

# Run Coord. Weekly Report

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UMass

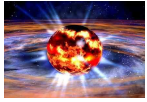
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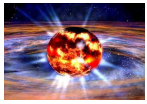
## Experiment Status

- Performed waterfall target pointing measurement (3/21)
- Performed optics calibration (3/22)
- Removed water cell from tgt, install new ladder, pump down (3/23)
- Finalized  $A_T$  detector installation (3/24)
- Achieved high current ( $> 50\mu\text{A}$ ) in the hall (3/25)
- Established beam conf. (slit and atten setting) to give 2 - 10nA (3/26)
- Fixed raster size problem and established  $4\times 4\text{mm}^2$  (3/26)
- First checkout of 18bit ADC main detector signals and noise (3/26)
- Commissioned the production Pb target for high current (3/28)
- Took pseudo-production data with  $50\mu\text{A}$  on thick Pb (3/28)



## Experiment Status (Continued)

- Performed study of new HRS tune (maximizing acceptance) (3/28)
- Followup study (part1) of new tune (3/29)
- Charge feedback tested and working, WAC analysis started (3/30)



## Some Notable Problems Impacting Beam Usage

- Zig zagging beam near the Moller polarimeter
- Large beam spot size ( $> 300\mu\text{m}$  at the target)
- Lingering questions about raster fix...30Hz line lock
- 3/24 – Problem with Left HRS Dipole
- 3/25 – Bad match with injector/N.Linac limited us to  $10\ \mu\text{A}$
- 3/25 – Septum locked/tagged out over night
- 3/26 – Problem with target mover (faulty limit witch)
- 3/27 – beam injection chicane dipole ground fault (down 24hrs)
- 3/28 – broken vacuum valve limit switch (down 4hrs)
- 3/28 – BLM trips in the 2T line limited us to  $50\ \mu\text{A}$



## Weekly Beamtime Accounting

- 156 hours scheduled
- 75 hrs (48%) CW Beam on Target
- 47 hrs Acceptable Beam in Use
- 28 hrs BANU

## Major causes of lost time

- Work in the hall
- Configuration changes requiring access



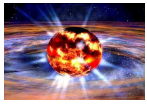
## Where We Stand

- Target is commissioned for high current
- Still need to finalize HRS tune and do septa scans
- We think we understand detector widths, but need angle and  $Q^2$ .
- Detector noise looks outstanding for 240Hz
- Ready to start commissioning Polarimeter 1
- Will also start commissioning polarimeter 2
- Focus on Parity Quality Beam Details
- Goto Production



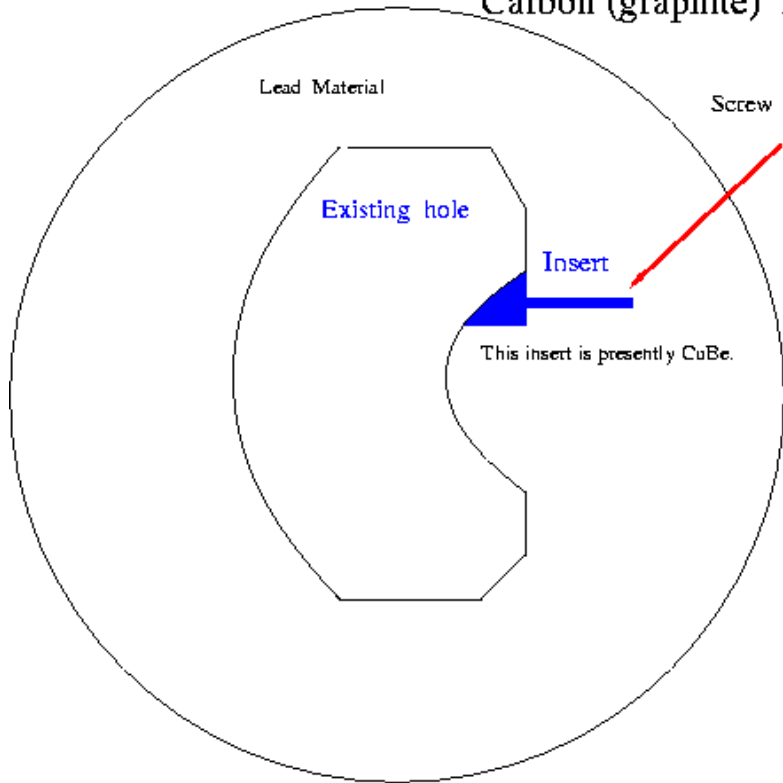
## Upcoming Plans

- Moller Commissioning
- MCC study and establish good beam orbit in the hall
- HRS tune studies: Septa and Q1 scans
- Finalize detector alignment using final tune
- First measurement of  $Q^2$  at 1nA using VDCs
- Commission new dithering system
- Transverse Beam polarization studies
- MCC will take 4 hours of beam studies on Thursday
- Compton Commissioning



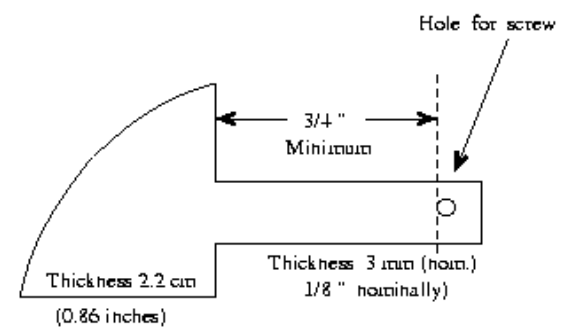
## Collimator $A_T$ Plug Geometry

### Carbon (graphite) Insert to Replace CuBe.



Screw goes into lead here.  
to capture the insert and hold piece in place.

