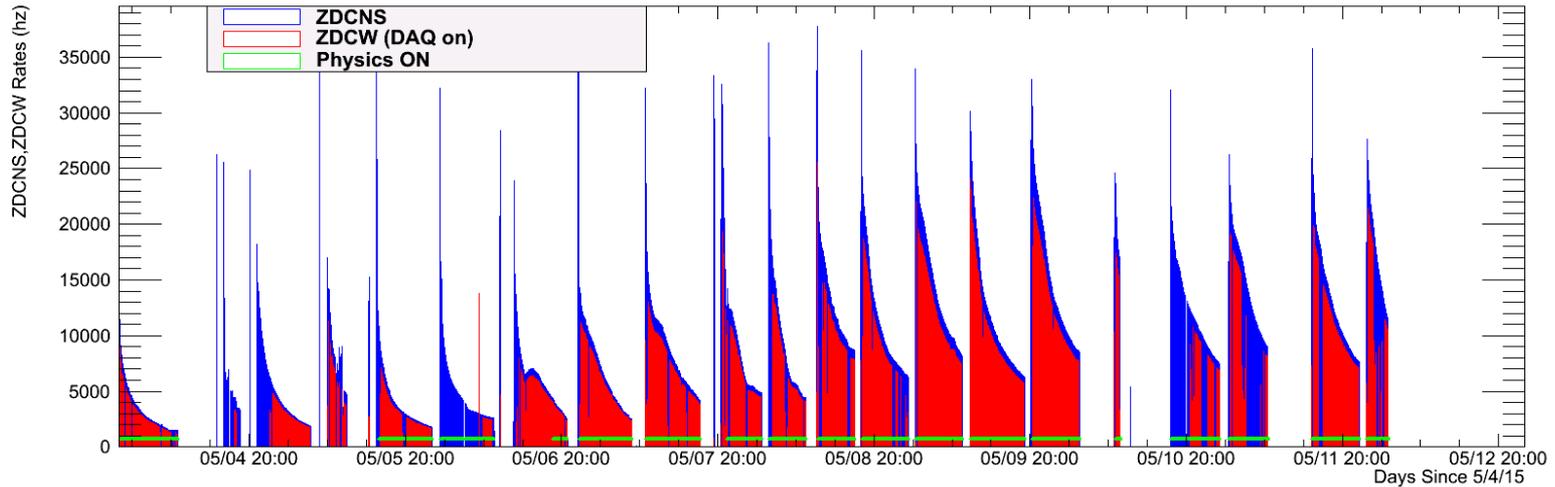
- p+Au @ 200 GeV with transverse polarization of the proton for 5 weeks [Physics driven goal is  **$190 \text{ nb}^{-1}$**  sampled within  $|z| < 40 \text{ cm}$  and  $\langle P \rangle = 60\%$ . We note that the request is with half the data switching the beams to Au+p.]
- p+Al @ 200 GeV with transverse polarization of the proton for 2 weeks [Physics driven goal is  **$450 \text{ nb}^{-1}$**  sampled within  $|z| < 40 \text{ cm}$  and  $\langle P \rangle = 60\%$ ]
- In our BUP, (<https://indico.bnl.gov/getFile.py/access?resId=0&materialId=0&confId=764>) we state that we assume PHENIX uptime 70%, fraction of events within +/- 10 cm (25%) and +/- 40 cm (70%).



