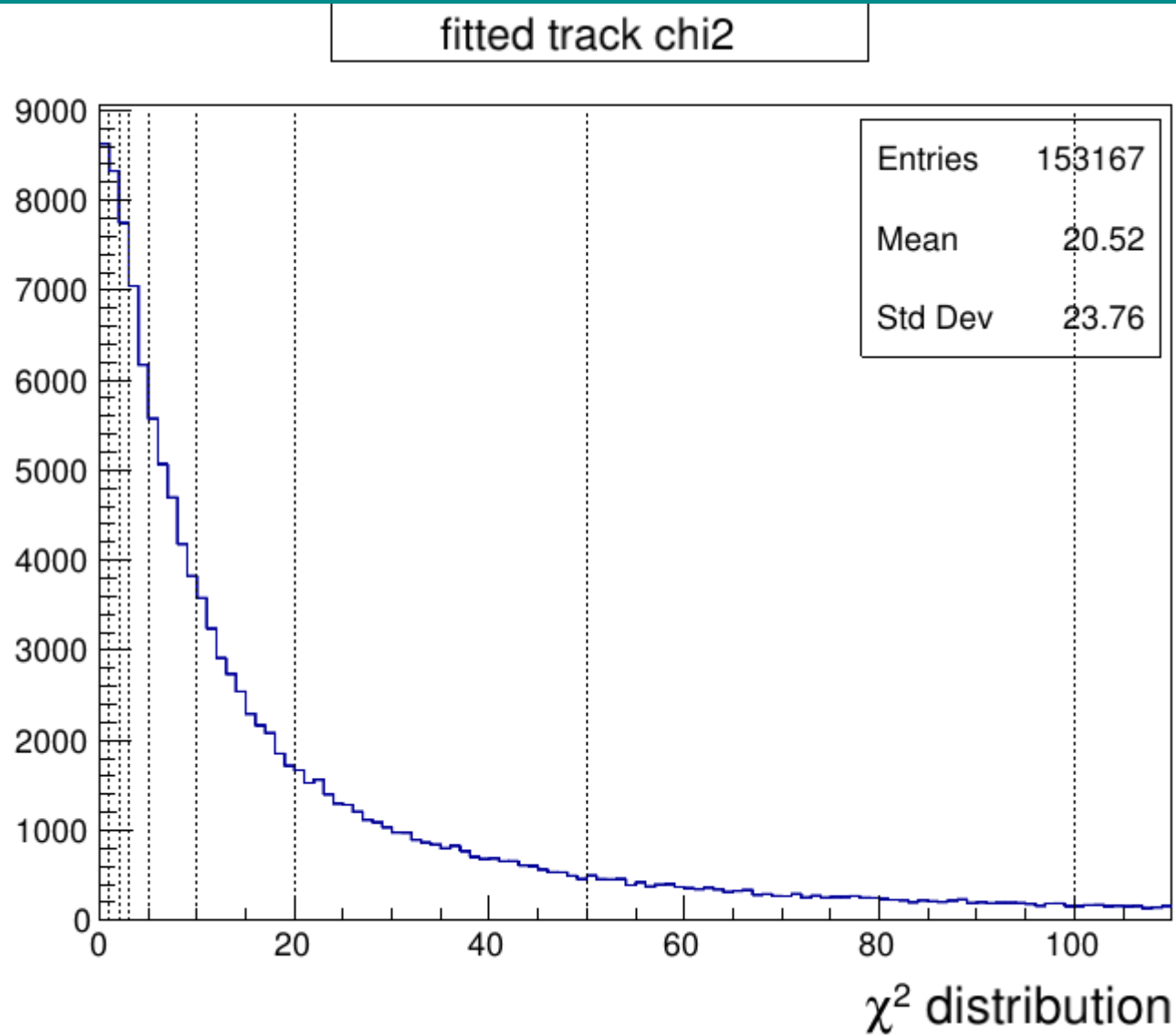


Chi2 cut scan

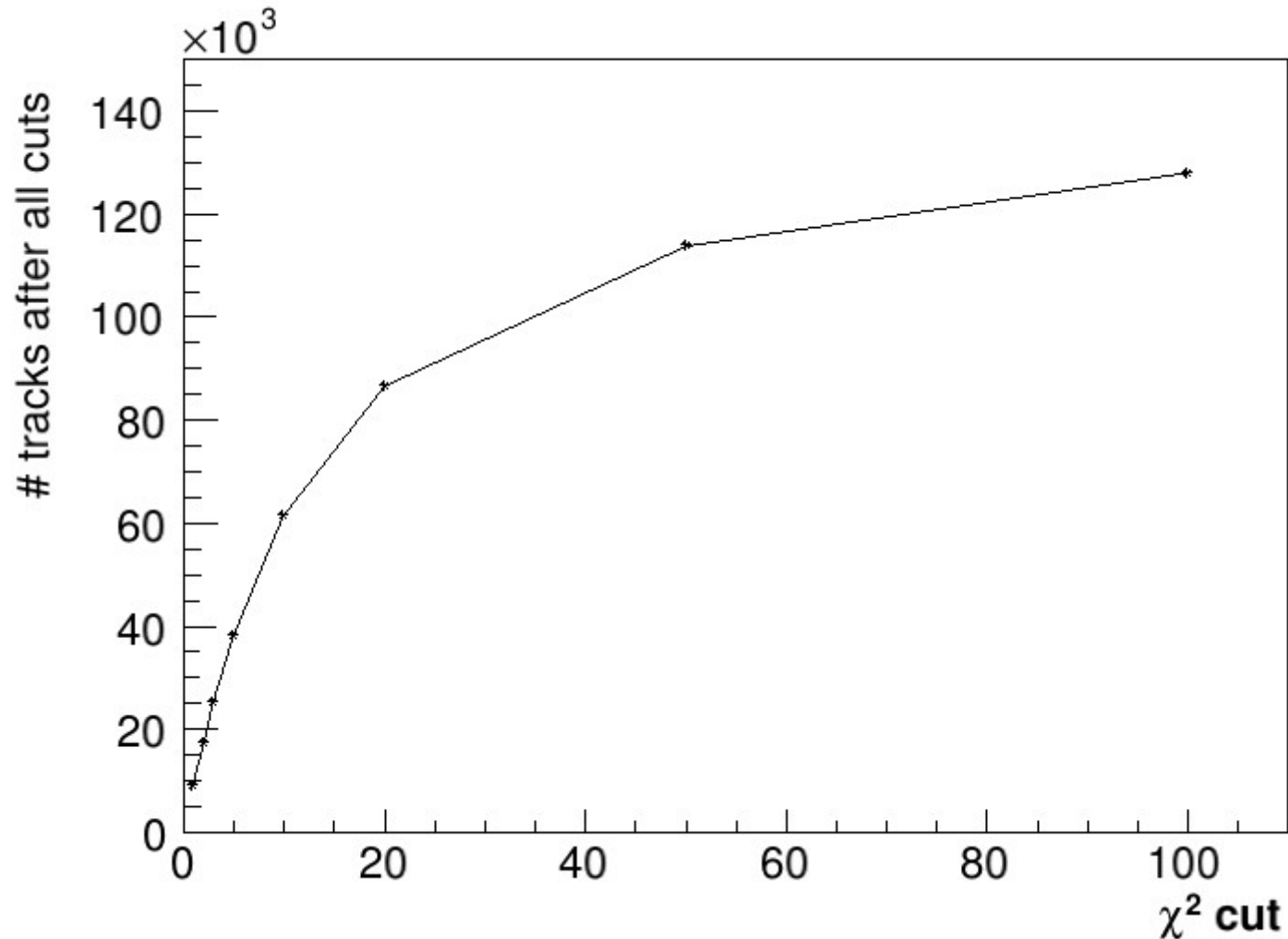
Lia Lavezzi
2020-09-24

chi2



- Test plane = L1 bottom
- Scan with chi2 cut @ 1, 2, 3, 5, 10, 20, 50, 100 (dotted lines)

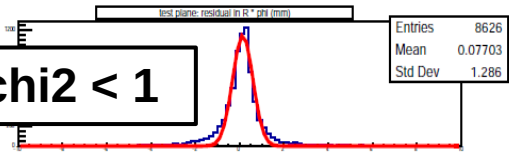
Number of “valid” tracks



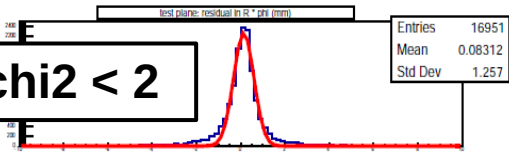
- The number of valid tracks is higher for higher cuts, as expected \rightarrow cut applied correctly

