

Hall A Run Coordinator Report on $^3\text{He}(e,e'd)$

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May 19-26, 2009

Overall

- Smooth production running at 10 uA
- Compton cavity not locked
- Beam Time Accounting:

Scheduled	ABU	BANU
151.85 hr	109.73 hr	19.74 hr
—	72.26 %	13 %

Reasons For BANU

- Target work in the hall (~4hr), multiple times of target polarization direction changes, target NMR measurements, minor DAQ problems.

Total Charge Collected during May 19-26, until now:

Transverse Pol +ve, half-wave-plate OUT total: 0.75C

Transverse Pol -ve, half-wave-plate OUT total: 1.2619 C

Transverse Pol +ve, half-wave-plate IN total: 0.9035 C

Transverse Pol -ve, half-wave-plate IN total: 1.1056 C

Daily Activity

Tuesday, May 19, 2009

- Beam study 07:00 to 16:15, but after beam study, problem in linac (NL access to restart turbo pump at 1L06), beam down for 3 hrs.
- During beam study time, various opportunistic access activities (Target, DAQ, RHRS Q1 power supply, etc), target polarization changes from longitudinal to Transverse.

Wednesday, May 20, 2009

- Did Moller measurement [10:15-13:30], result: 78.7% beam pol.
- Spot move ~2 PM [0.5 hr down]
- Starting Swing shift, RHRS CODA stopped working (for about an hr taken LHRS data only) due to “/tmp” directory 100% full.
- MCC lost communication with “iochla”, no beam for 22:37-24:15.

Thursday, May 21, 2009

- Beam stops at 07:00 for RF-recovery and cathode re-activation
- Various opportunistic work in the hall: target-work by Yi and Jin, Compton work by Compton-crew, and misc DAQ work.
- Beam back at 18:00 after 11 hr.
- Moller (Hall B) result after cathode re-activation: 82%

Friday, May 22, 2009

- Beam away [09:15-10:00] due to MCC control system problem.
- Target work [18:30-23:00] expecting to get higher polarization
- Had to wait for ~ 4 hrs for the re-polarization before putting the beam on ^3He
- Doug did some calibration runs (momentum scan) during this time extending to Owl next day:

Taking hydrogen and ^{12}C data at the following momentum settings:

Left HRS	Right HRS
2.777	2.2248
2.250	2.200
2.225	2.175
2.200	2.150
2.175	(return rhrs to 2.2248 while doing last lhrs point)

Saturday, May 23, 2009

- Owl shift starts with Doug's momentum scan while waiting for ^3He target being pumping up.
- Seen target polarization really increased from 51% to 58%.
Though it seems a small change, it's a 33% improvement in the experiment's figure of merit.

Sunday, May 24, 2009

- Target polarization state changed from Transverse –ve to Transverse +ve.

Monday, May 25, 2009

- Smooth running

Tuesday, May 26, 2009

- Beam study underway from 08:30 and expect to end at 15:00.

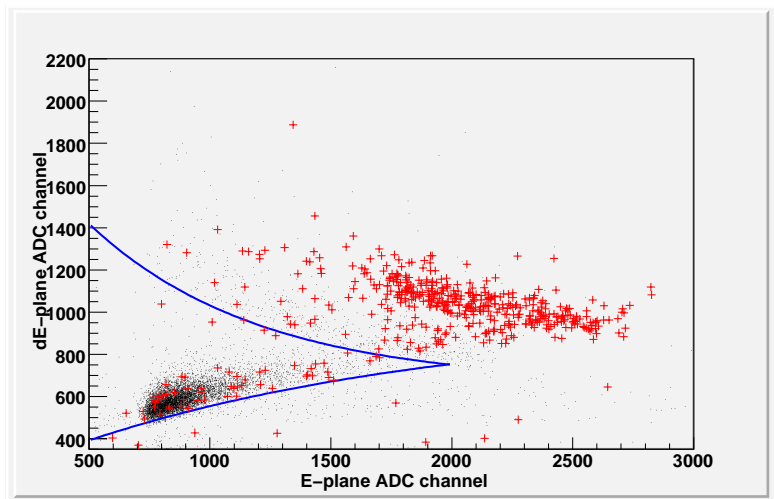


Figure: dE-plane ADC vs E-plane ADC plot (from 1 paddle in each) using an elastic deuterium run. The cluster above the punch-line is due to deuterons.

