n3He Analysis : Left Right Asymmetry

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Version: 1

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1. Up down analysis with simplest possible cut
2. Cuts:
    -- Any bad run
    -- Pulses around dropped pulses
3. Run considered: 684 (Between Run#14785-15785)

Algorithm:

1. Pair of events (one up and one down) considered to form each asymmetry for each wire.
2. Each detector signal is normalized by sum of all the detector signals for that event.
3. Asymmetry for pair of events,

$$A_K = \frac{Y_+^\kappa - Y_-^\kappa}{Y_+^\kappa + Y_-^\kappa}$$

K= pair of events index

4. Physics asymmetry for each wire is calculated using,

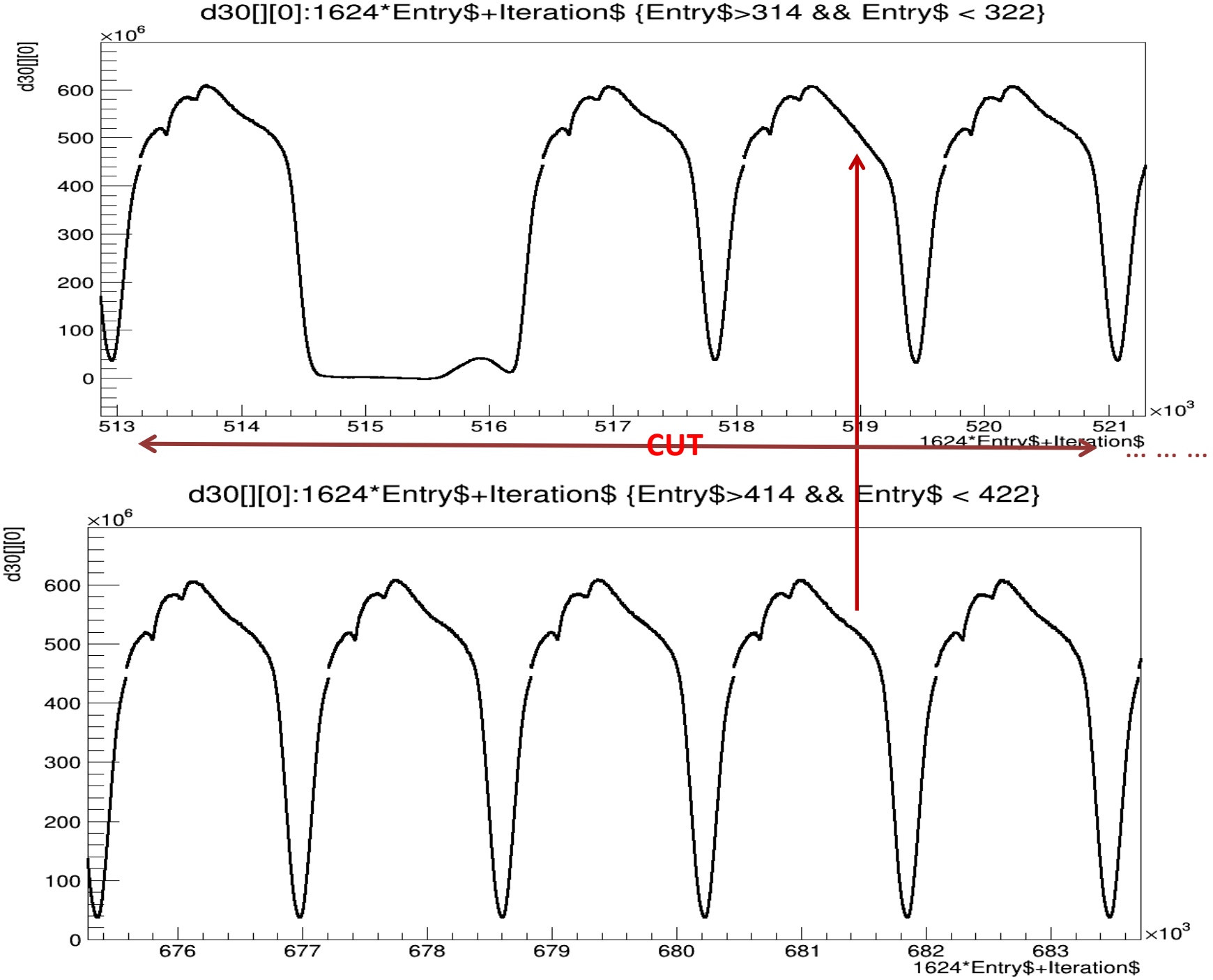
$$\alpha_\kappa = \frac{1}{G_\kappa} \frac{Y_+^\kappa - Y_-^\kappa}{Y_+^\kappa + Y_-^\kappa}$$

