LR and UD Asymmetry from **normalized** pair of wires

Latiful Kabir

Pair Analysis Formalism (Borrowed from Irakli's slide)

$$Y_k = I_0 \varepsilon_k \left(1 + P g_k A_p\right)$$ Signal* on k-th wire

I_0 – Intial SNS beam intensity

ε_k – wire "acceptance&efficiency"

g_k – geometric factors

P - polarization

A_p – Physics asymmetry

For conjugate wires:

$$\varepsilon_k \approx \varepsilon_{k^*}$$

$$g_k \approx -g_{k^*}$$

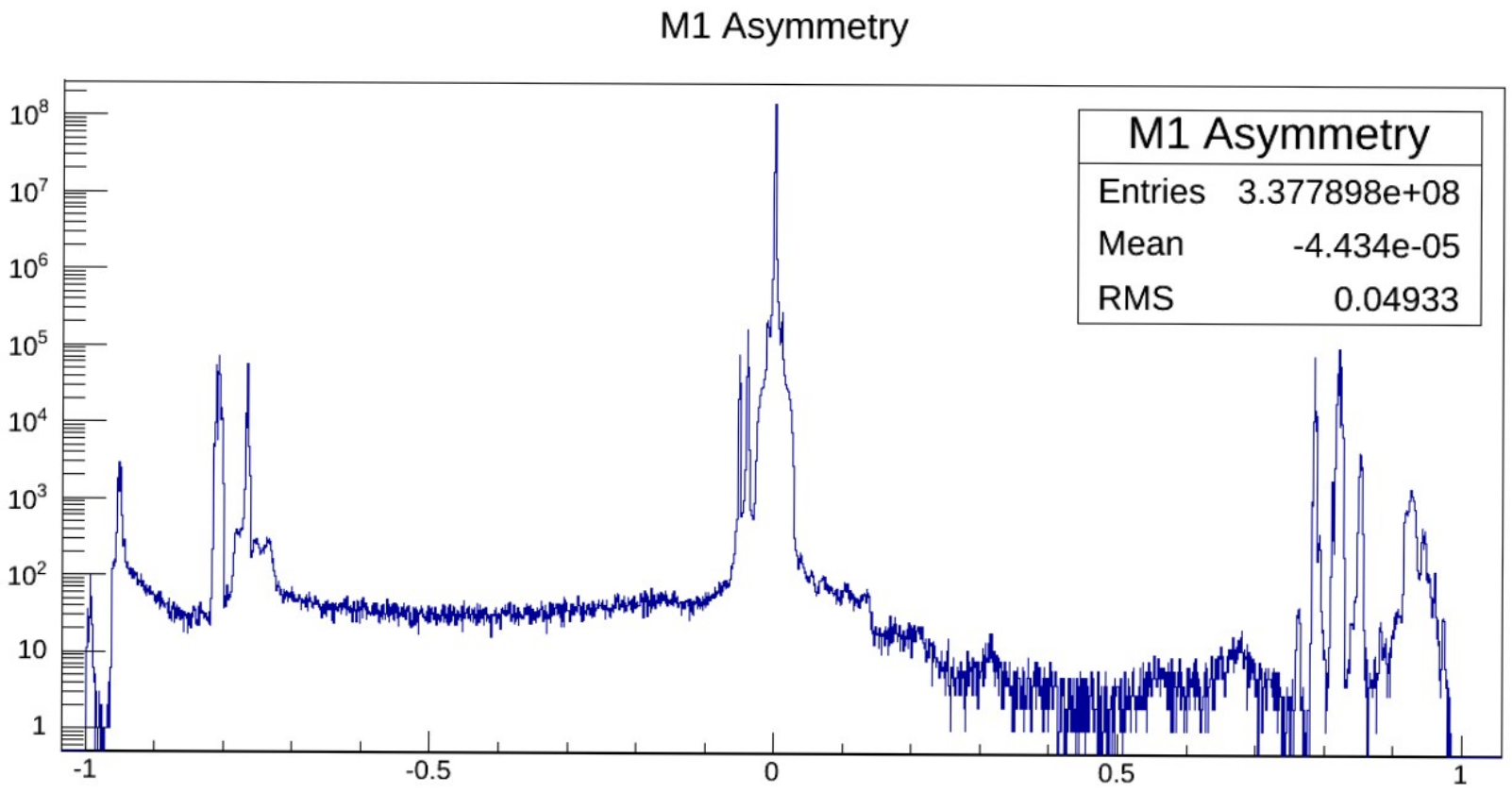
$$\Delta A_{kk^*} = A_k - A_{k^*} \approx 2 P g_k A_p$$

