

E02-013 Analysis Update

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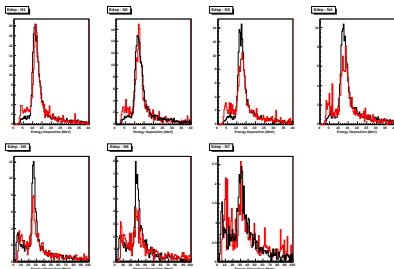
October 7, 2009

- ▶ Monte Carlo
 - ▶ Tweaked thresholds, background
 - ▶ Evaluated count, asymmetry differences
 - ▶ MC A vs. Δt
- ▶ Analysis
 - ▶ D_p vs. y , kinematics
 - ▶ Misak supplied ^3He corrections

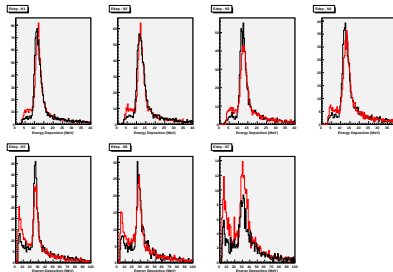
Monte Carlo Changes

- ▶ Background was not being generated uniformly (recent problem)
- ▶ Bar virtual disc. thresholds lowered
 - ▶ CMU by 25%, UVA by 65%