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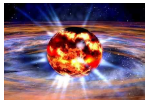
**Material: Graphite (Carbon). No magnetic material !!**

Shape to conform to CuBe piece (on the exposed part)  
But it is thinner (2.2 cm)

To hold in the lead, an insert goes into the lead.  
A screw goes into the lead (tapped hole) and catches the insert.

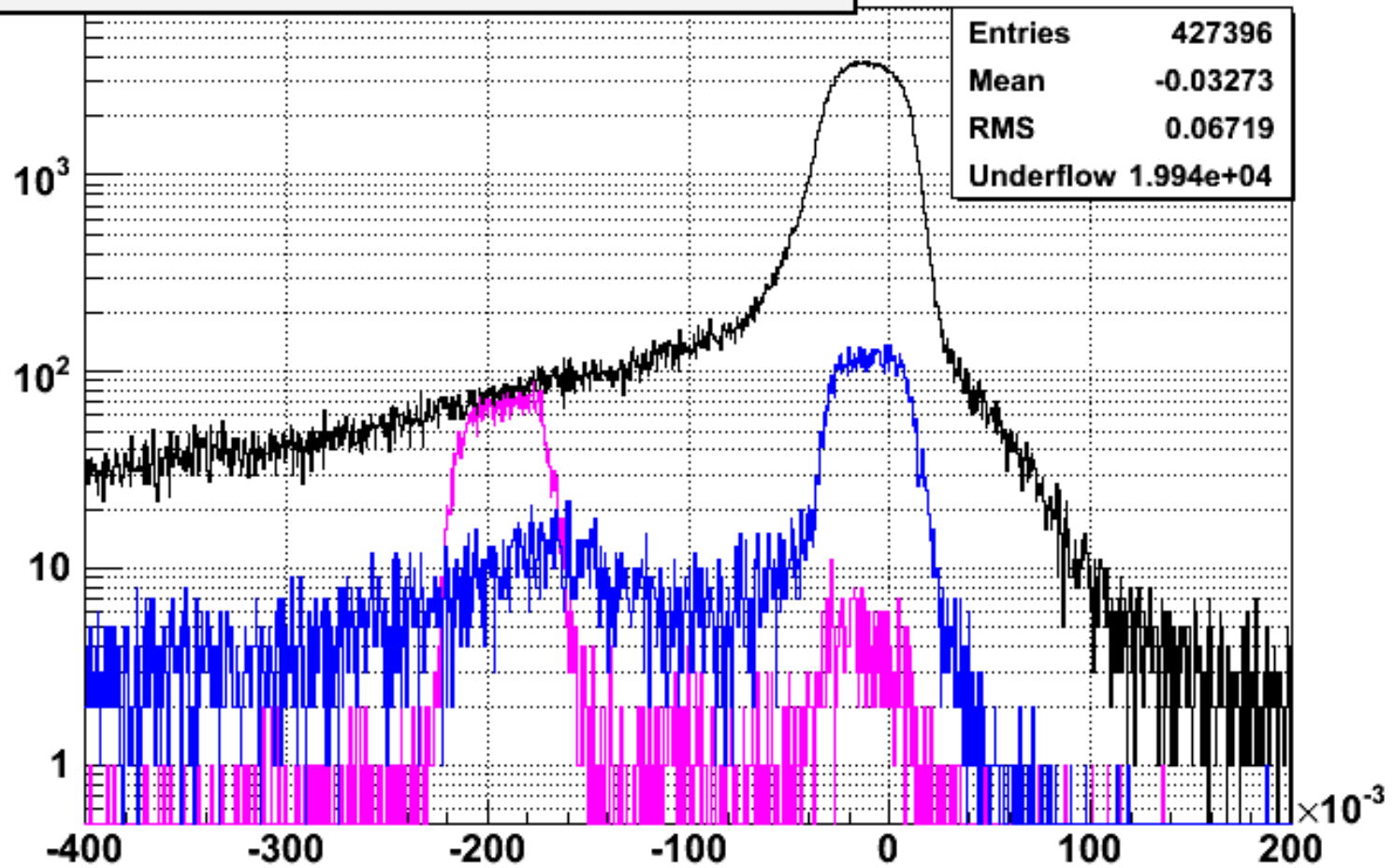
- Some important points:
- 1) Don't remove too much lead (1/8" hole max).
  - 2) Keep screw hole at least 3/4" away from main hole.

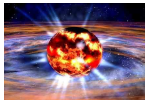




## Finding the $A_T$ Plug Events in Detector Plane x

`(L.tr.r_x+L.tr.th*1.48)*sqrt(2) {L.tr.n==1&&D.evtypebits&0x32}`





## Finding the $A_T$ Plug Events in Detector Plane y

`(L.tr.r_y+L.tr.ph*1.48) {L.tr.n==1&&D.evtypebits&0x32}`

