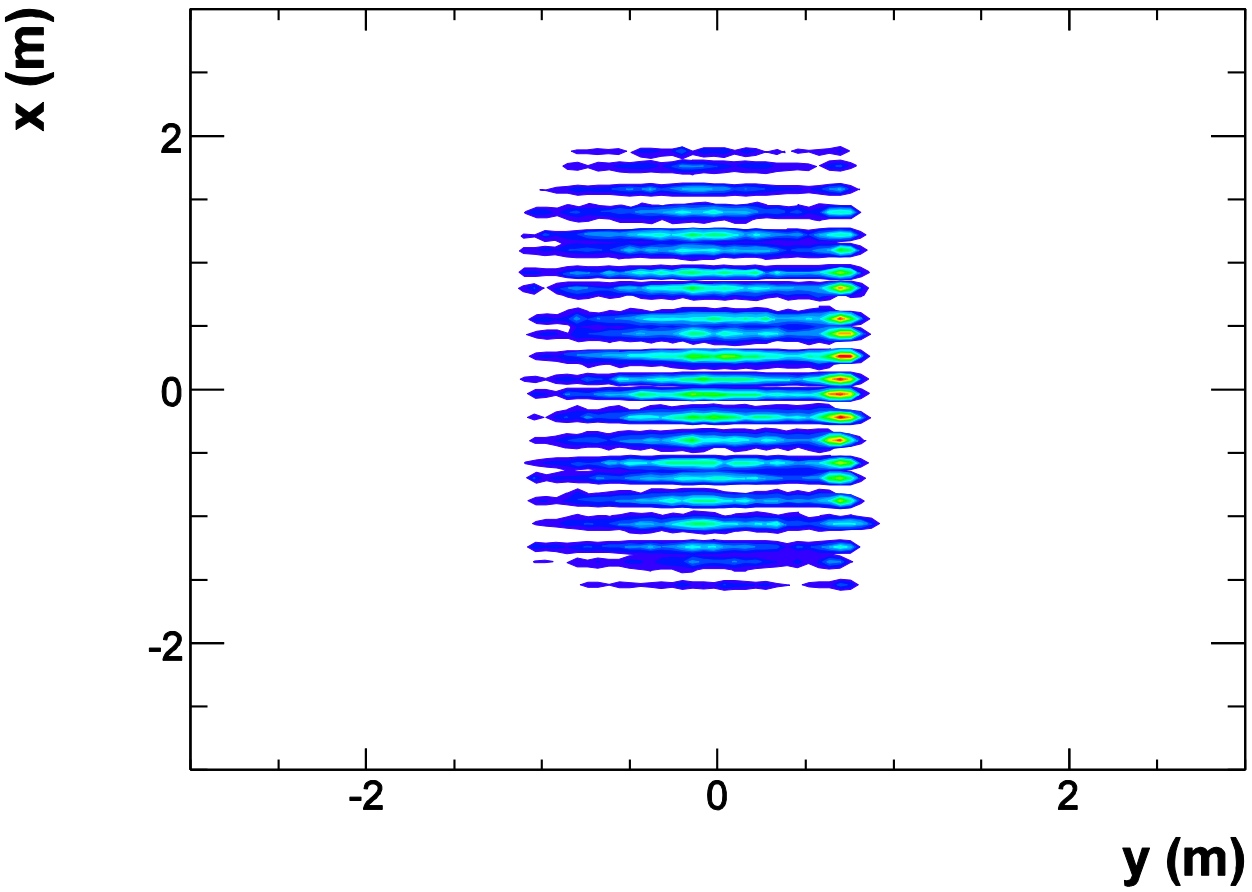
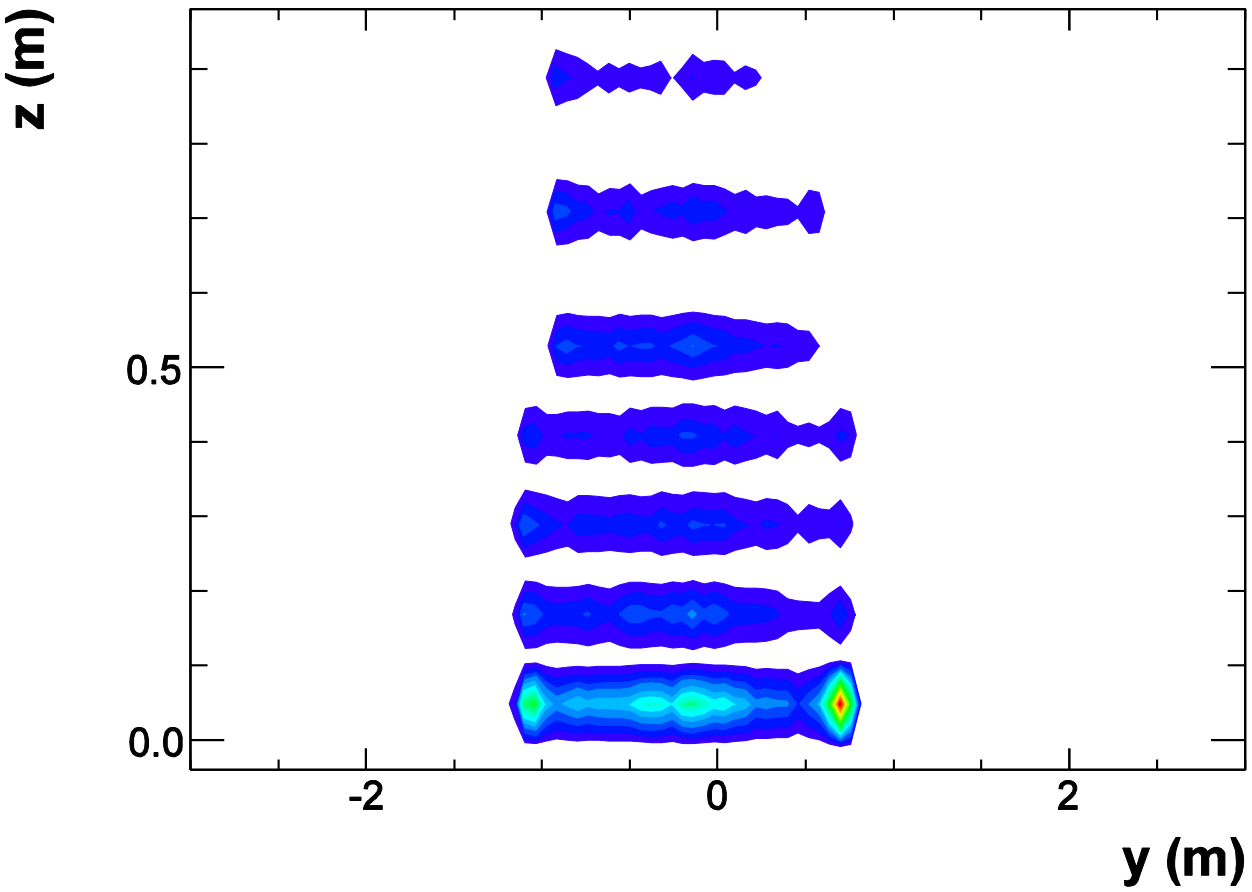
ResultsComparison