before

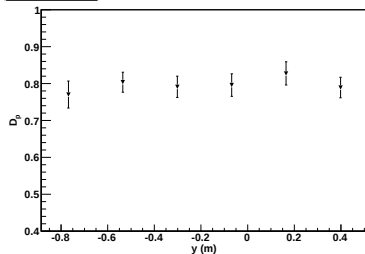


now

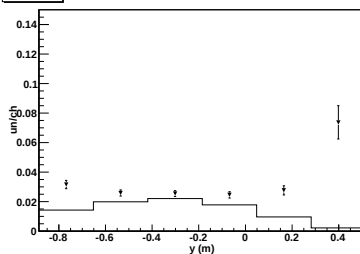


Kin 4, data ratios

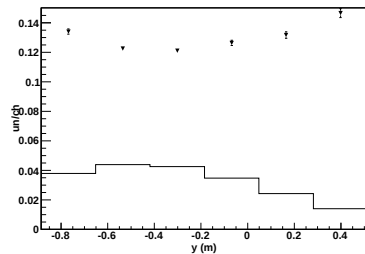
D_p vs. y , Kin 4



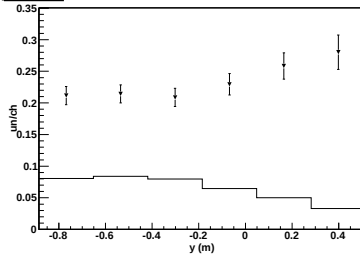
Kin 4, H_2



Kin 4, 3He

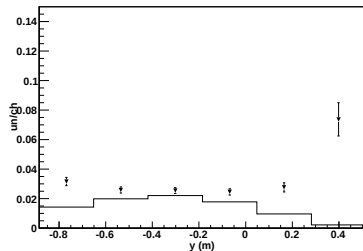


Kin 4, N_2

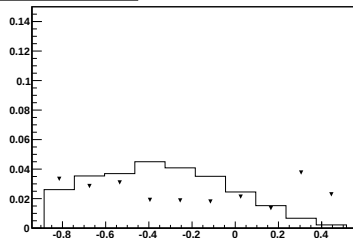


Kin 4, data vs. MC ratios

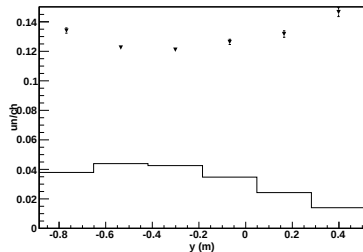
Kin 4, H_2



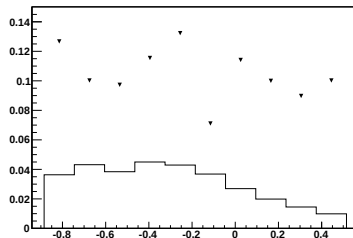
Kin 4, Monte Carlo, H_2



Kin 4, 3He

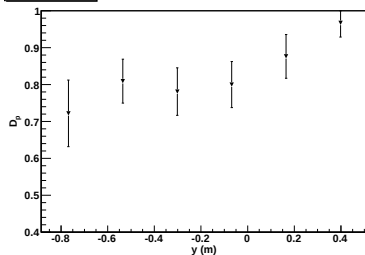


Kin 4, Monte Carlo, 3He

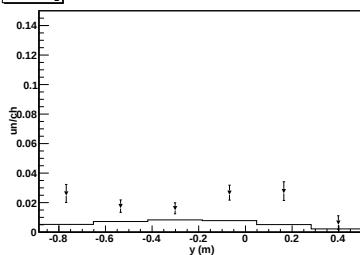


Kin 2, data ratios

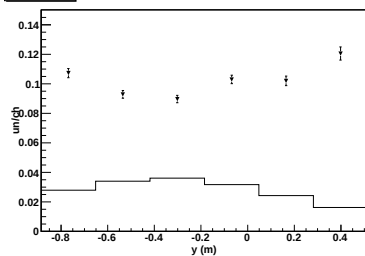
D_p vs. y , Kin 2



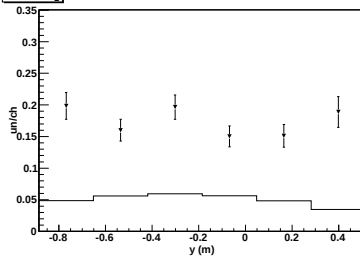
Kin 2, H_2



Kin 2, 3He

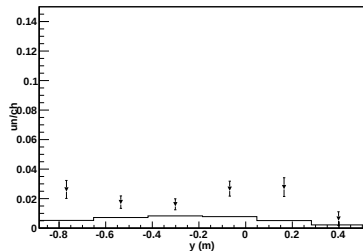


Kin 2, N_2

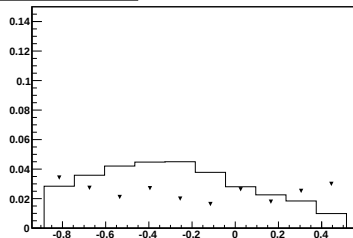


Kin 2, data vs. MC ratios

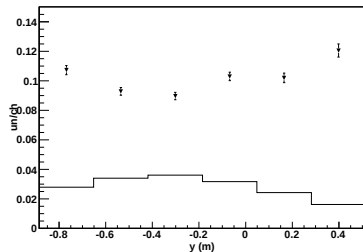