K= wire index

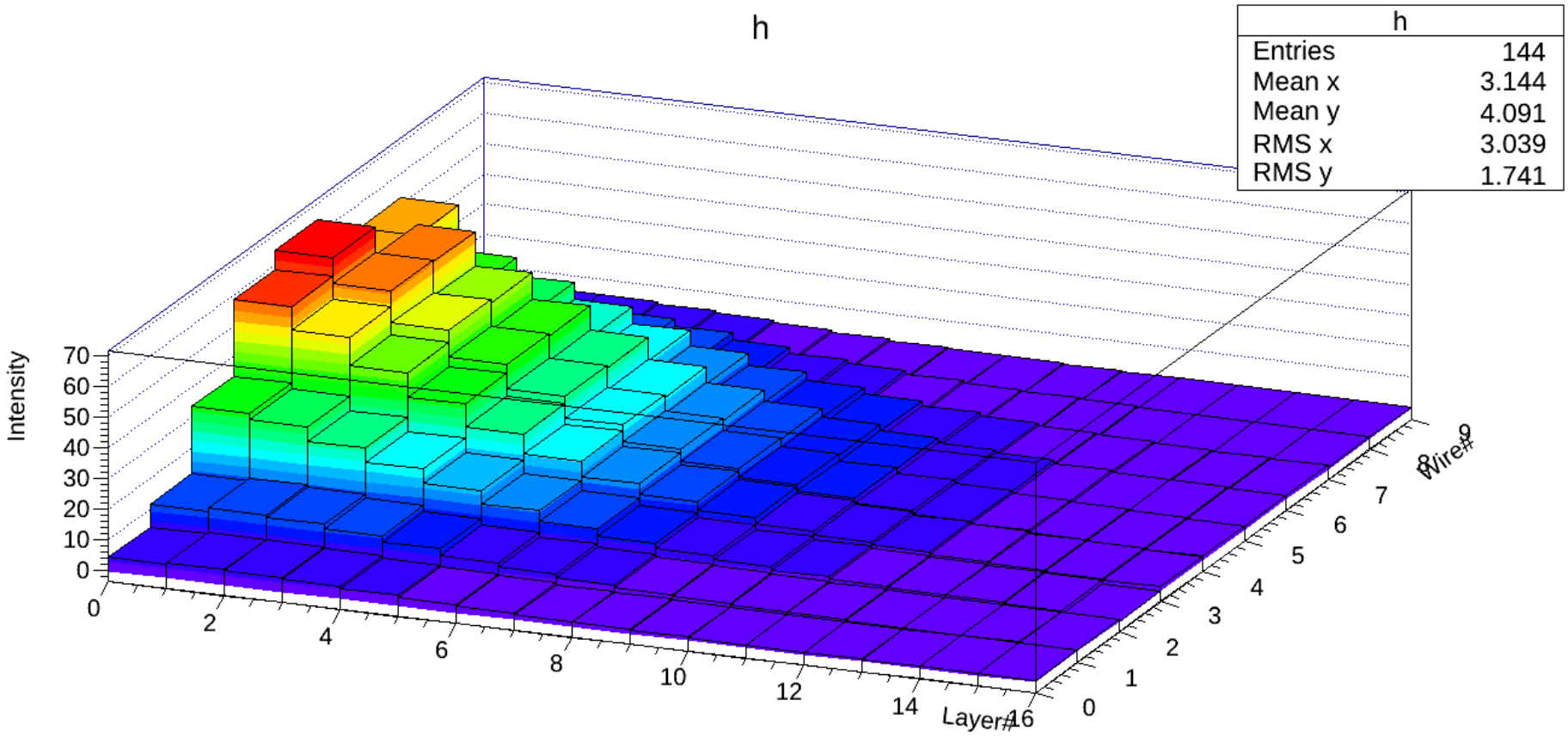
And error , $\delta\alpha_k = \frac{1}{|Gk|} \delta A_k$

Where G_K is the geometric factor for that wire.

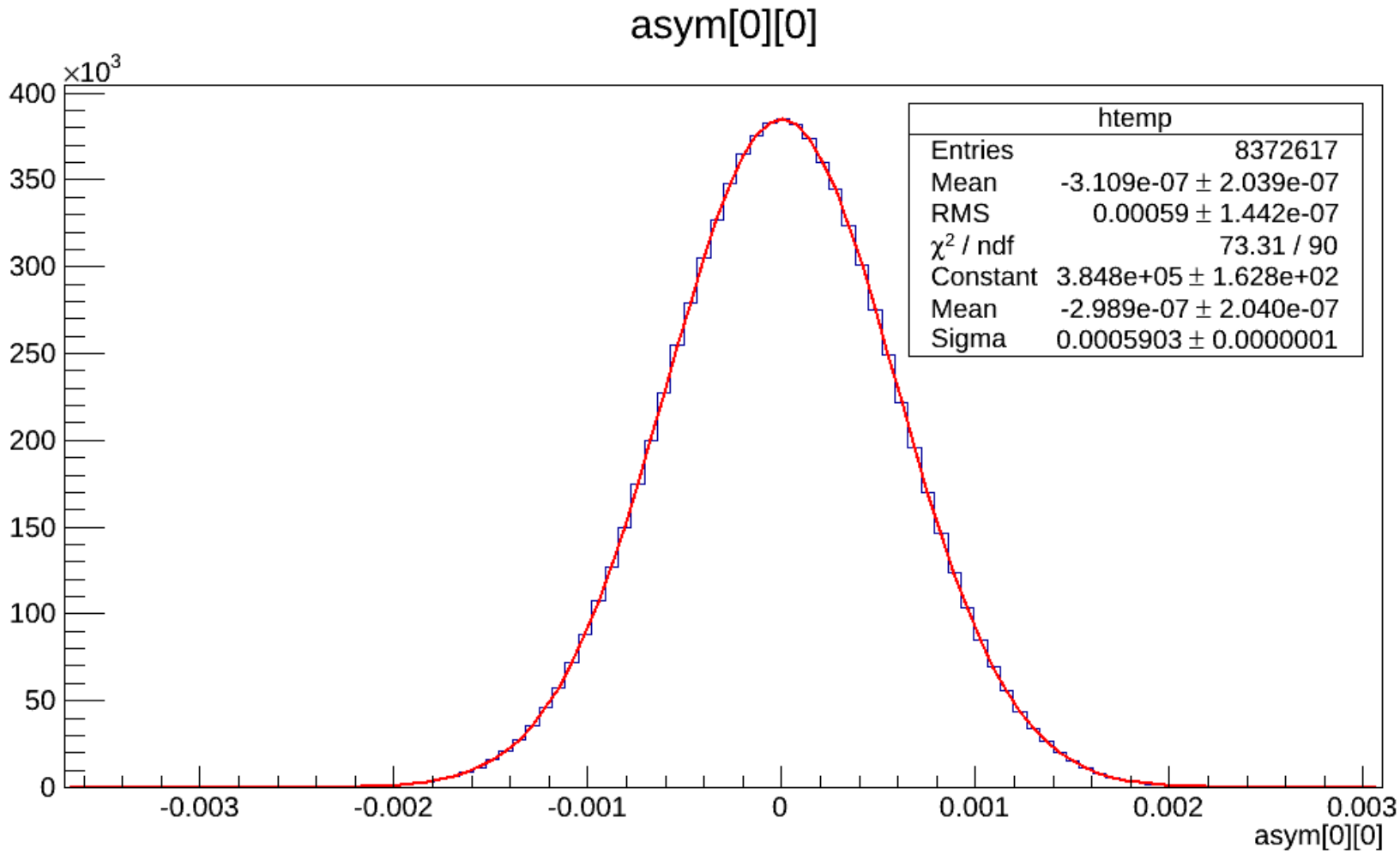
5. The correction for correlation is NOT included yet.