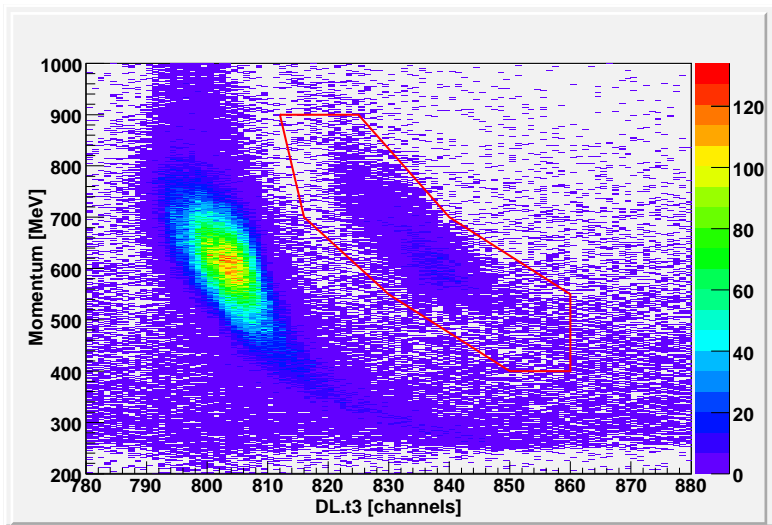


Figure: Momentum vs timing plot for the same data.

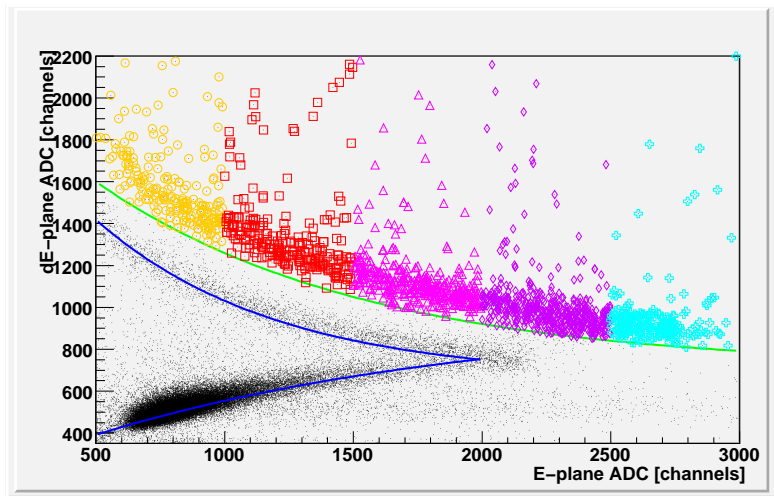


Figure: Same type of plot, as in the first figure, on production target (^3He).

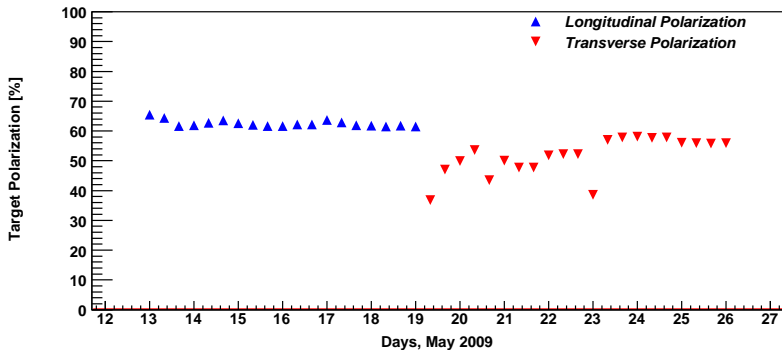


Figure: Target polarization during $^3\text{He}(e,e'd)$ running so far.

Future Activities

- During beam study time today:
 - Moved RHRS from 16 deg to 18 deg.
 - Moved BigBite from 75 deg to 82 deg.
- Keep taking production data.