# PHENIX Efficiency

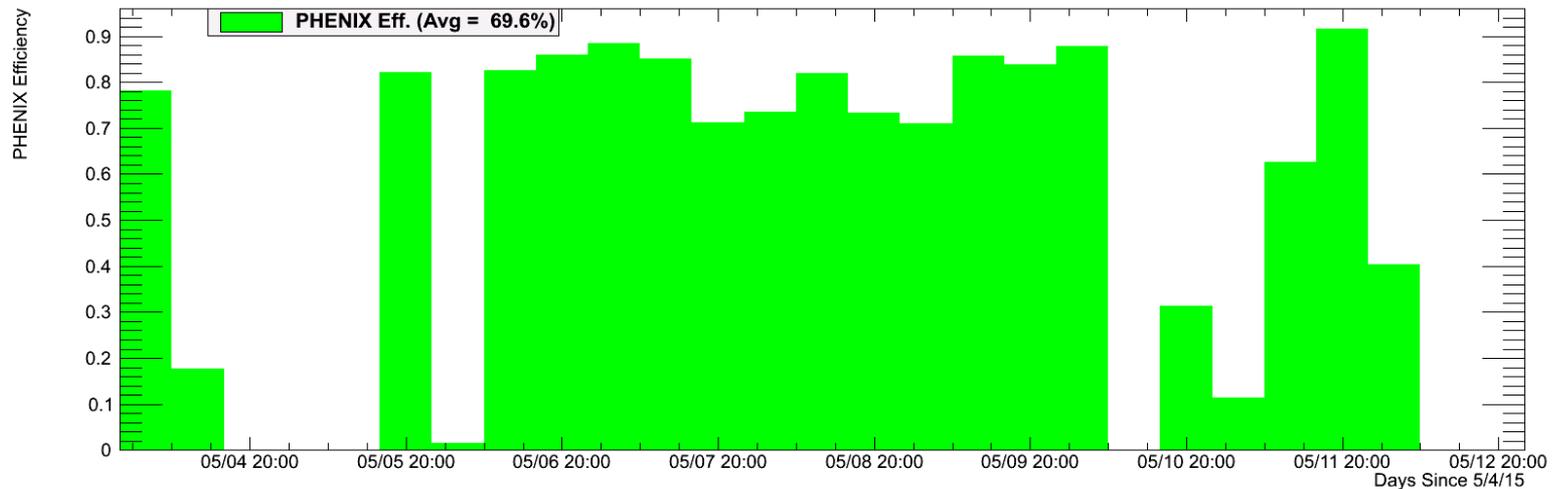
2015 200 GeV pAu

Tue May 12 10:00:15 2015



PHENIX Efficiency vs Day

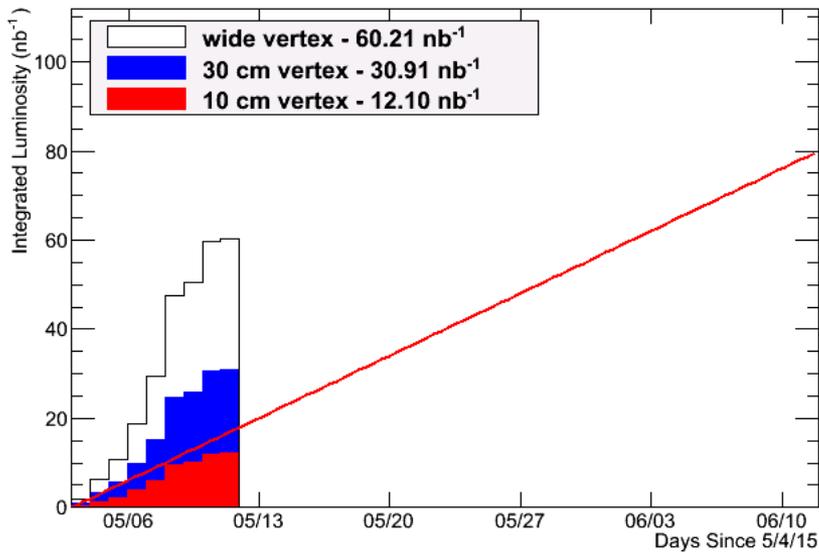
Tue May 12 10:00:19 2015



# Luminosity Progress

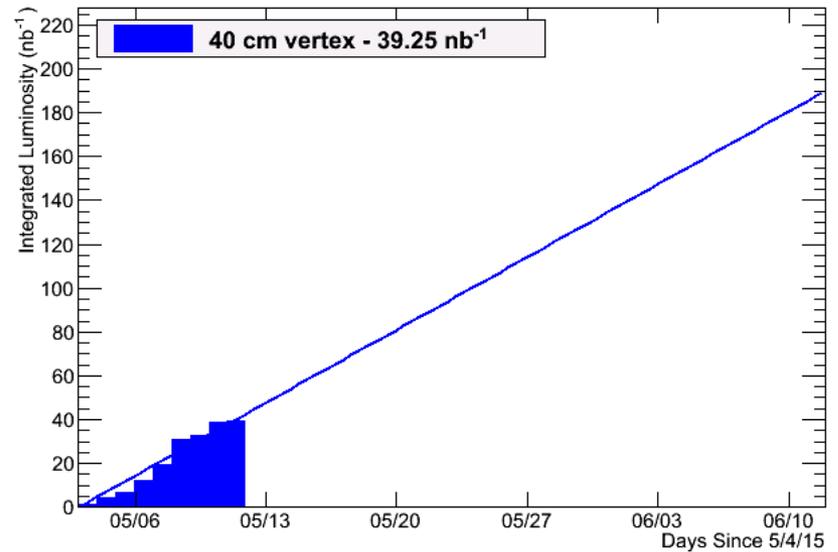
PHENIX Integr. Sampled Lumi vs Day

Tue May 12 09:00:09 2015



MPC-EX Integr. Sampled Lumi vs Day

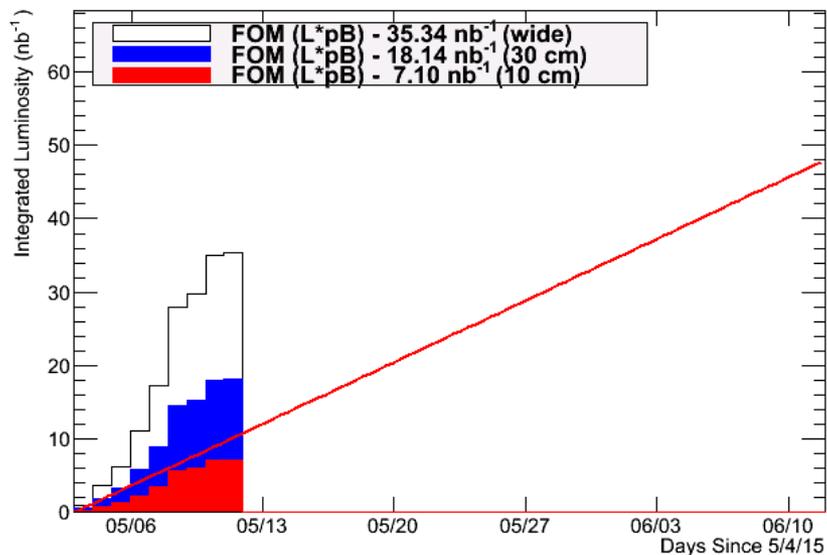
