Run 12 200GeV Online Local Polarimetry

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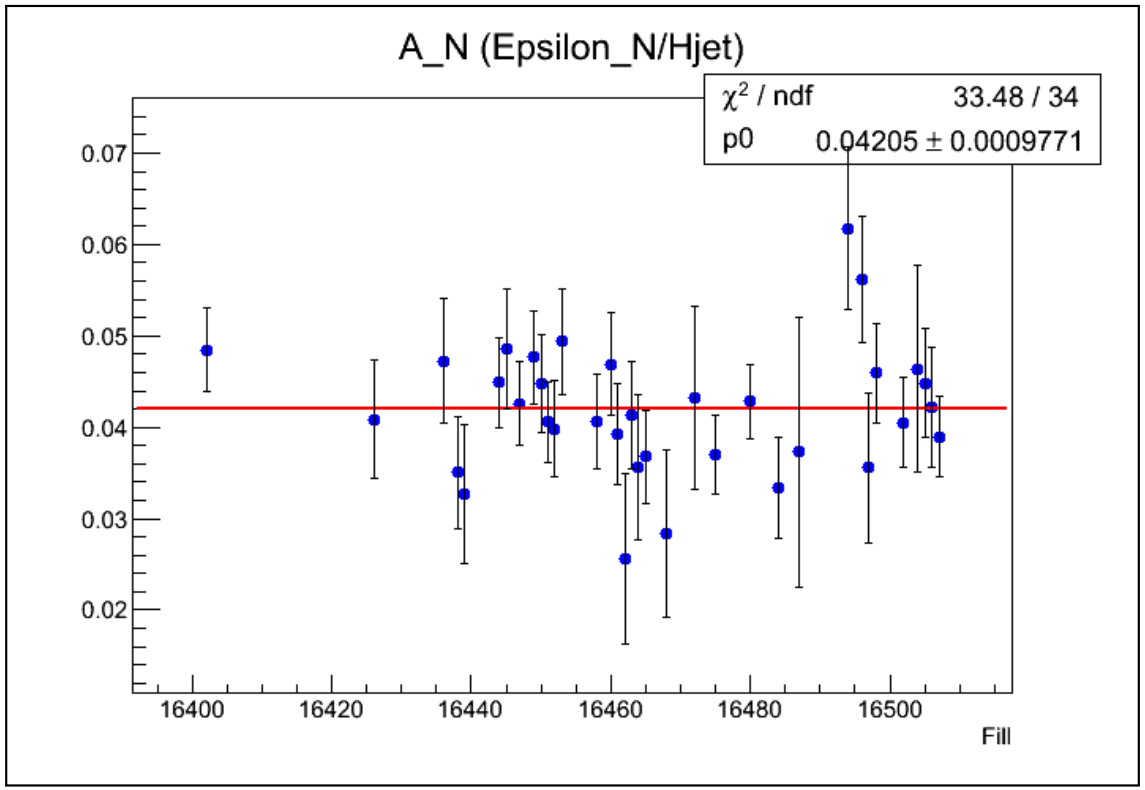
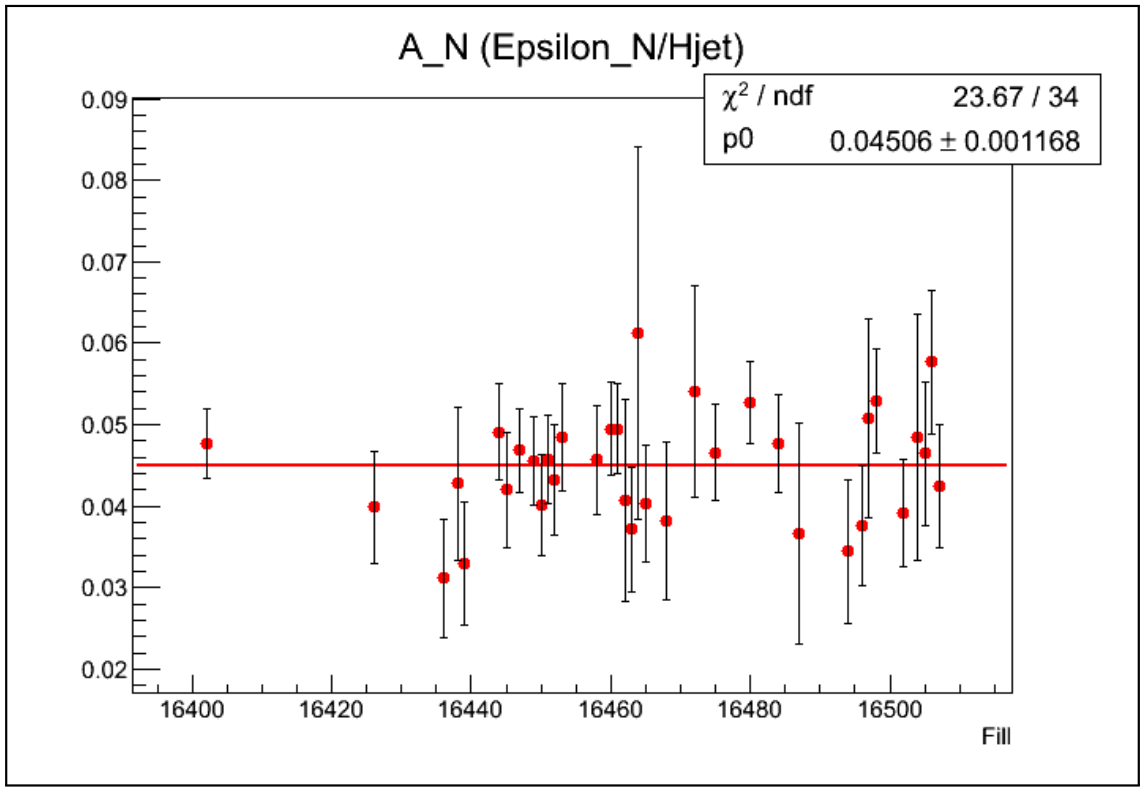
Classical Local Pol