d30[][0]:1624*Entry$+Iteration$ {Entry$>314 && Entry$ < 322}
d30[][0]
×10^6
600
500
400
300
200
100
0
513
514
515
516
517
518
519
520
521
×10^3
1624*Entry$+Iteration$
CUT
d30[][0]:1624*Entry$+Iteration$ {Entry$>414 && Entry$ < 422}
d30[][0]
×10^6
600
500
400
300
200
100
0
676
677
678
679
680
681
682
683
×10^3
1624*Entry$+Iteration$

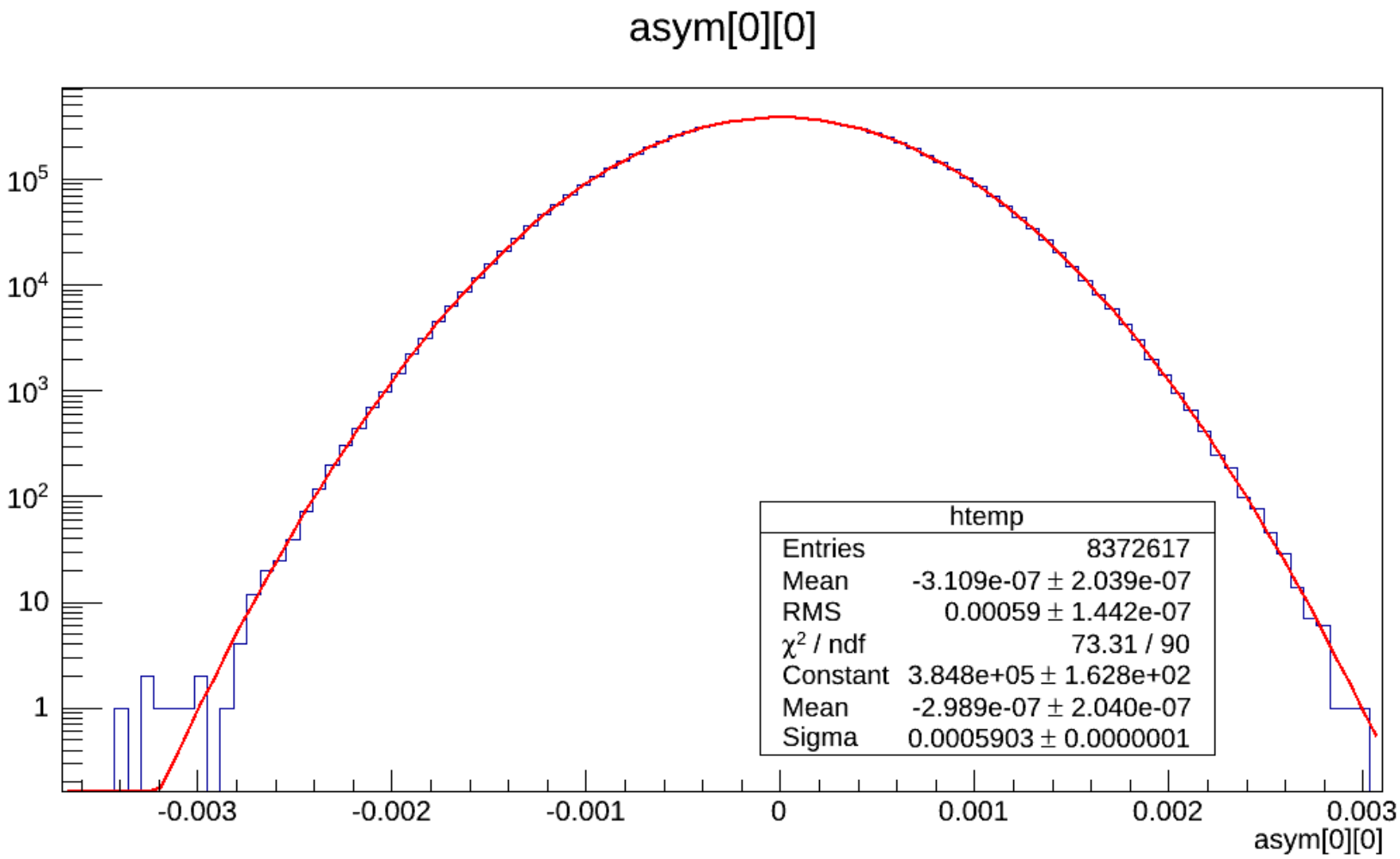
Intensity Distribution (run 14785)