Kin 2, H_2



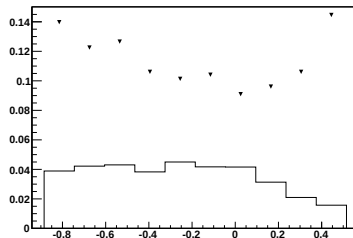
Kin 2, Monte Carlo, H_2



Kin 2, 3He

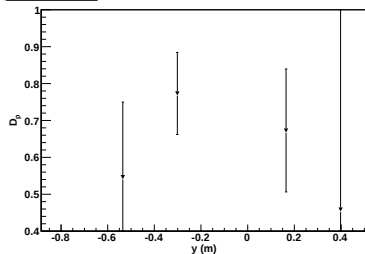


Kin 2, Monte Carlo, 3He

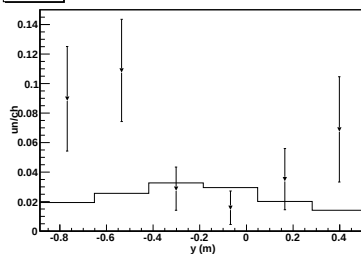


Kin 3, data ratios

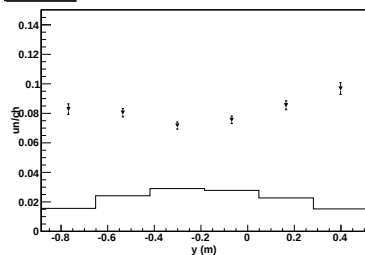
D_p vs. y , Kin 3



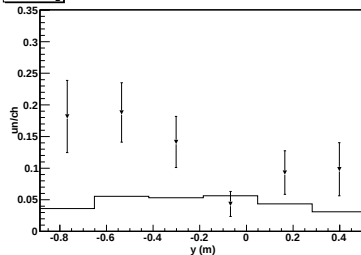
Kin 3, H_2



Kin 3, 3He

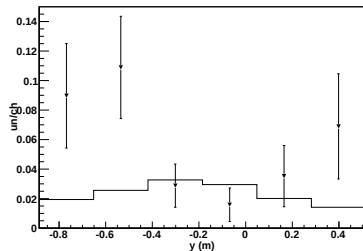


Kin 3, N_2

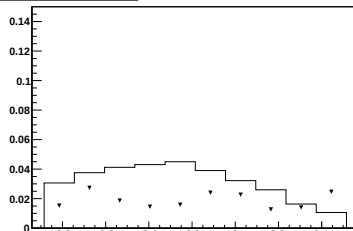


Kin 3, data vs. MC ratios

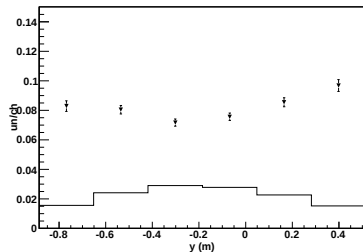
Kin 3, H_2



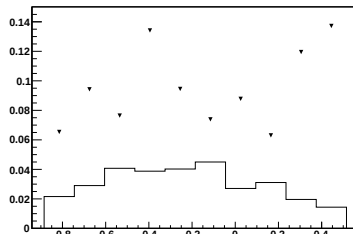
Kin 3, Monte Carlo, H_2



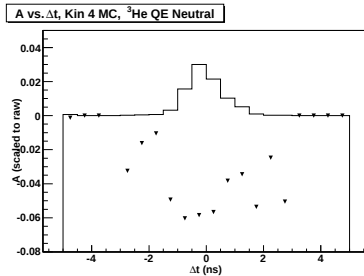
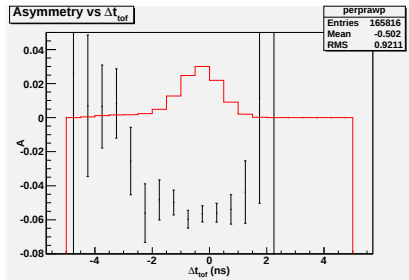
Kin 3, 3He



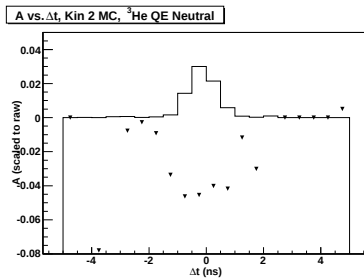
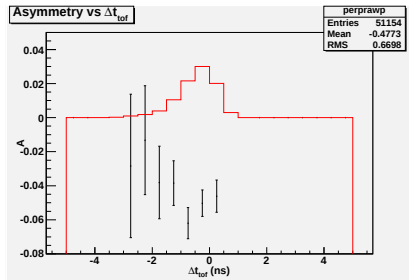
Kin 3, Monte Carlo, 3He



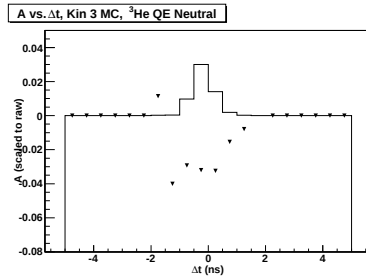
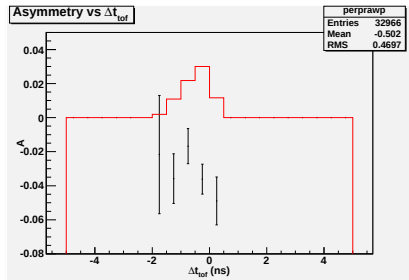
Kin 4, A vs Δt



