

The summary of the a2 for He4, C12 in the inclusive and semi-inclusive.

Inclusive:

In inclusive the ratio of the cross section He/4 to D/2 give the a2 value 3.59-3.94 +/-0.19(stat) (with various choice of vertex cuts). This value are within the cover of the a2 given by N. Fomin at 3.60+/-0.1.

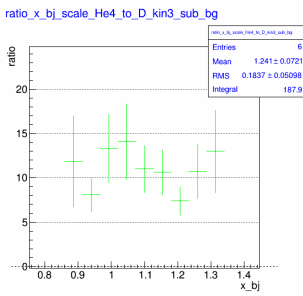
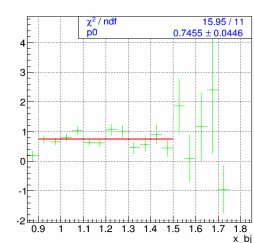
However, the inclusive the ratio of the cross section C/12 to D/2 give the a2 value 4.01-4.37 +/-0.22(stat) (with various choice of LD2 original target length). This value are smaller than the a2 given by N. Fomin at 4.75.

The ratio of the C/12 to He/4 (flat around x=1.4-1.8) is 1.11+/-0.01(stat) which is also smaller than the ratio of a2(C)/a2(He)

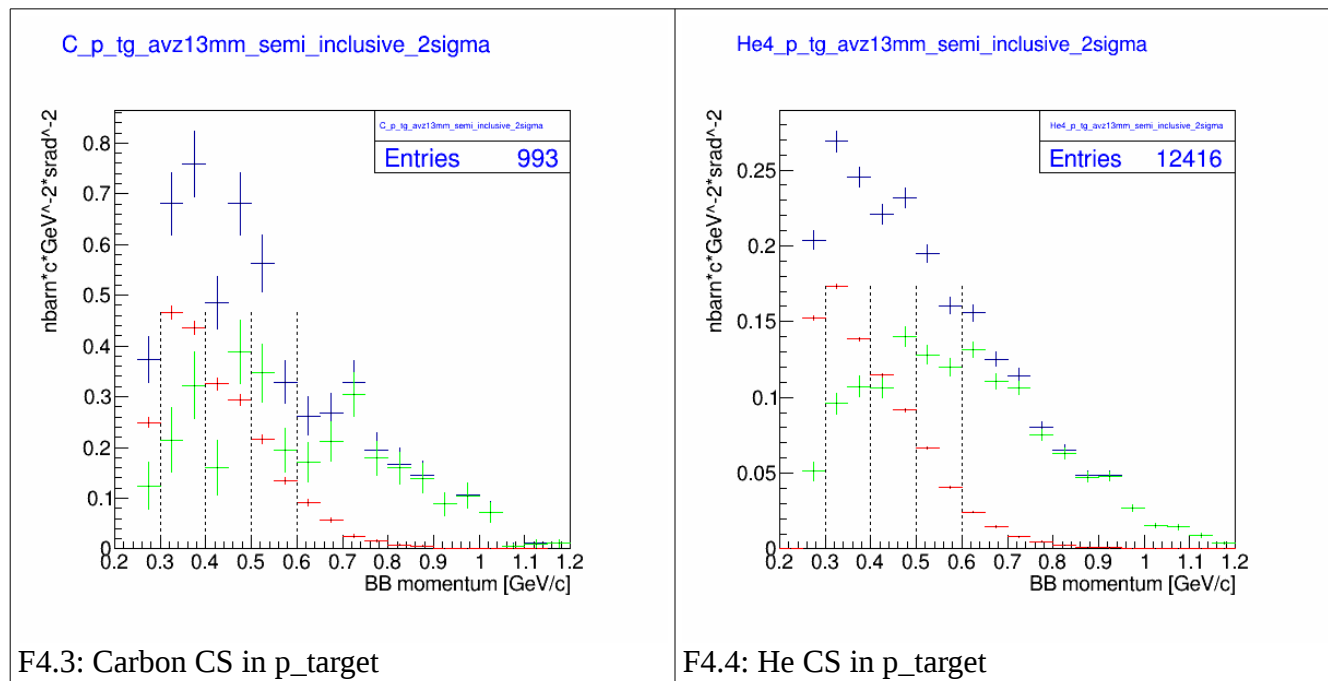
The boiling effect is 0.6%,0.9%,1.5% for LD2 at 1 uA, LD2 at 1.5 uA and He4 at 4 uA. (extrapolate from the X_gt_2 boiling effect study). This doesn't effect much since the deadtime are >=5%.