Residuals

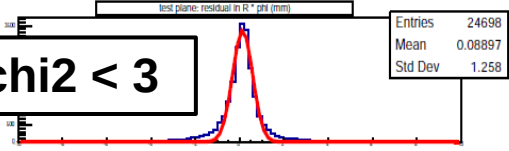
chi2 < 1



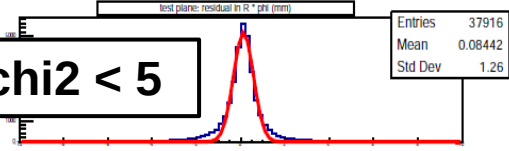
chi2 < 2



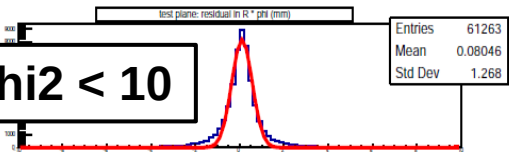
chi2 < 3



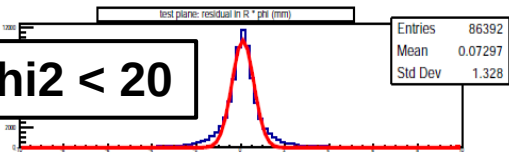
chi2 < 5



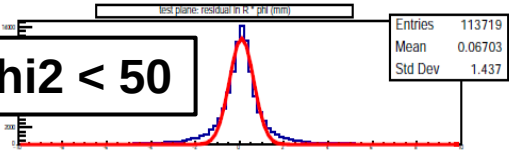
chi2 < 10



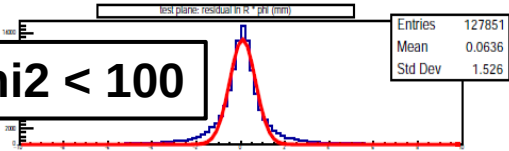
chi2 < 20



chi2 < 50



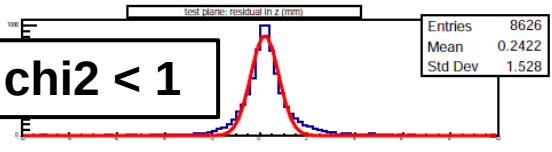
chi2 < 100



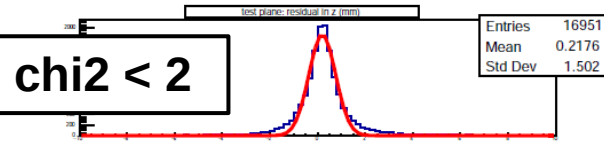
**R*phi
Residual