Tue May 12 09:00:09 2015



# FOM Progress

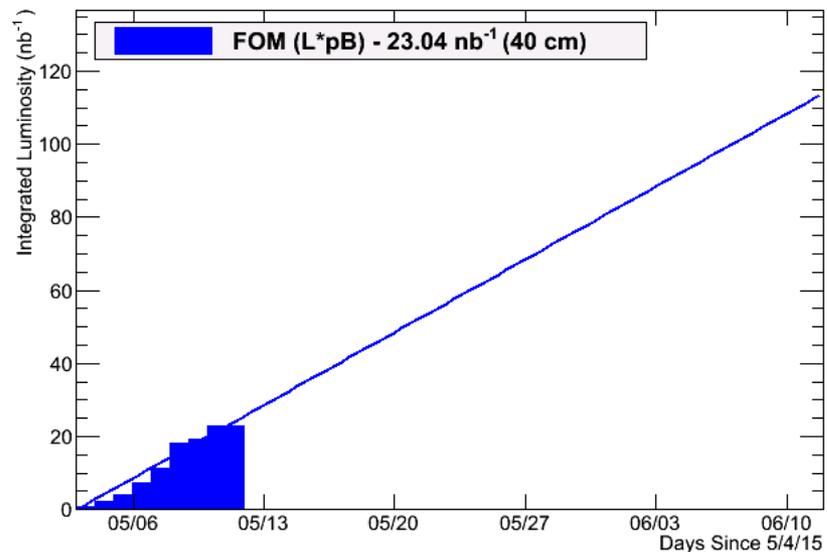
PHENIX Integr. FOM vs Day

Tue May 12 09:00:09 2015



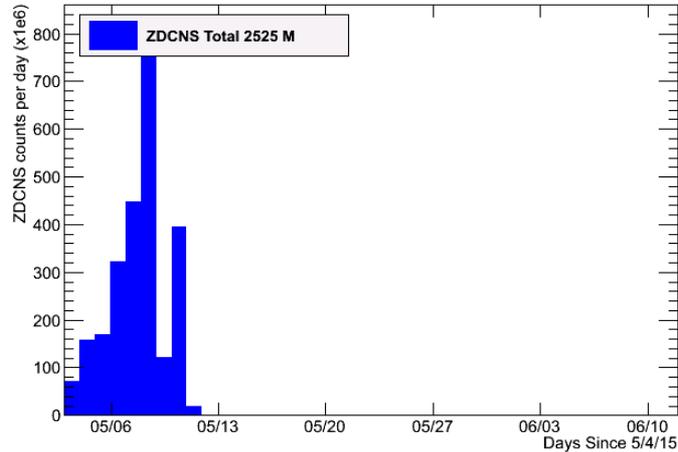
MPC-EX Integr. FOM vs Day

Tue May 12 09:00:09 2015

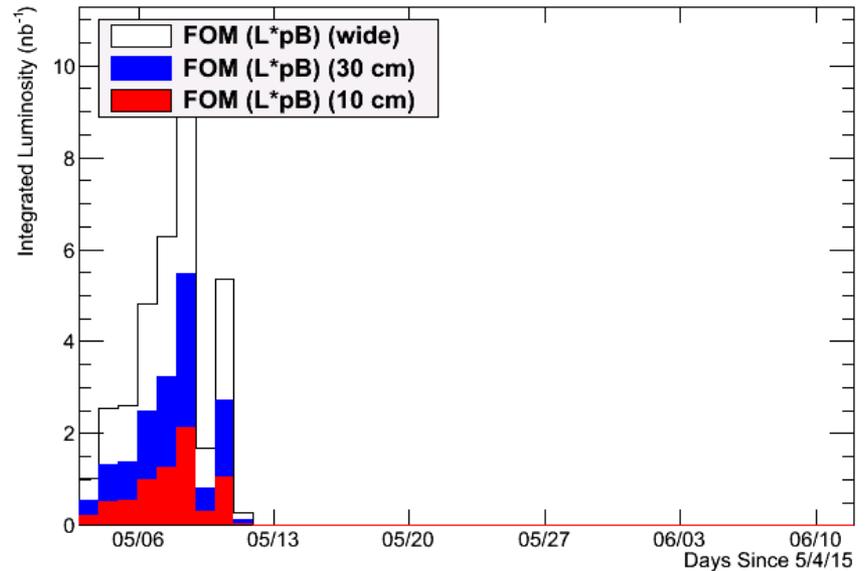


# PHENIX FOM Progress

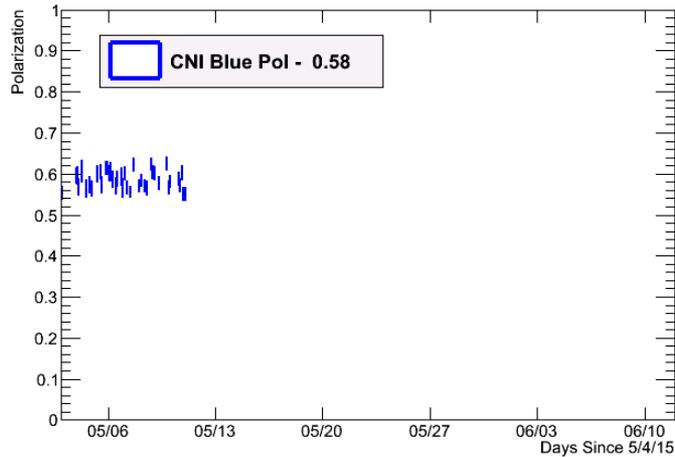
PHENIX ZDC/Day vs Day Tue May 12 09:00:09 2015



PHENIX Integr. FOM/Day vs Day Tue May 12 09:00:09 2015



CNI Polarization vs Time Tue May 12 09:00:09 2015



# Summary

- Trying hard to take pAU data as efficiently as possible, in order to keep the possibility of pAI running.
- Our triggers are setup, and we are taking data when good stores are available.
- Beam loss has killed MPC (especially in North). We are trying to identify how to proceed.