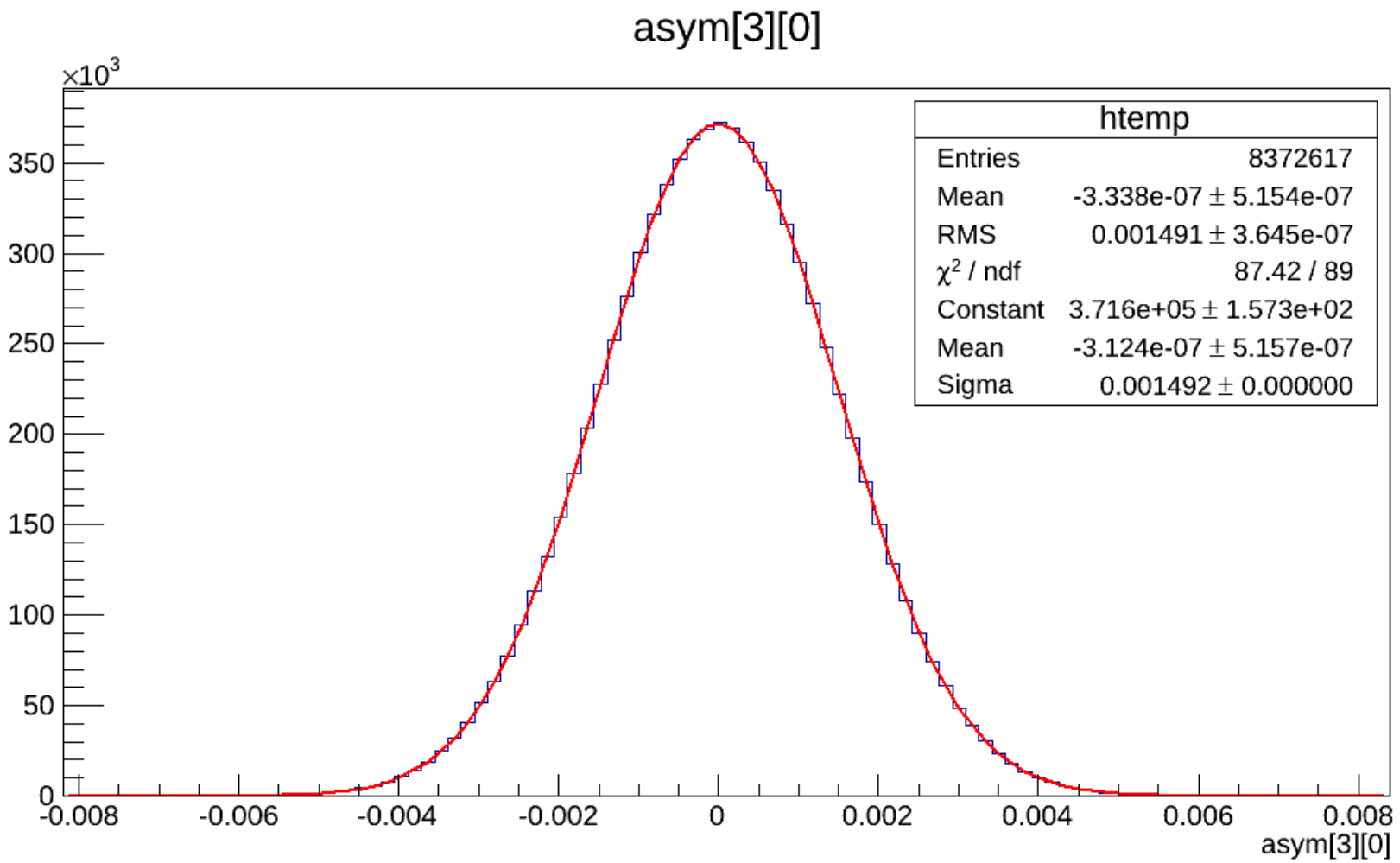
Raw Asymmetry Histogram for Layer-1 Wire-1