Runs and List of Cuts

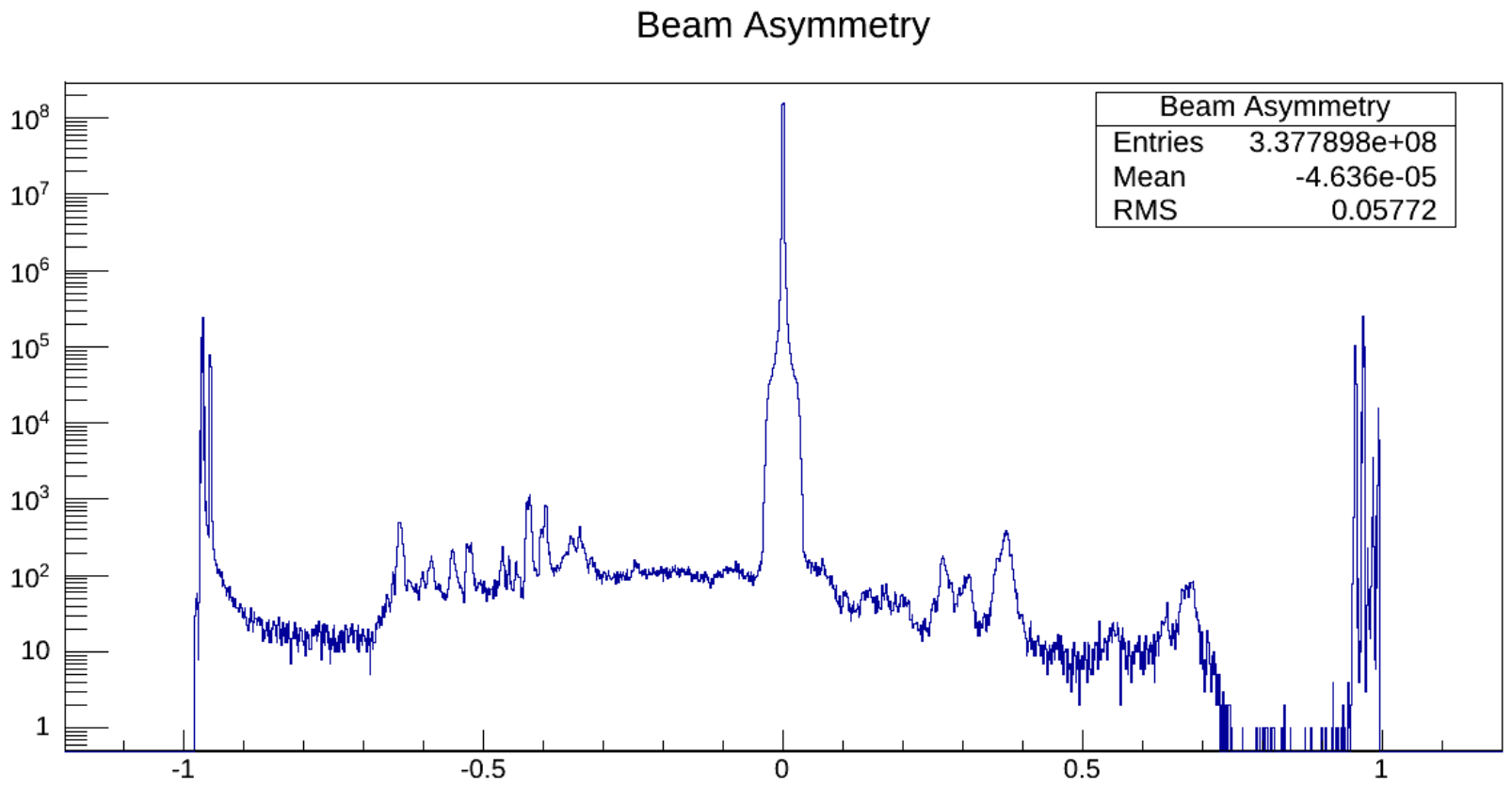
- Run numbers 18000 – 57000

  (34754 Good runs in this range, rest mostly no beam or partial beam runs)
- Pairs are normalized by sum over detectors
- 20 pulses after dropped pulse (including one before).
- 0.1% M1 asymmetry cut
- Runs having more than 100 dripped pulses are skipped.