Jon Miller

X versus Y Kinematic 3



X versus Y Kinematic 3



Kinematic 3 Cuts

Name	Preliminary	New Seamus	New Jon
X Fidicual			| x - 0.2 | < 1.8
Y Fidicual			| y + 0.183 | < 0.6
Time/Ppar	-0.4 < Ppar < 0.4	-0.4 < Ppar < 0.4	| t | < 1.0
Invariant Mass	0.7 < W < 1.05	.7 < W < 1.05	| W - 0.825 | < 0.225
Qperp/Pperp	Pperp < 0.15	Pperp < 0.15	Qperp < 0.15
Missing Mass	MM < 2	MM < 2 ??	MM < 2

Kinematic 3 Purity Factor

Name	Preliminary	New Seamus	New Jon
Hydrogen Ratio	0.016 \pm 0.002	0.016 \pm 0.003	0.019 \pm 0.002
Helium Ratio	0.092 \pm 0.002	0.071 \pm 0.001	0.092 \pm 0.004
Nitrogen Ratio	0.123 \pm 0.028	0.103 \pm 0.018	0.145 \pm 0.025
Dp	0.905 \pm 0.063	0.841 \pm 0.065	0.827 \pm 0.056
Ratio n as p	????	2.247 \pm 2.675	1.360 \pm 1.730
Ratio n as n	0.72 \pm 0.95	0.442 \pm 0.352	0.480 \pm 0.175

I include a change in the nitrogen effective ratio. This drops my Dp by ~0.02. I might also be slightly different in other aspects.

Kinematic 3 Results

Name	Preliminary	New Seamus	New Jon
Araw	-0.026 \pm 0.008	-0.0512 \pm 0.0079	-0.0415 \pm 0.0076
Counts	15325	15467	17165
Pnucl	0.478 \pm 0.020	0.477 \pm 0.021	0.4925 \pm 0.02
Pbeam	0.835 \pm 0.011	0.835 \pm 0.011	0.835 \pm 0.011
Pn	0.86 \pm 0.02	0.86 \pm 0.02	0.86 \pm 0.02
Dback	0.993 \pm 0.004	0.992 \pm 0.004	0.9903
Aback	-0.00046 \pm 0.0008	-0.00003 \pm 0.0007	0.0001 \pm 0.0099
Dp	0.905 \pm 0.063	0.841 \pm 0.065	0.827 \pm 0.056
Ap	-0.00017 \pm 0.00004	-0.0004 \pm 0.0001	-0.0004 \pm 0.0001
DN2	0.947 \pm 0.006	0.940 \pm 0.008	0.946 \pm 0.001
Aphys	-0.117 \pm 0.036 (0.012)	-0.283 \pm 0.041 (0.031)	-0.159 \pm 0.032 (0.018)