Semi-Inclusive:

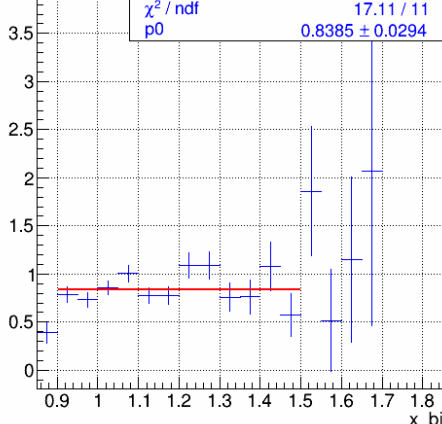
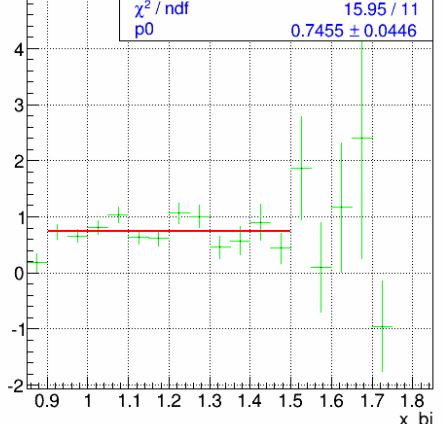
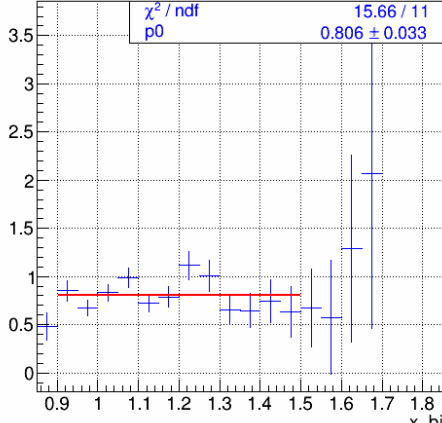
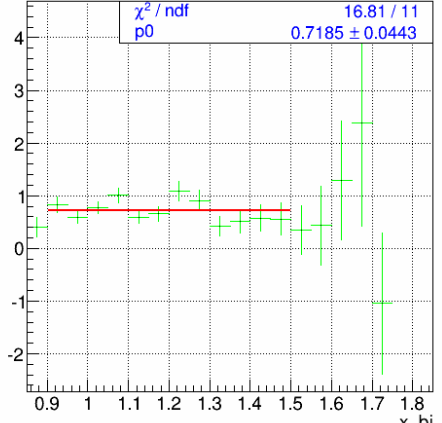
In the semi-inclusive, the ratio fo C/12 to He/4 give the flat region in x= 0.9 to 1.5. The ratio is 0.71-0.74+/-0.05(stat) in background subtracted data independent of the minimum cut in proton-momentum at the target (from 0.3 to 0.6 GeV/c). This value are much smaller than what we expected from the inclusive and need further investigation.

	He/4 to D/2	C/12 to D/2	C/12 to He/4
Inclusive (x=1.4-1.8)	3.59-3.94 +/-0.19(stat)	4.01-4.37 +/-0.22(stat)	1.11+/-0.01(stat)
Comparing with a2 at	3.60+/- 0.1	4.75	a2(C)/a2(He) = 1.32
Semi-inclusive (x=0.9-1.5)	~5  <p>(the figure is for He to D Not divide by atom)</p>	N/A	0.71-0.74+/-0.05(stat) (background subtracted) 

Problem: We also have not figure out the problem with the dip at $p_{\text{target}} = 0.4 \text{ GeV}/c$. This can be seen clearly in C data.