distributions**

**z
Residual
distributions**

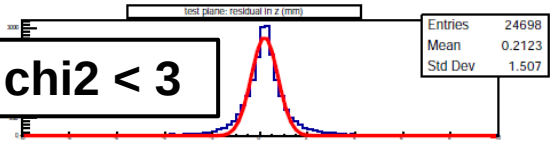
chi2 < 1



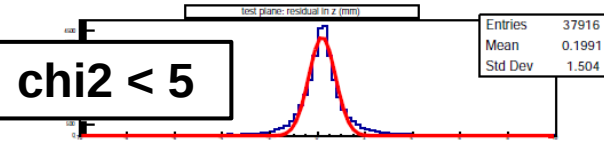
chi2 < 2



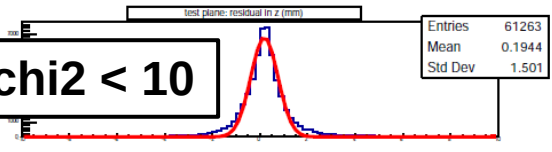
chi2 < 3



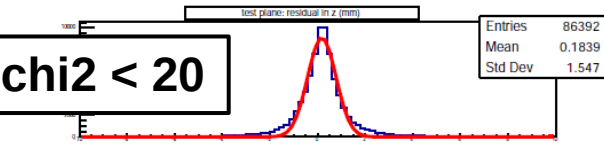
chi2 < 5



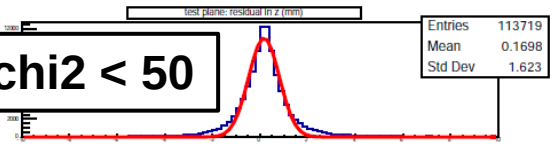
chi2 < 10



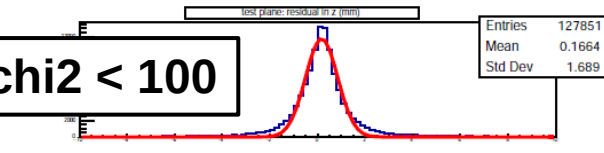
chi2 < 20



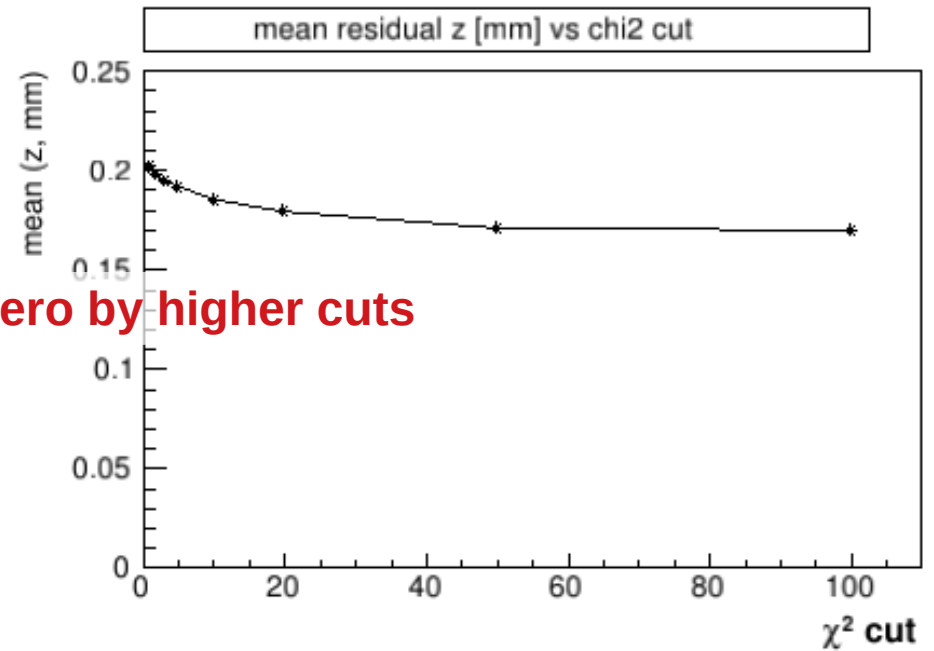
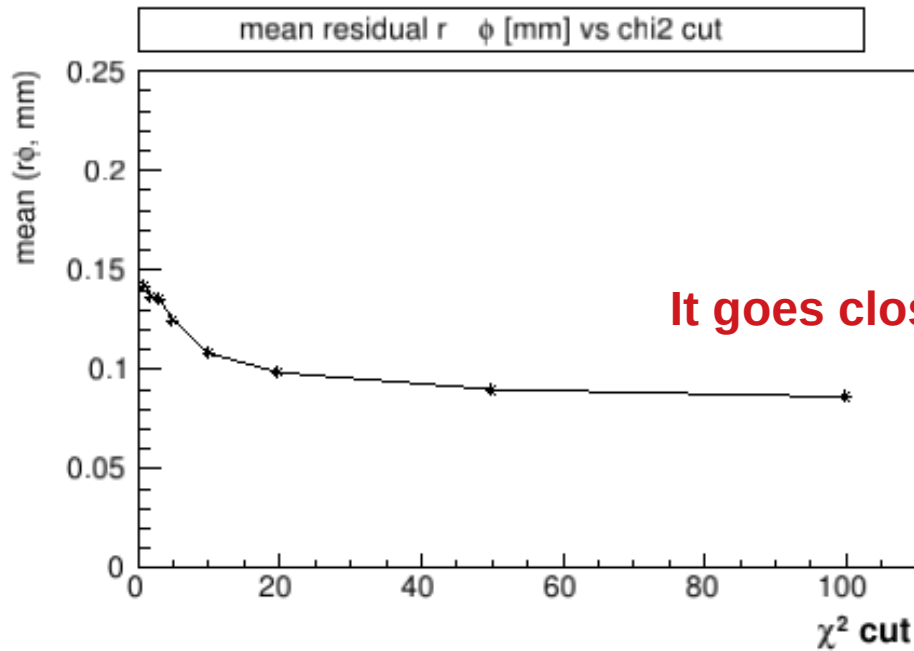
chi2 < 50