- Offline analysis with data from DAQ (200 Hz during normal running time)
- Useful because we can make energy cuts and eliminate a large amount of background
- We calculate a raw asymmetry (and A_N) as a function of phi

Results for Blue A_N



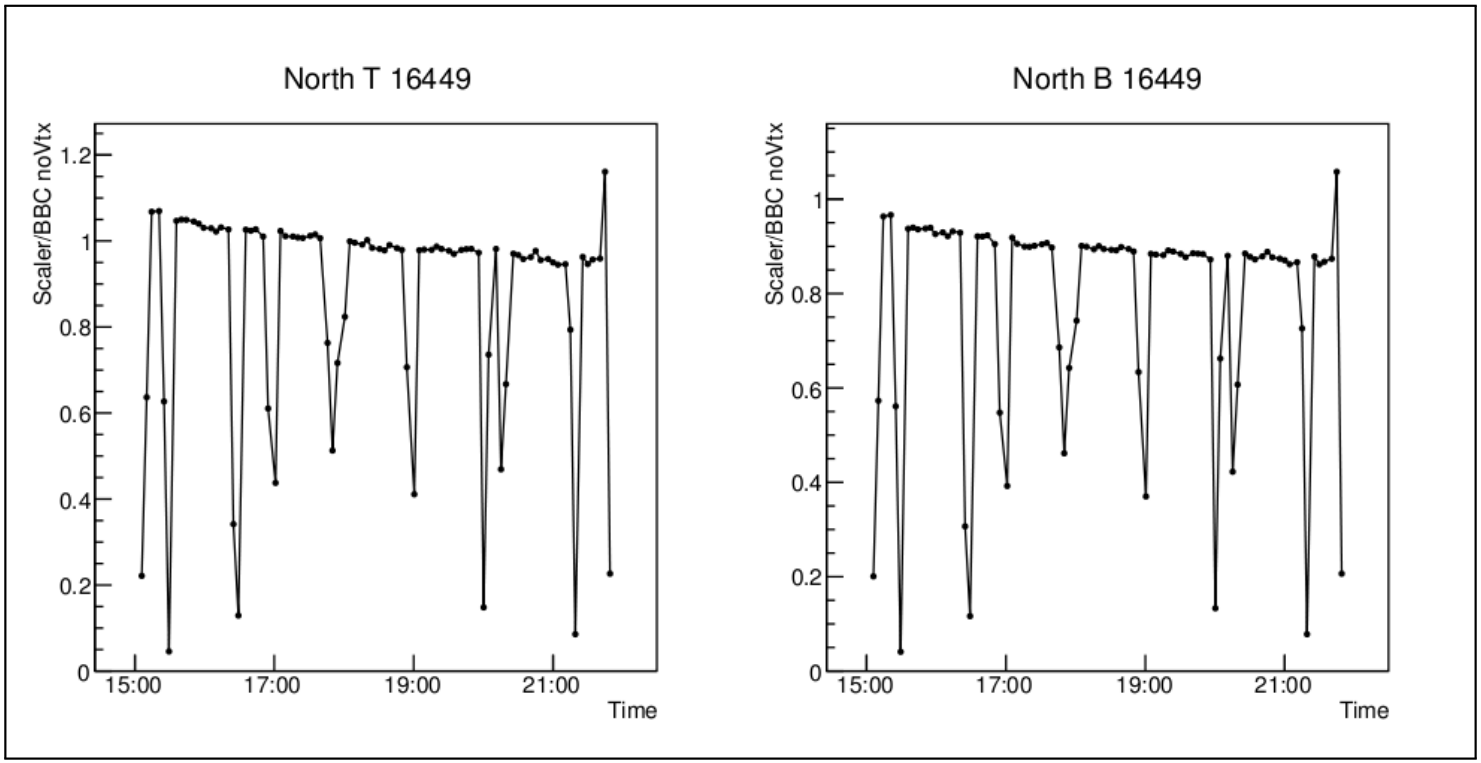
Results for Yellow A_N



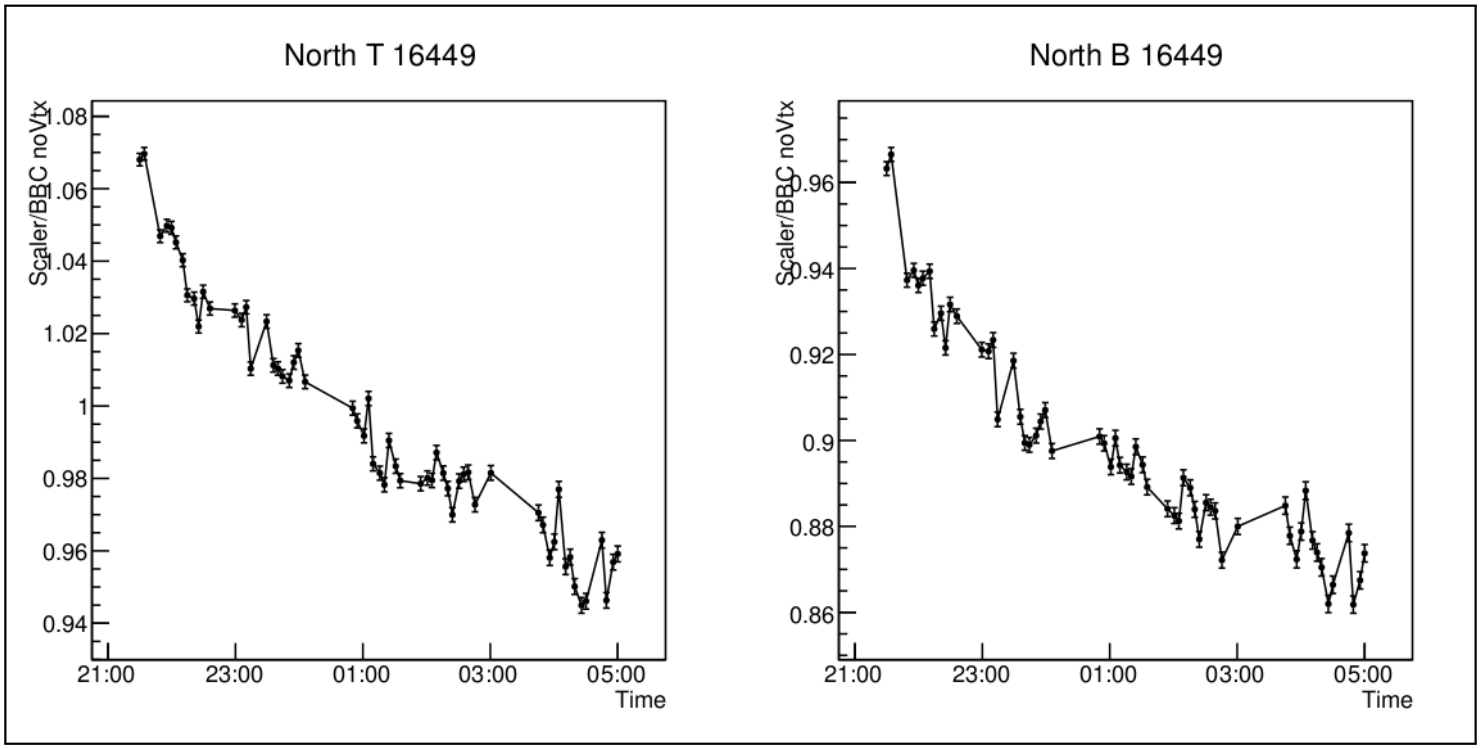
Scaler Local Pol

- We use the Shower Max Detector in the ZDC to get scaler counts for each crossing every 5 minutes (L,R,U,D)
- Does not use DAQ bandwidth
- Has a fast return rate (the analysis is integrated in the PHENIX online monitoring and is done automatically)
- We cannot make energy cut on the ZDC and it is sensitive to backgrounds (the A_N is diluted by backgrounds giving us a smaller asymmetry) (we are working to gate this with the ZDC coincidence)

