Experiment E99-117 Data Analysis

Issues

December 12, 2001

- Charge asymmetry
  - ◇ charge asymmetry oscillation during beam ramping
  - ◇ removing beam trips
    - ∗ synchronization of ev_time and scaler clock
    - ∗ 1MHz clock, ev_time offset
- Scalers
  - – A_1^n, multiple peaks in triggers, cross-arm, clean copies
  - – g_2^n elastic, scalers not cleaned at the start of run - wrong cable connection
- Helicity issues during A_1^n
  - ◇ Pseudo-random or toggle ?
  - ◇ Glitches in helicity signal from MCC
  - – Left - 1500 ppm asymmetry in helicity states, $\sim 10^{-5}$
  - – Right - additional helicity pulses, $< 10^{-5}$
  - ◇ False asymmetry test $<$ 200ppm
- Target related
  - ◇ EPR performed during data taking
  - ◇ Field direction for g_2^n - $<$0.5° required

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- Δ asymmetry
  - 2σ difference in left .vs. right
- x=0.61 physics asymmetry
  - descrepancy between 1st and 2nd period
  - $A_{e^-}: -2.5\sigma$
  - $A_{\pi^-}: 3\sigma$
- Acceptance cut and PID cut dependence
  - marginal effects ($\sim 2\sigma$) observed
- Statistics vs Systematics
- ESPACE
  - bad events (det_x=$\pm$ 1m, det_y=$\pm$ 0.4m) reconstructed back into acceptance, 0.4σ at x=0.61;
  - more problems?