Kinematic 3 GEn

Name	Preliminary	New Seamus	New Jon
Aphys	-0.117 \pm 0.036 (0.012)	-0.283 \pm 0.041 (0.031)	-0.159 \pm 0.032 (0.018)
T0	0.034	0.041	0.0396
T1	0.721	0.701	0.7115
T2	-0.019	-0.021	-0.0207
T3	-0.432	-0.384	-0.3863
T4	0.011	0.011	0.0109
T5	0.262	0.213	0.2124
Q2	3.47	3.46	3.48
λ	-0.213 \pm 0.057	-0.521 \pm 0.106	-0.290 \pm 0.051 (0.029)
GMn	-0.055 \pm 0.001	-0.055 \pm 0.001	-0.056 \pm 0.001
GEn	0.012 \pm 0.003 (0.001)	0.029 \pm 0.005 (0.004)	0.016 \pm 0.003 (0.002)

Kinematic 2 Cuts

Name	New Jon 2a	New Seamus	New Jon 2b
X Fidicual	| x - 0.2 | < 1.8		| x - 0.2 | < 1.8
Y Fidicual	| y + 0.183 | < 0.6		| y + 0.183 | < 0.6
Time/Ppar	| t | < 1.0	-0.25 < Ppar < 0.25	| t | < 1.0
Invariant Mass	| W - 0.9 | < 0.2	0.7 < W < 1.1	| W - 0.9 | < 0.2
Qperp/Pperp	Qperp < 0.15	Pperp < 0.15	Qperp < 0.15
Missing Mass	MM < 2	MM < 2 ?	MM < 2

Kinematic 2Purity Factor

Name	2a	New Seamus	New Jon 2b
Hydrogen Ratio	0.012 \pm 0.002	0.020 \pm 0.002	0.019 \pm 0.002
Helium Ratio	0.092 \pm 0.002	0.089 \pm 0.001	0.106 \pm 0.001
Nitrogen Ratio	0.108 \pm 0.012	0.163 \pm 0.008	0.186 \pm 0.009
Dp	0.954 \pm 0.027	0.777 \pm 0.029	0.823 \pm 0.033
Ratio n as p	NA	0.160 \pm 0.340	0.516 \pm 0.330
Ratio n as n	NA	0.406 \pm 0.053	0.471 \pm 0.047

The numbers for kinematic 2a are really caused by the difference in target rate between kin2a and kin2b. The numbers for the helium ratio were about the same, but the rate was very different. This mean that combining that information with the two targets from kin2b gives very different results. Nitrogen and H2 I had to use data from Kin2b.

Kinematic 2 Results

Name	2a	New Seamus	New Jon 2b
Araw	-0.0437 \pm 0.0096	-0.0506 \pm 0.0053	-0.0496 \pm 0.0133
Counts	10882	35433	23377
Pnucl	0.3784 \pm 0.02	0.449 \pm 0.02	0.4928 \pm 0.02
Pbeam	0.835 \pm 0.011	0.835 \pm 0.011	0.835 \pm 0.011
Pn	0.86 \pm 0.02	0.86 \pm 0.02	0.86 \pm 0.02
Dback	0.993	0.993 \pm 0.004	0.994
Aback	0 .00000 \pm 0.035	0.00000 \pm 0.0004	0.0002 \pm 0.03
Dp	0.823 \pm 0.033	0.777 \pm 0.029	0.823 \pm 0.033
Ap	-0.00024 \pm 0.00007	-0.0004 \pm 0.0001	-0.0003\pm 0.0001
DN2	0.946 \pm 0.002	0.943 \pm 0.003	0.946 \pm 0.001
Aphys	-0.190 \pm 0.055 (0.023)	-0.244 \pm 0.025 (0.022)	-0.190 \pm 0.040 (0.022)

I just used the numbers for Kinematic 3 for DN2.

Kinematic 2 GEn

Name	2a	New Seamus	New Jon 2b
Aphys	-0.190 \pm 0.055 (0.023)	-0.244 \pm 0.025 (0.022)	-0.190 \pm 0.040 (0.022)
T0	-0.0150	-0.014	-0.0156
T1	0.8398	0.822	0.8362
T2	0.0132	0.012	0.0134
T3	-0.6960	-0.674	-0.6832
T4	-0.0117	-0.011	-0.0116
T5	0.5843	0.560	0.5660
Q2	2.47	2.48	2.49
λ	-0.217 \pm 0.074 (0.031)	-0.302 \pm 0.051	-0.218 \pm 0.054 (0.030)
GMn	-0.097 \pm 0.002	-0.096 \pm 0.002	-0.096 \pm 0.005
GEn	0.021 \pm 0.007 (0.003)	0.029 \pm 0.004 (0.003)	0.021 \pm 0.005 (0.003)