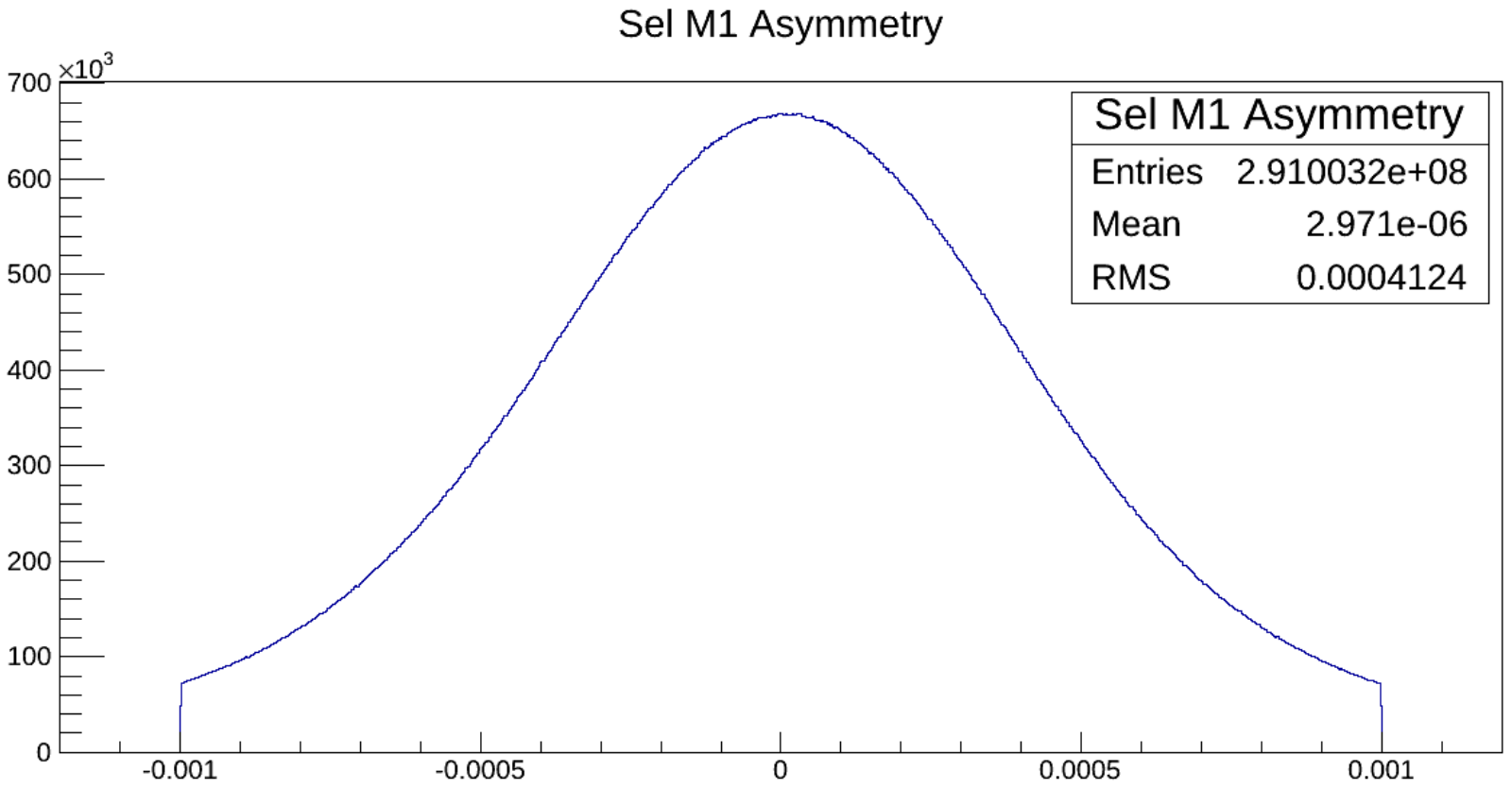
M1 asymmetry for all UD runs



