
Progress in Analysis since Collaboration Meeting

James Dunlop

BNL

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Papers

- **Extremely active in recent months**
- **Hope we can sustain this**

- **Balance Function PRL published**
 - Phys.Rev.Lett. 90 (2003) 172301
- **High P_T Au+Au and p+p PRL submitted**
 - nucl-ex/0305015
- **3 Pion PRL submitted**
- **L/K0s R_{CP}/v_2 PRL submitted**
 - nucl-ex/0306007
- **dAu high P_T PRL in front of the collaboration**
 - Only 2 months after the end of datataking!

Papers in the pipeline

- **130 GeV Kaon PLB(resubmission)**
 - Needed embedding work
- **130 GeV proton/pbar PRL**
 - Final analysis with new embedding done
- **Multiplicity fluctuations PRC**
 - Final analysis in progress
- **In GPC**
 - p_T fluctuations PRL
 - 130 GeV multi-strange baryon PRL
 - Non-identical correlations PRL
 - 200 GeV r PRL
 - 130 GeV Pion PRC
 - 200 GeV $\langle p_T \rangle$ PRC
 - 130 GeV photon PRC

Papers in the pipeline (2)

- **Through preview process**
 - **200 GeV HBT vs. reaction plane PRL**
 - **200 GeV HBT long PRC**
 - **130 GeV $m_T \times m_T$ correlation PRL**
 - **130 GeV dh/dy correlation PRL**
 - **200 GeV p/K/p spectra PRL**
 - **200 GeV f spectra (Au+Au/p+p) PRL**
 - **200 GeV FPD spin asymmetry PRL**

Embedding Story

- **Problems found in all embedding analyses**
 - Simple bug in mixer
 - Tuning of gain factor in TPC simulator
- **Effect: need to redo embedding analyses**
 - Range from negligible to ~5% on single particle distributions, depending on cuts
 - Effect is naturally larger in V0 analyses
 - Will see more during this meeting

dAu Production

- **Main trigger Id: 2001 || 2003 (ZDC East)**
- **Statistics (after bad run removal, ~10%)**
 - 20 (9)M good triggers (events $|\text{vert}_z| < 50$ cm) with good FTPC
 - 25 (11)M good triggers (events $|\text{vert}_z| < 50$ cm) neglecting FTPC
 - http://www.star.bnl.gov/protected/common/badRuns_dAu_2003/badruns.html
- **Properties of these events**
 - 93% vertex efficiency for minbias
 - Measured two ways
 - Events w/ vertex / All events after background subtraction
 - Folding of ZDCE*ZDCW events vs good globals into ZDCE data
 - Lower for more peripheral bins: ~85% for ZDC E*W (19% peripheral)
 - ~5% non-interaction backgrounds after vertexing (15% before...)
 - ~5 (+/- 3)% missing cross-section in ZDCE trigger
 - Measured and extrapolated from 3% of BBC-triggered events missing ZDCE and/or W

dAu Centrality

- **FTPC cut necessary for TPC-based analyses**
 - Autocorrelations between multiplicity at midrapidity and measurements at midrapidity
 - FTPCE: $-3.8 < h < -2.8$ No autocorrelations
 - $|vz| < 50$ (30?) cm to avoid acceptance issues
 - For analyses at forward rapidity (FTPC, FPD) should cut on TPC again to avoid autocorrelations
- **Easiest to handle: 20% central and minbias**
 - Peripheral region needs detailed look at vertex efficiency, trigger efficiency, and backgrounds
 - 20% central cut decided on: FTPCE ≥ 17

dAu Further Considerations

- **dE/dx has had some issues**
 - Mismatch between expectations and calibrated results
 - Reproduction of MuDst's done: still not completely right
 - Nsigma offset from center of band. Currently $|\text{Nsigma}| < 2$ is the recommendation
- **Other calibrations not finished**
 - No serious attempt to look at spacecharge: no correction
 - Please don't attempt high pt charge-separated analyses
 - Critical for V0's?
 - Will be complicated by highly asymmetric charge dist'n
 - FTPC calibrations known not to be final
 - P_T distributions in the FTPC probably not correct
 - SVT calibrations need some finalization
- **Likely another pass in September, combined w/ ITTF**

Back to Y2: Au+Au considerations

- **Spacecharge corrections**
 - See Gene Van Buren's talk
 - Affects V0's, charge-separated high p_T
 - Likely we can correct on the MuDst level
- **Increasing statistics: MinBiasVertex**
 - Need to select $|vz| < 15$ cm runs ≤ 2246008
 - Can select $|vz| < 25$ cm runs > 2246008
 - Decreases statistical errors by $\sim 30\%$

Year 3 p+p considerations

- **Data taking finished**
- **Started pass: please look and give feedback**
- **Complicated trigger setup**
 - Largest fraction of statistics not minbias
 - Will need to know the setup of the triggers: documentation will be forthcoming
- **Pileup not as immense of a problem as expected due to the performance of the accelerator**

Clearly a whole slew of exciting results will be coming out of this collaboration in rapid order