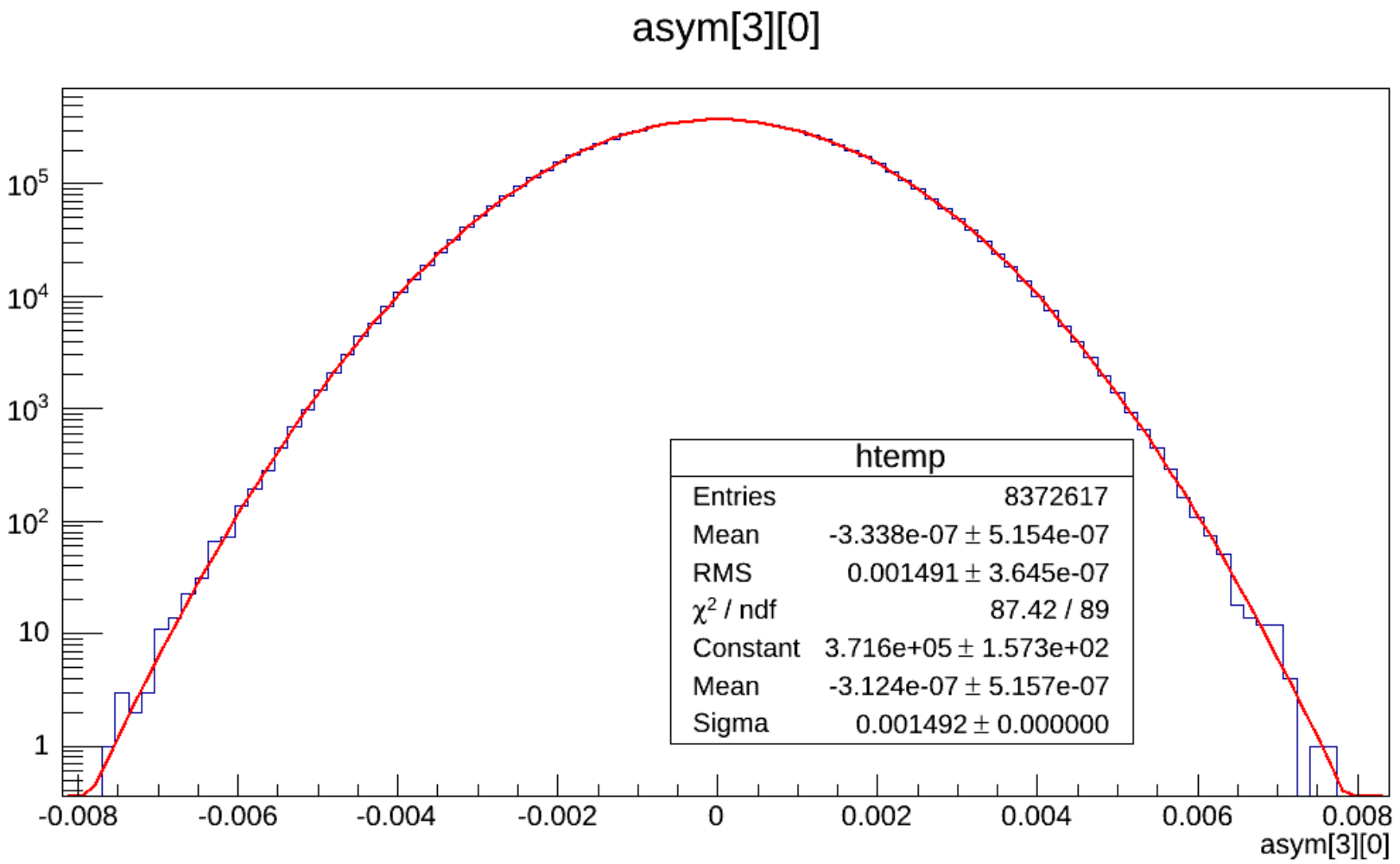
Raw Asymmetry Histogram for Layer-1 Wire-1(Log scale)



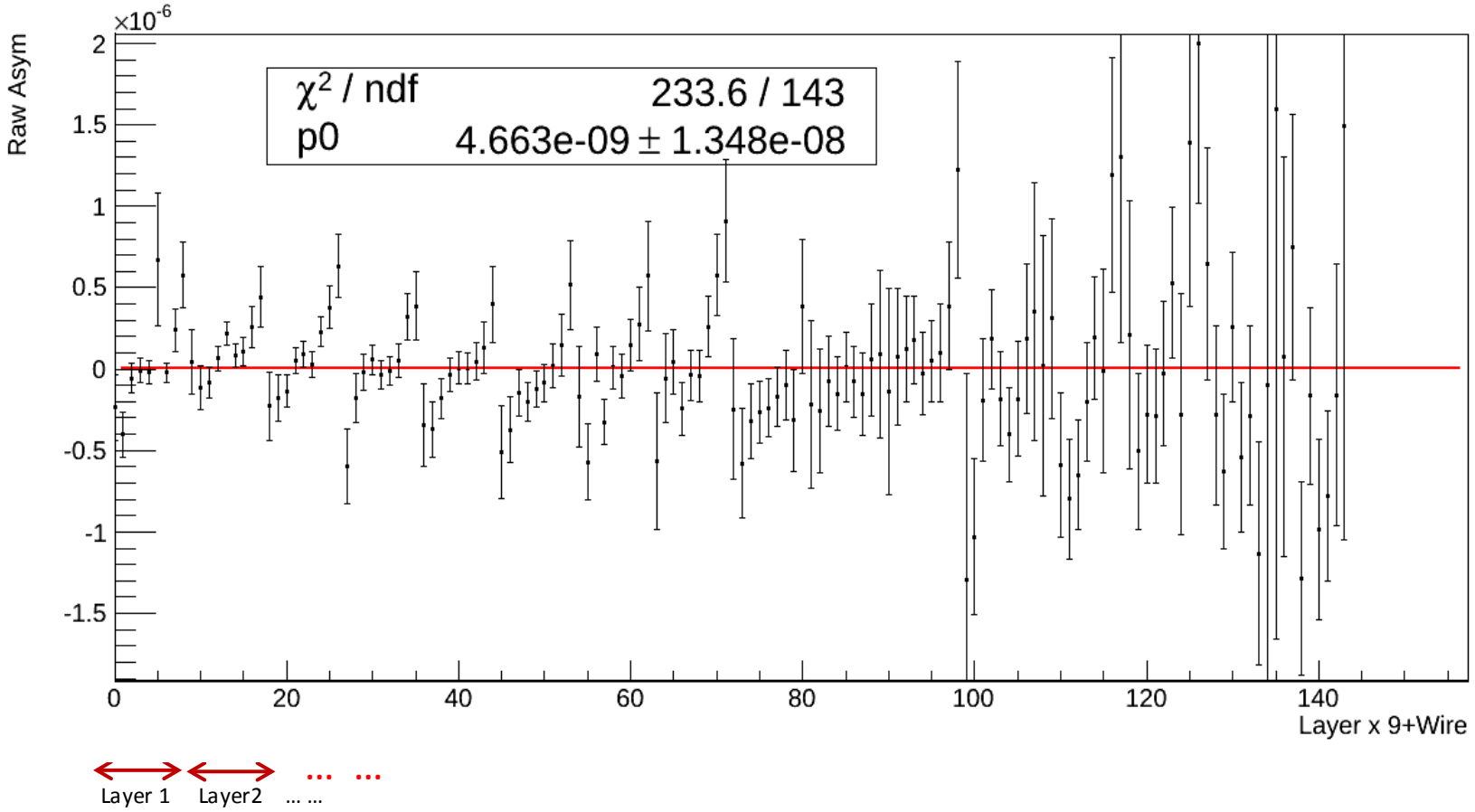
Raw Asymmetry Histogram for Layer-10 Wire-1