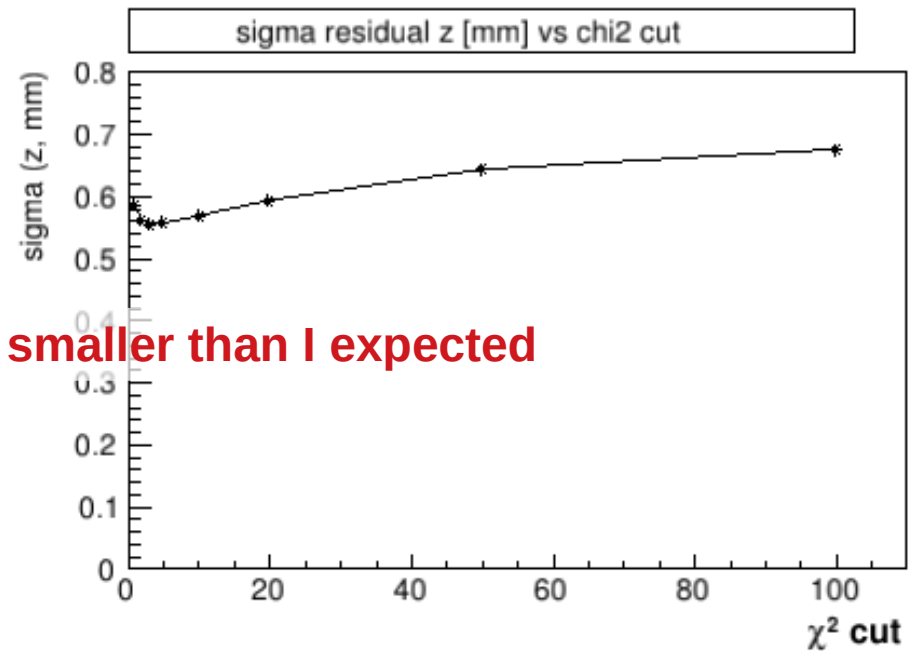
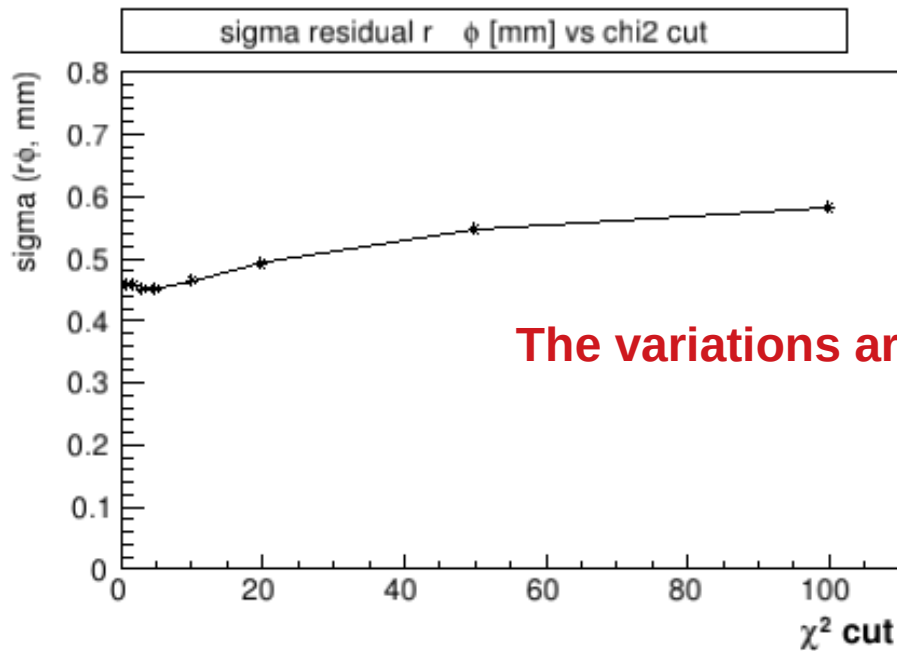
chi2 < 100