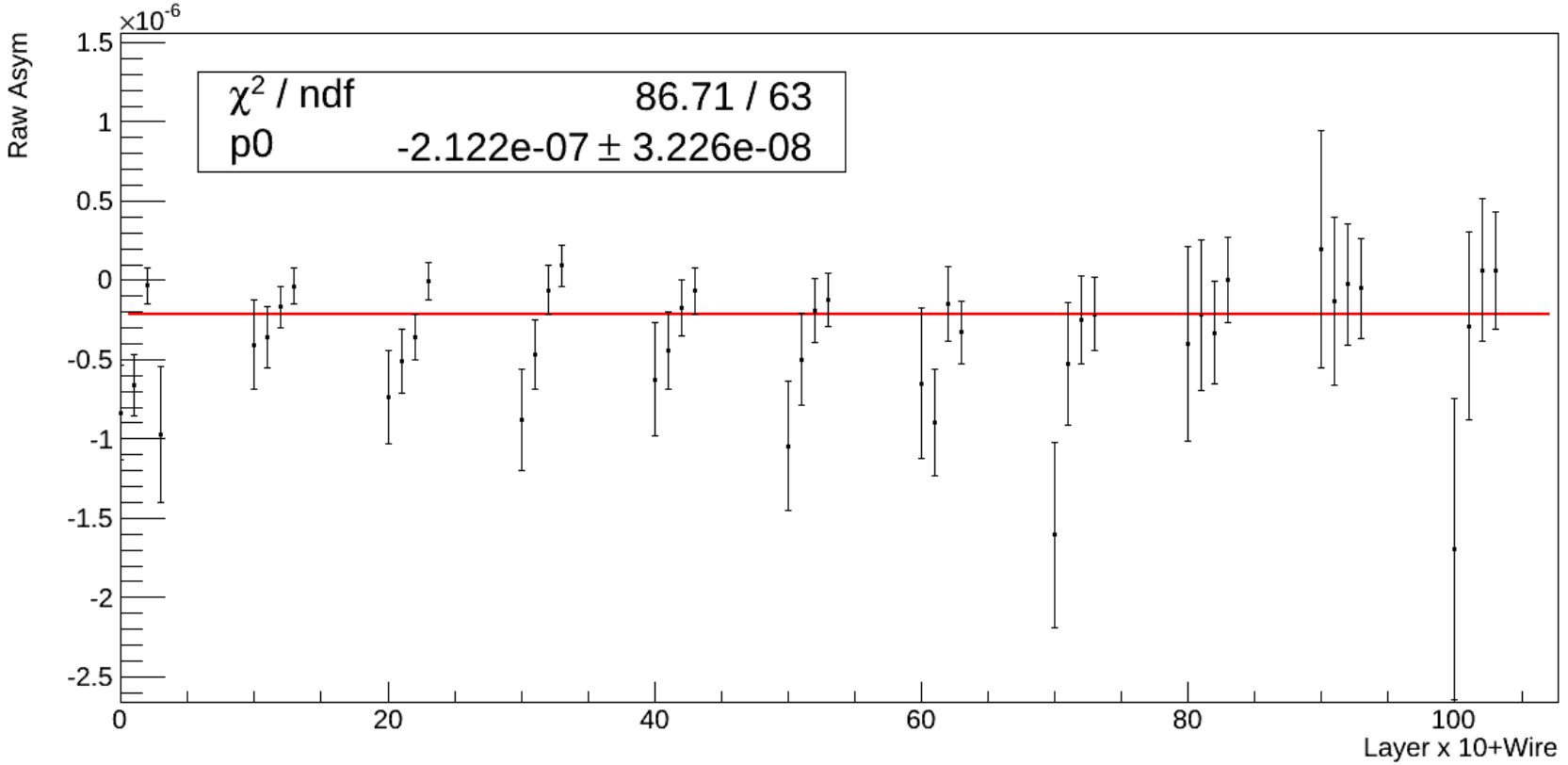
Beam (sum over det) asymmetry for all UD runs