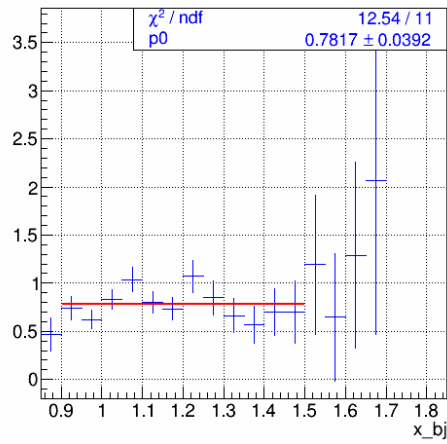


The detail on p_{tg} cut on the ratio of cross section in X_{bj}

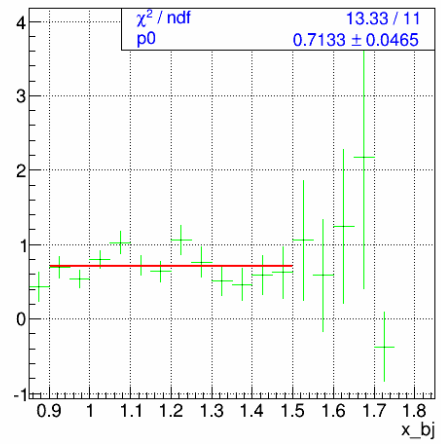
p_{tg} [GeV/c]	CS: X_{bj} ratio no bg subtracted	CS: X_{bj} ratio for bg subtracted
1. ≥ 0.3	<p>ratio_overAtom_C_to_He4_xbj_gt300MeV_avz13mm_semi_inclusive_2sigma</p>  <p>χ^2 / ndf 17.11 / 11 $p0$ 0.8385 ± 0.0294</p>	<p>ratio_overAtom_C_to_He4_xbj_gt300MeV_avz13mm_semi_inclusive_2sigma_sub_bg</p>  <p>χ^2 / ndf 15.95 / 11 $p0$ 0.7455 ± 0.0446</p>
2. ≥ 0.4	<p>ratio_overAtom_C_to_He4_xbj_gt400MeV_avz13mm_semi_inclusive_2sigma</p>  <p>χ^2 / ndf 15.66 / 11 $p0$ 0.806 ± 0.033</p>	<p>ratio_overAtom_C_to_He4_xbj_gt400MeV_avz13mm_semi_inclusive_2sigma_sub_bg</p>  <p>χ^2 / ndf 16.81 / 11 $p0$ 0.7185 ± 0.0443</p>

3. ≥ 0.5

ratio_overAtom_C_to_He4_xbj_gt500MeV_avz13mm_semi_inclusive_2sigma

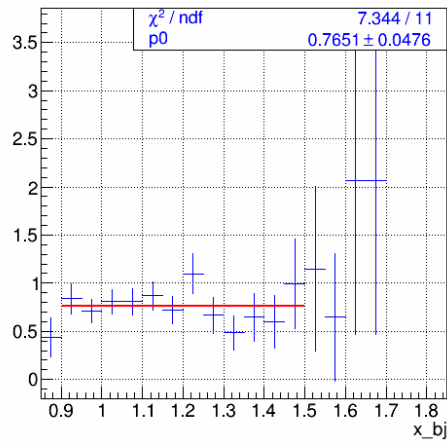


ratio_overAtom_C_to_He4_xbj_gt500MeV_avz13mm_semi_inclusive_2sigma_sub_bg



4. ≥ 0.6

ratio_overAtom_C_to_He4_xbj_gt600MeV_avz13mm_semi_inclusive_2sigma



ratio_overAtom_C_to_He4_xbj_gt600MeV_avz13mm_semi_inclusive_2sigma_sub_bg