Residuals mean, sigma vs chi2

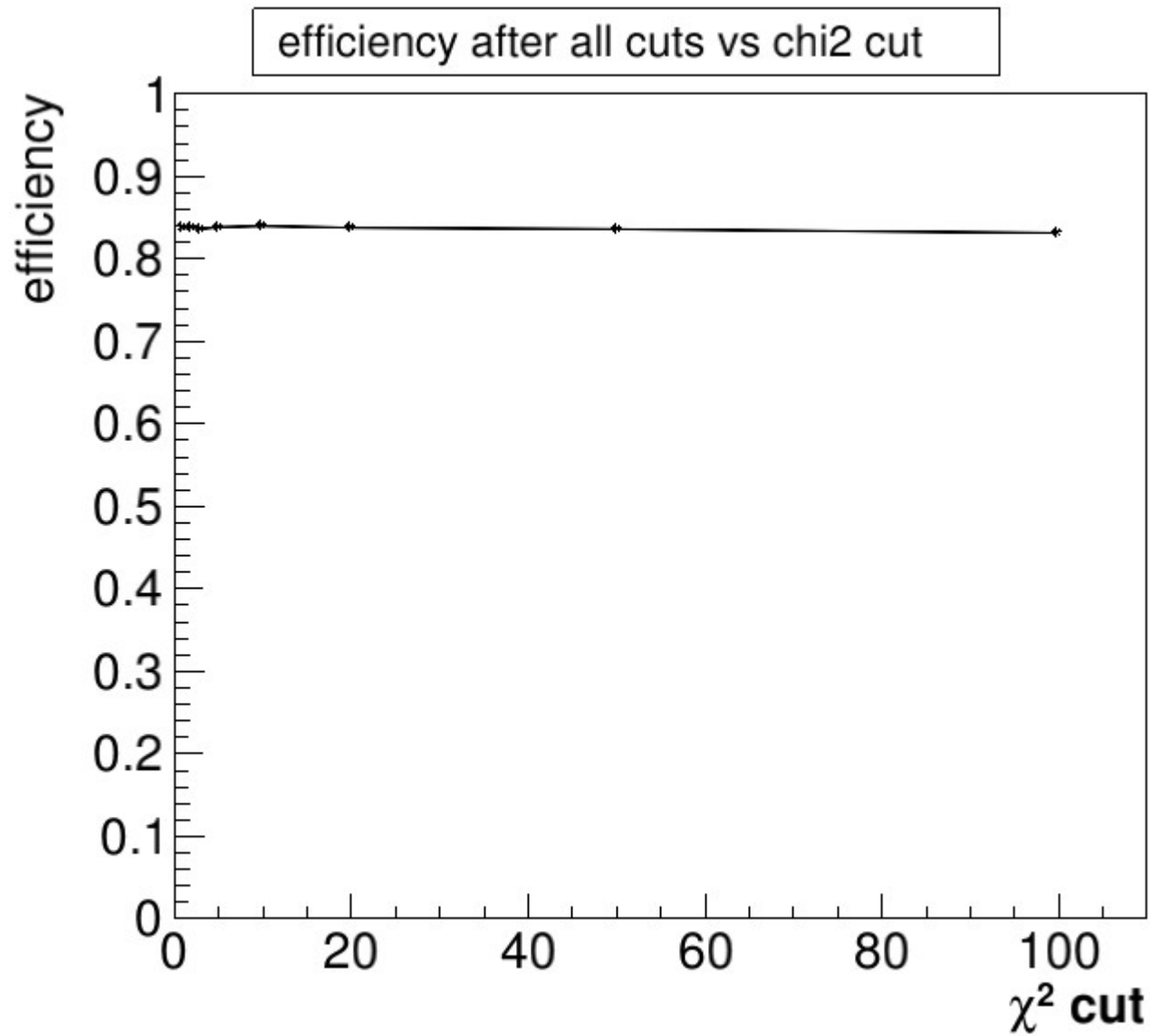


It goes closer to zero by higher cuts



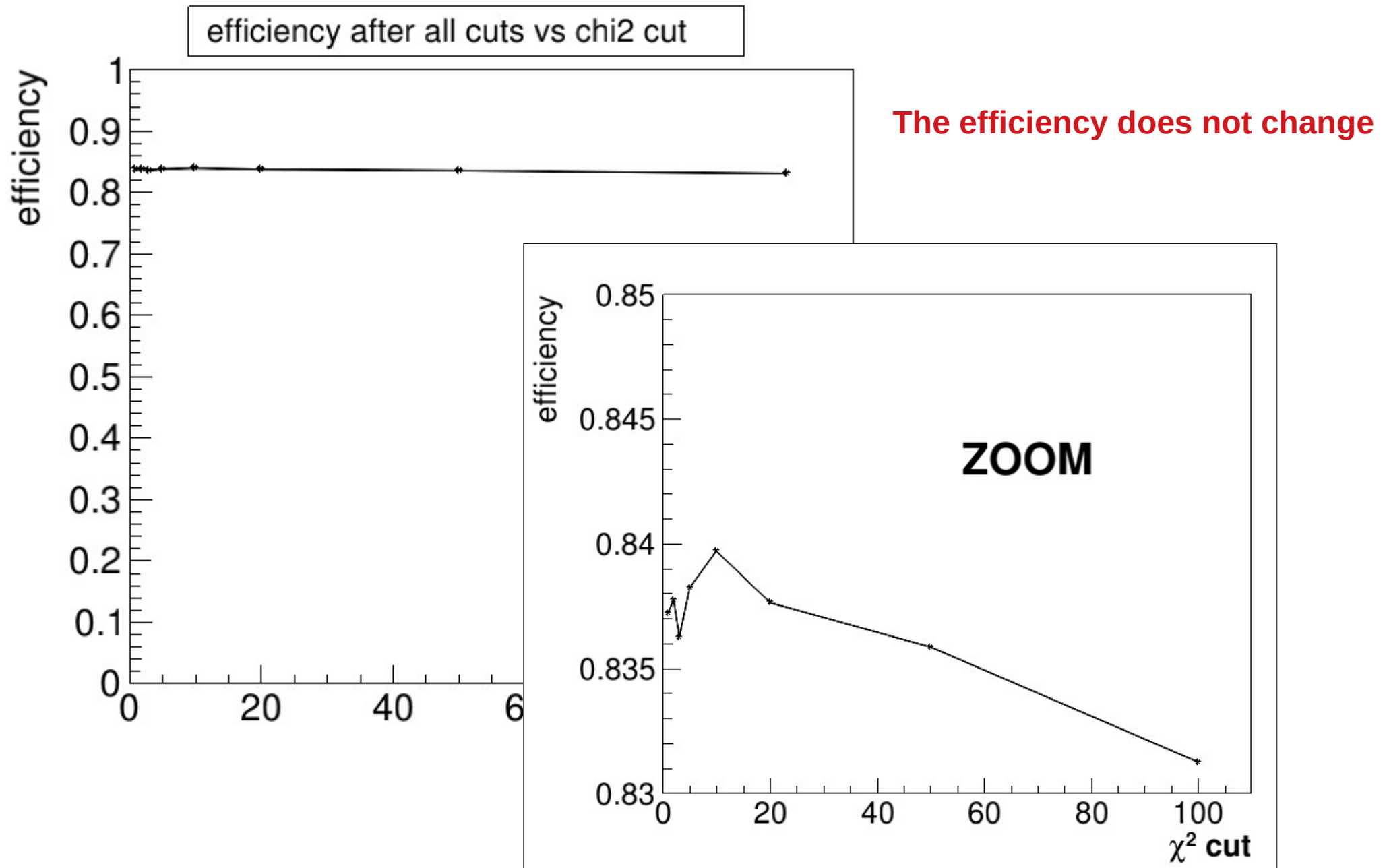
The variations are much smaller than I expected

Residuals mean, sigma vs chi2



The efficiency does not change

Residuals mean, sigma vs chi2



To do list

- Test residuals in LineFit.root, the original ROOT file from CgemLineFit
- Marco Scodeggio will cross check the new procedure