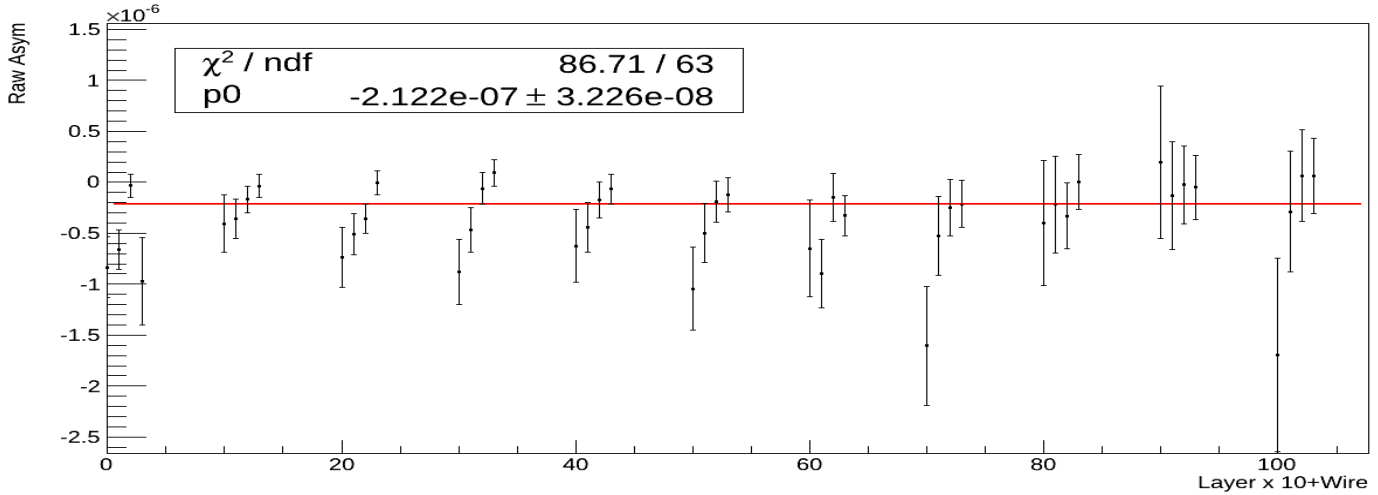
0.1% M1 asymmetry Cut

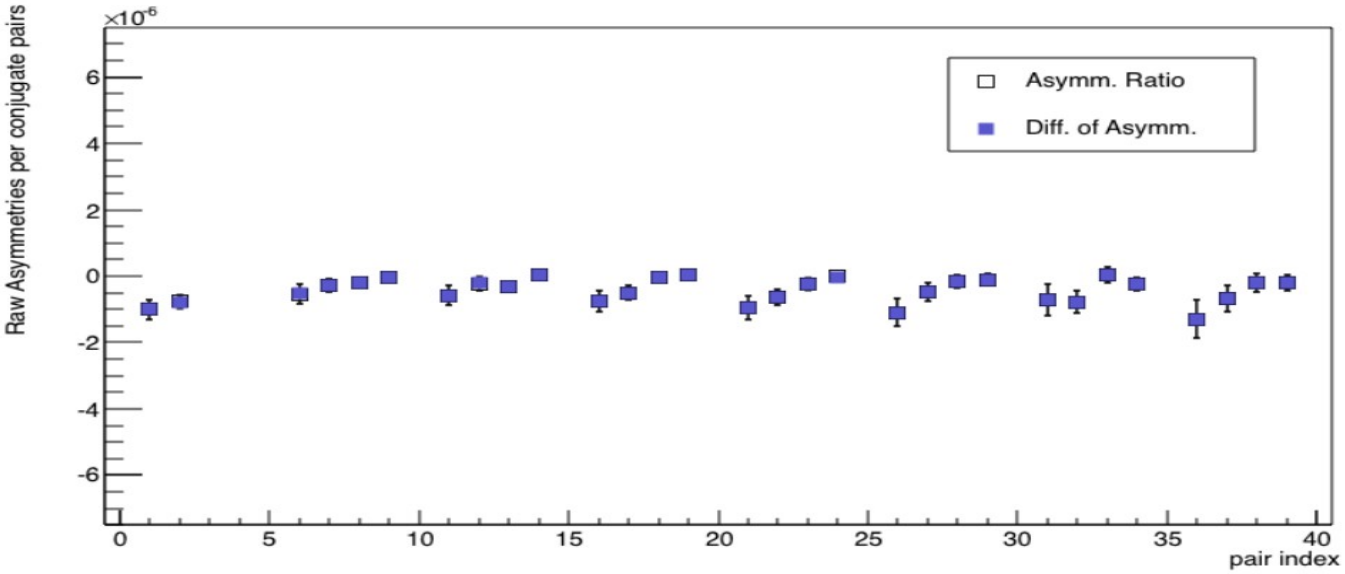


LR raw asymmetry from normalized pairs (Early runs)