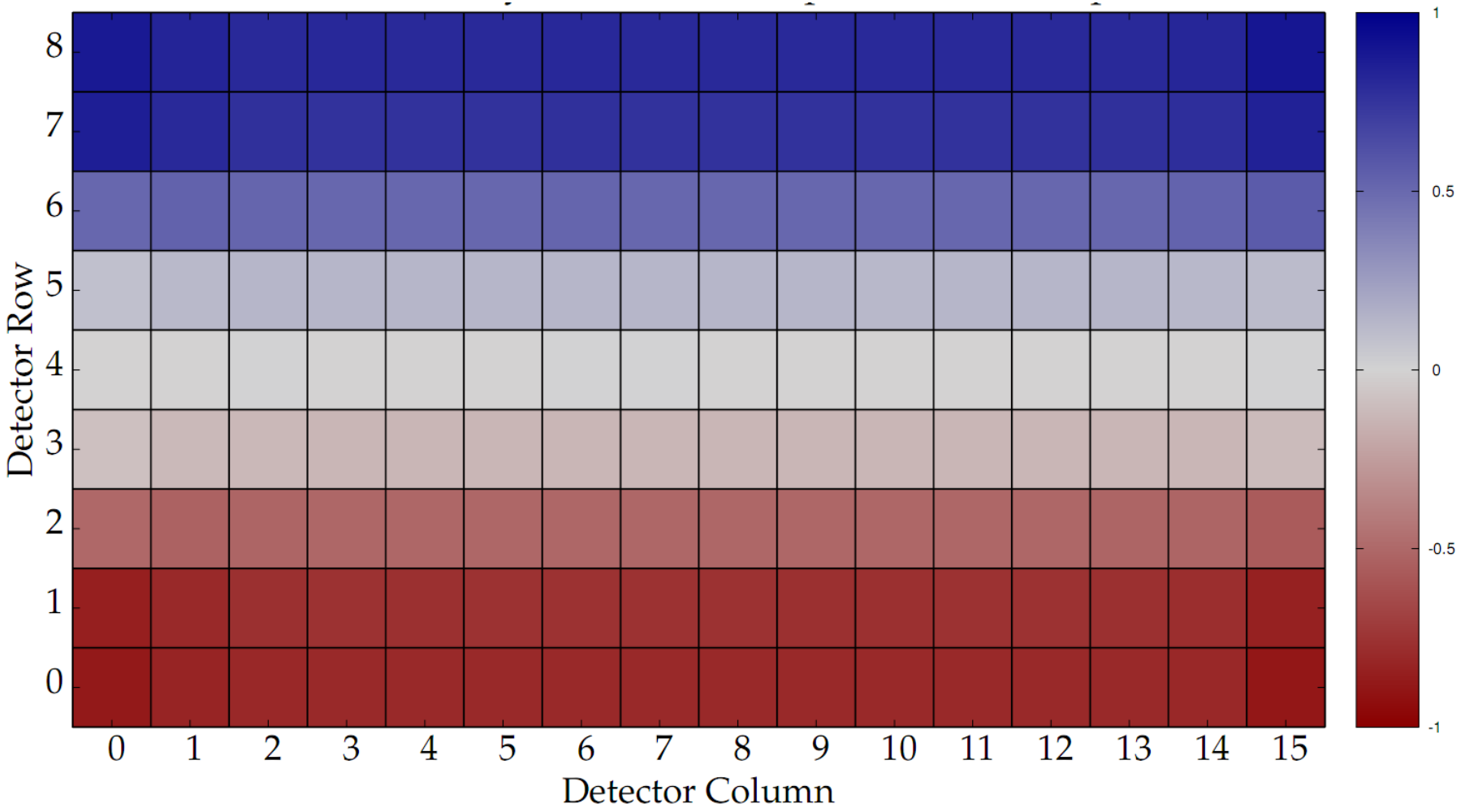
Raw Asymmetry Histogram for Layer-10 Wire-1(Log Scale)