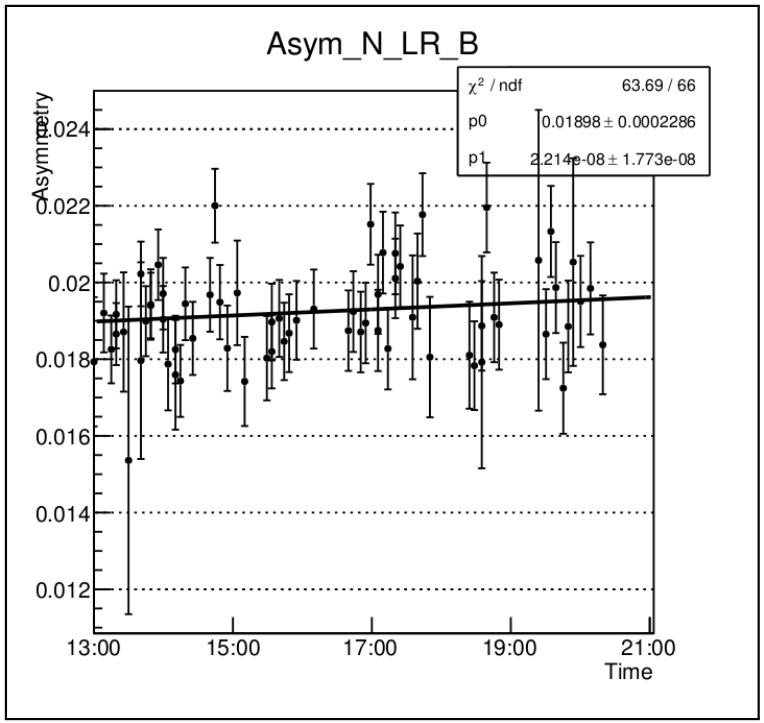
Scaler counts/BBCnoVtx with bad points

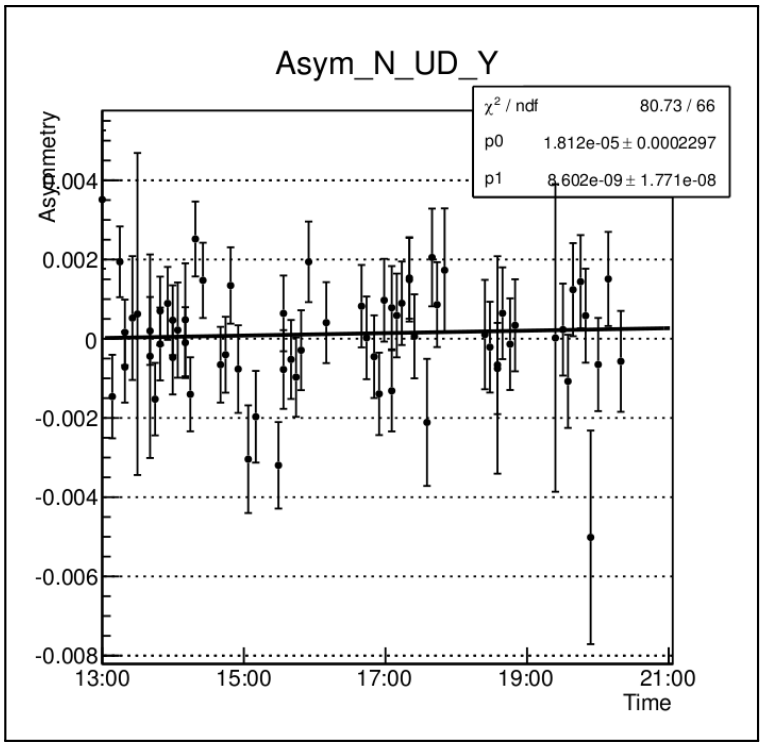


Scaler counts/BBCnoVtx



Raw asymmetry for fill 16449





- We will use both of these methods to get a $< 5\%$ transverse component at PHENIX
- We need:
  - 1 fill of transveser beam
  - 1 fill of rotator commissioning with the Scalars (we would like to be at MCR so that we can give fast feedback to the person responsible with setting Rotator magnet currents)
  - 1 fill of longitudinal beam (to confirm small transverse component)
- For the rotator settings we would suggest starting with the run12 settings (from the 5 we tried the last settings had the lowest transverse component)

- The Classical method shows that the A_N as we measure is stable for both blue and yellow beams
- We are making progress in understanding our scalars (and plan to improve them soon)
- As expected we can see the scalar counts have some luminosity dependence (we are going to extract a systematic from it)
- We are working on getting a decay parameter for the polarization
- Fully ready for rotator commissioning