All MaxLength 4 and exact length =True, no RPC4 and 5

Total chi2 entries: 966.0

When SVD is done, we use the equation generated to find the expected xy coordinates at that height. THESE X AND Y COORDINATES ARE THEN TRANSLATED INTO CHI2 VIA

Chi2\_x = (x-x\_traj)\*\*2 / x\_var

Chi2\_y = (y-y\_traj)\*\*2 / y\_var

        Chi2+= Chi2\_x

        Chi2+= Chi2\_y

Where the x and y are added together. This is then divided by the number of degree of freedom, which is the number of fitted points

# i is number of fitted points. There are 4 fitted paramters, 2 for each x and y.

    doF = i - 4

    Chi2 = Chi2/ doF

Where I is 2 \* number of rpc used.

x\_var = (1\*distance\_per\_phi\_channel)\*\*2/12

This is the x\_var used (and y\_var)

Which produced adaquete chi2 distributions

# Previous Data Sanity check (Maxlength = None, exact length = False)

A graph of a number of angles

Description automatically generated

A graph with blue lines

Description automatically generated

This data was encorcing cross chamber conditions at least 3, which gives almost identical graph

However this was done incorrectly by patrick

New Data

A graph of a number of bars

Description automatically generated

Total chi2 entries: 4822.0

A graph of two people

Description automatically generated

Total eta entries: 5003.0

Total phi entries: 5003.0

Look Almost Identical now, which is very pleasing to see. Small artefacts of larger eta angles, these are due to reconstructions from the triplet,, with trigger set on 4, they are very little

Shape of Chi2 changed a bit, reason unknown

Keep the same format All MaxLength 4 and exact length =True, no RPC4 and 5

A graph of a graph of two people

Description automatically generated with medium confidence

Total eta entries: 1364.0

Total phi entries: 1364.0

A graph of a number of bars

Description automatically generated

Cosmic exact 4 distribution

Total chi2 entries: 1364.0

For Angles

# Beam Data

A graph of two people

Description automatically generated

Total eta entries: 781.0

Total phi entries: 781.0

A graph of a number of bars

Description automatically generated

Total chi2 entries: 778.0

Now with aliignment

A graph of two people

Description automatically generated with medium confidence

At least 3 RPCs

Total eta entries: 43668.0

Total phi entries: 43668.0

Suggesting misalignments!

Aligned data

A graph of two people

Description automatically generated

Total eta entries: 39333.0

Total phi entries: 39333.0

A graph of two people

Description automatically generated Total eta entries: 39333.0

Total phi entries: 39333.0

A graph of a number of data

Description automatically generated with medium confidence

Total chi2 entries: 39325.0

This looks bad…