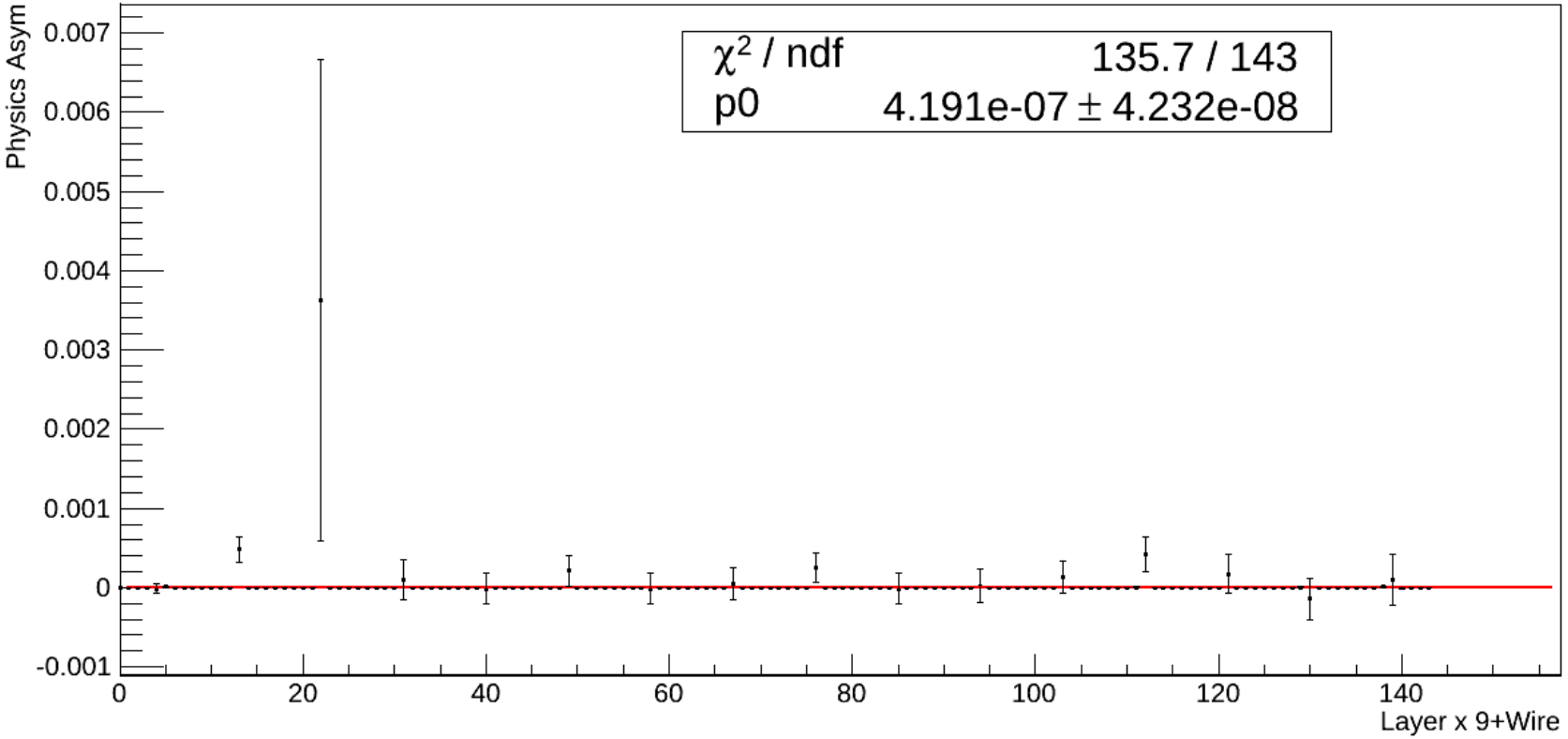
Raw Asymmetry for all the wires

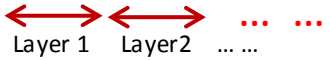


The Geometry Factor Distribution

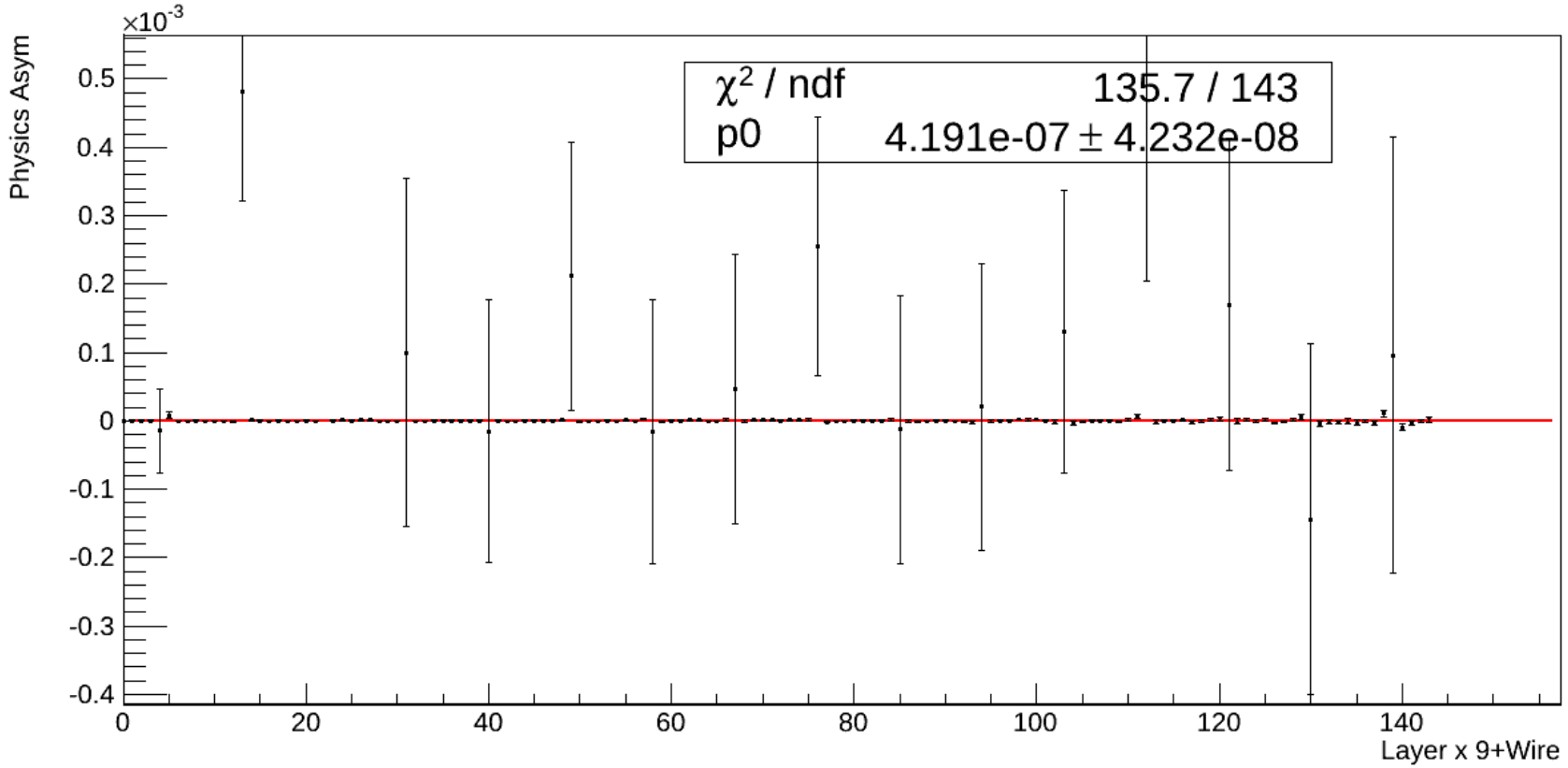


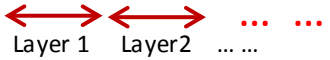
Physics Asymmetry for all the wires