Kin 2, A vs Δt



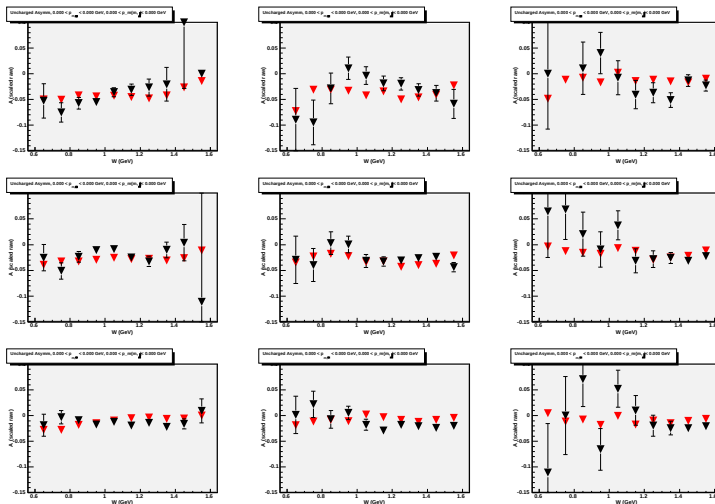
Kin 3, A vs Δt



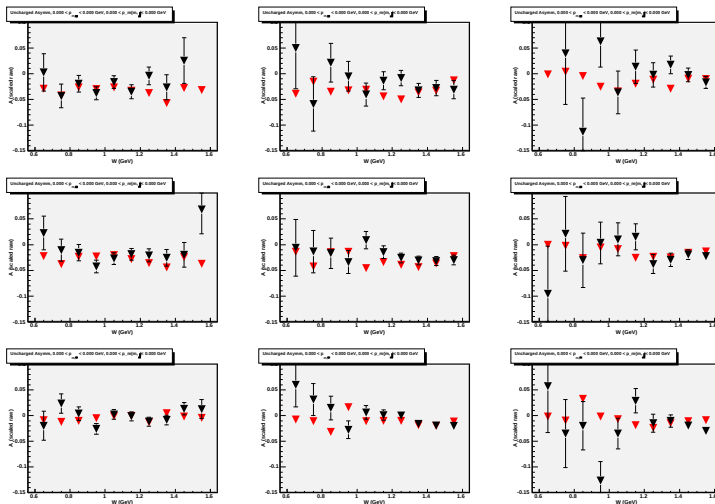
	Kin 4	Kin 2	Kin 3
D_p (MC)	0.7848	0.7871	0.7399
D_p (Data)	0.7657 ± 0.014	0.768 ± 0.030	0.828 ± 0.079
un/ch ^3He (MC)	0.1070	0.1079	0.1013
un/ch ^3He (Data)	0.114 ± 0.001	0.091 ± 0.001	0.071 ± 0.001
un/ch H_2 (MC)	0.0241	0.0253	0.0226
un/ch H_2 (Data)	0.029 ± 0.001	0.021 ± 0.002	0.020 ± 0.002

- ▶ Data D_p uses latest p/n from MC
- ▶ D_p for kin 2,3 changed - found many H_2 runs had different threshold from ^3He runs

Kin 2 Asymm Comp



Kin 3 Asymm Comp

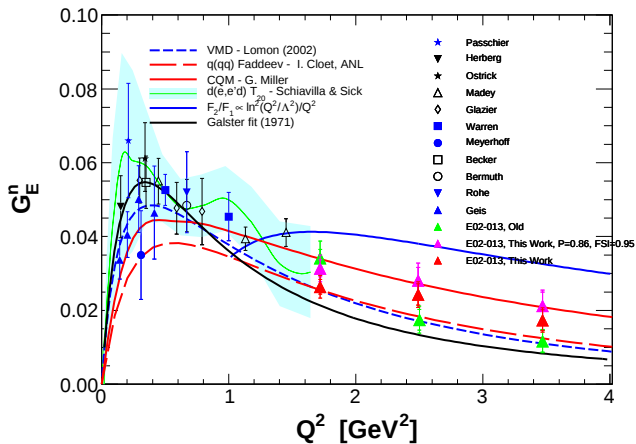


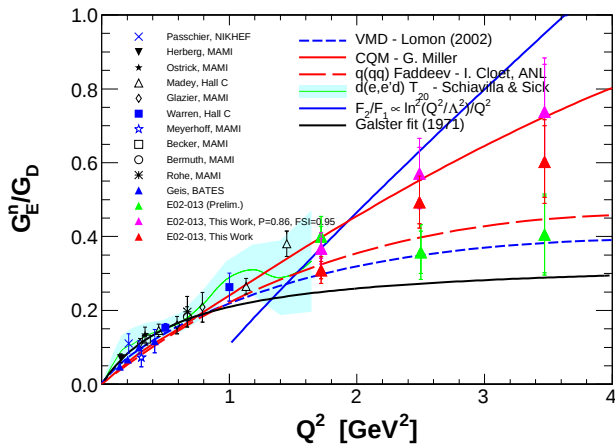
Data/MC - comparison

	Kin 4	Kin 2	Kin 3
unch Δ	0.058	- 0.047	0.076
unch σ	0.279	0.337	0.402
ch Δ	0.037	0.076	0.006
ch σ	0.424	0.402	0.264
A Δ	-0.003	-0.001	0.000
A σ	0.012	0.022	0.011

^3He Corrections

$\langle Q^2 \rangle$ (GeV^2)	A Free n	A PWIA	A FSI+CHX	$D_{\text{pol,FSI}}$
1.74	-0.2163	-0.2079	-0.1952	0.9025
2.52	-0.1635	-0.1592	-0.1509	0.9229
3.51	-0.1081	-0.1080	-0.1042	0.9648





To Do

- ▶ Talk ready for DNP
- ▶ Minimize error for K_{in3} cuts
- ▶ Work in beam polarization
- ▶ π asymmetry correction