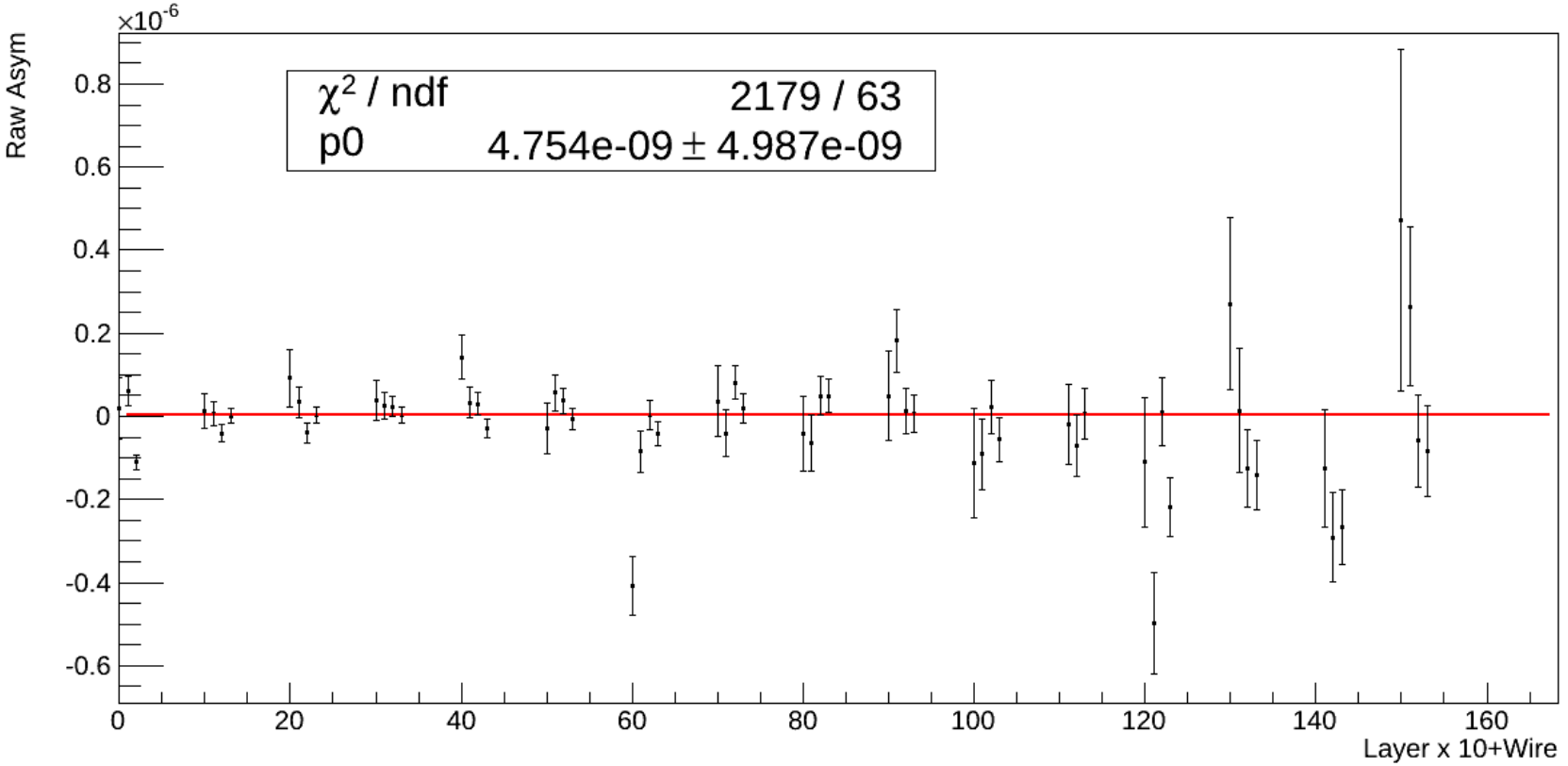


LR raw pair asymmetry (Kabir vs Irakli)





UD raw asymmetry from normalized pairs(zoomed)



UD raw asymmetry from normalized pairs(zoomed)