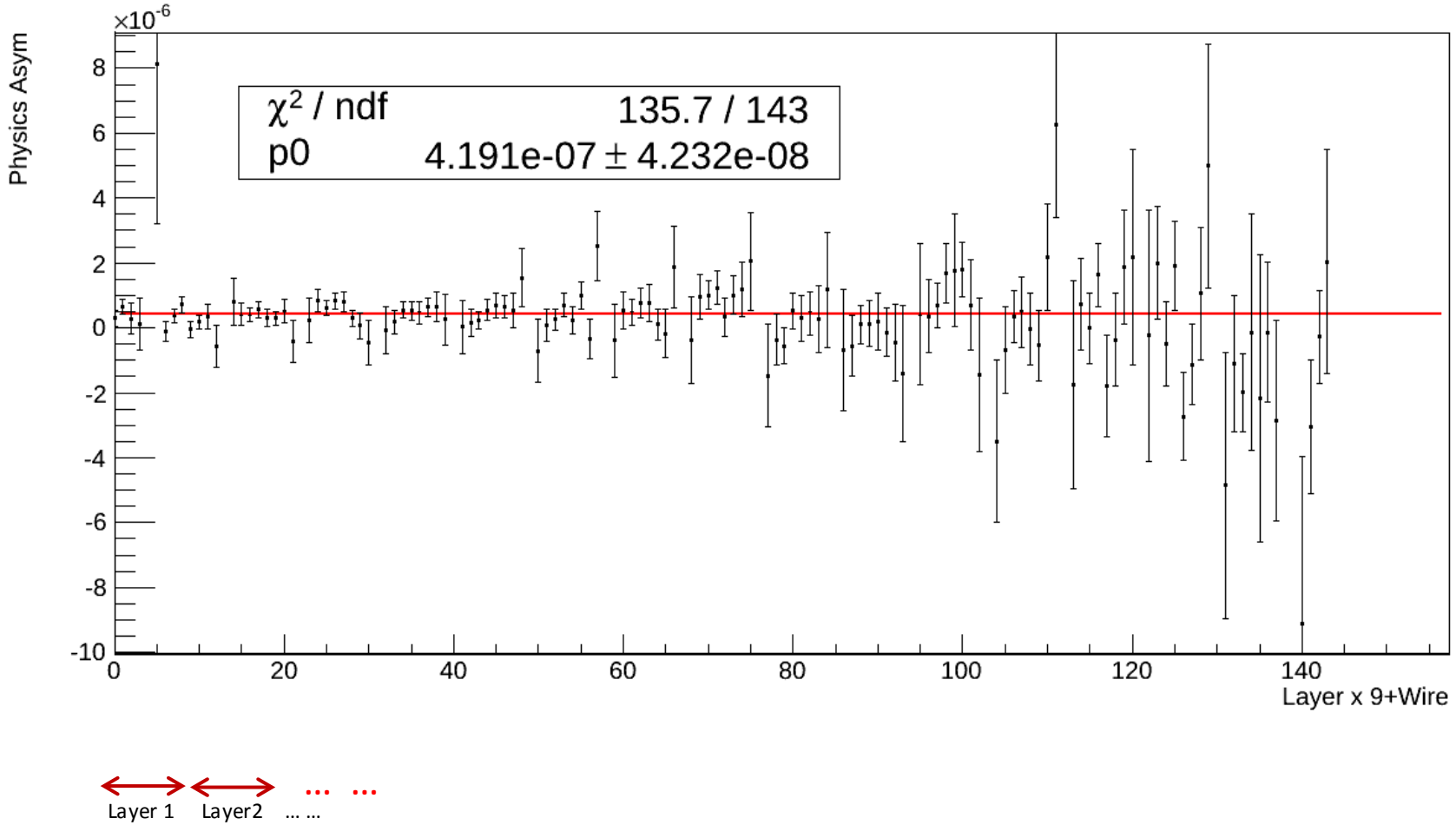


Physics Asymmetry for all the wires (Zoomed In)





Physics Asymmetry for all the wires (Zoomed In)



Next:

--- Use corrected geometry factor

--- Include corrections for correlations between wires.