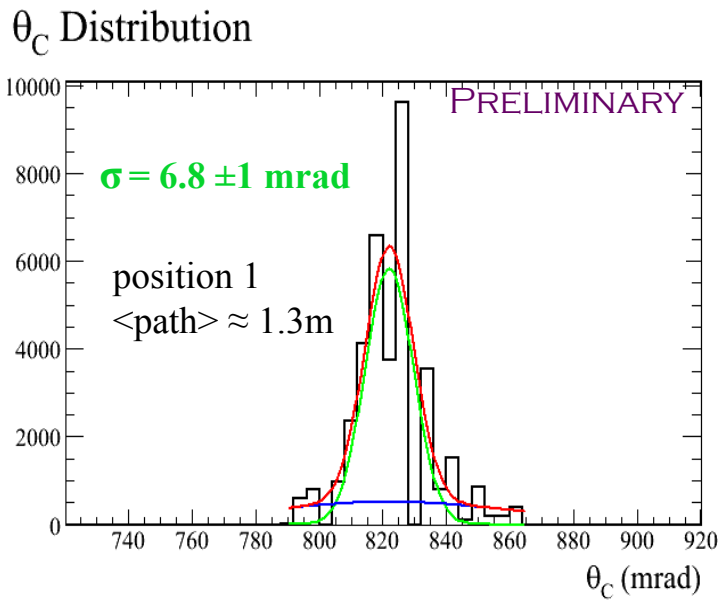
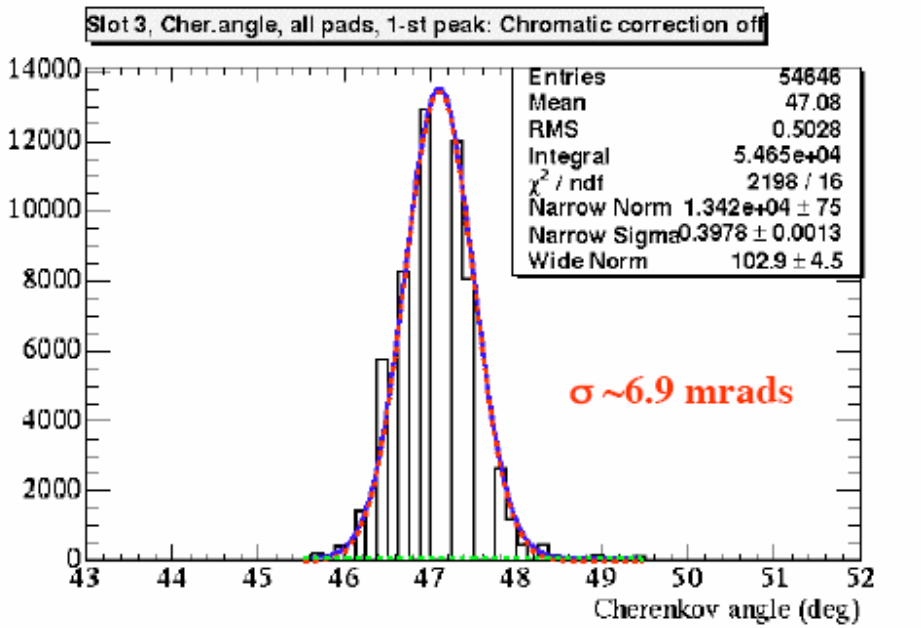
In preparing Geant 4 thetaC resolution vs. path plots for Jerry's talk I noticed that the pixel resolution I find for slot 3 in real data is typically 8-9 mrad instead of 6-7 mrad which Jose and Jerry find.



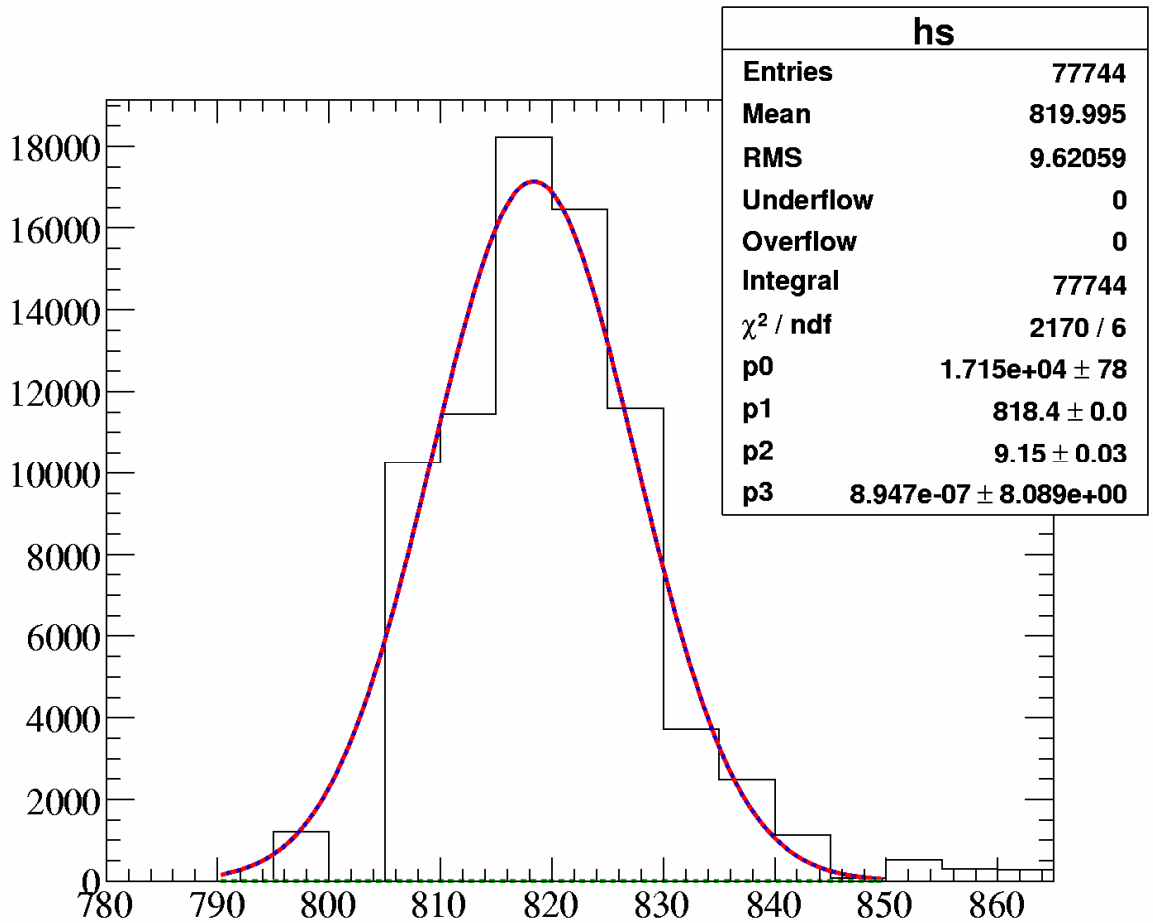
~ 2.2 mrad/bin
- vary norms 1&2



I was using 5 mrad bins, standard ROOT double-Gauss fit
(ER0 options, second Gauss mean and width fixed to 822/40)

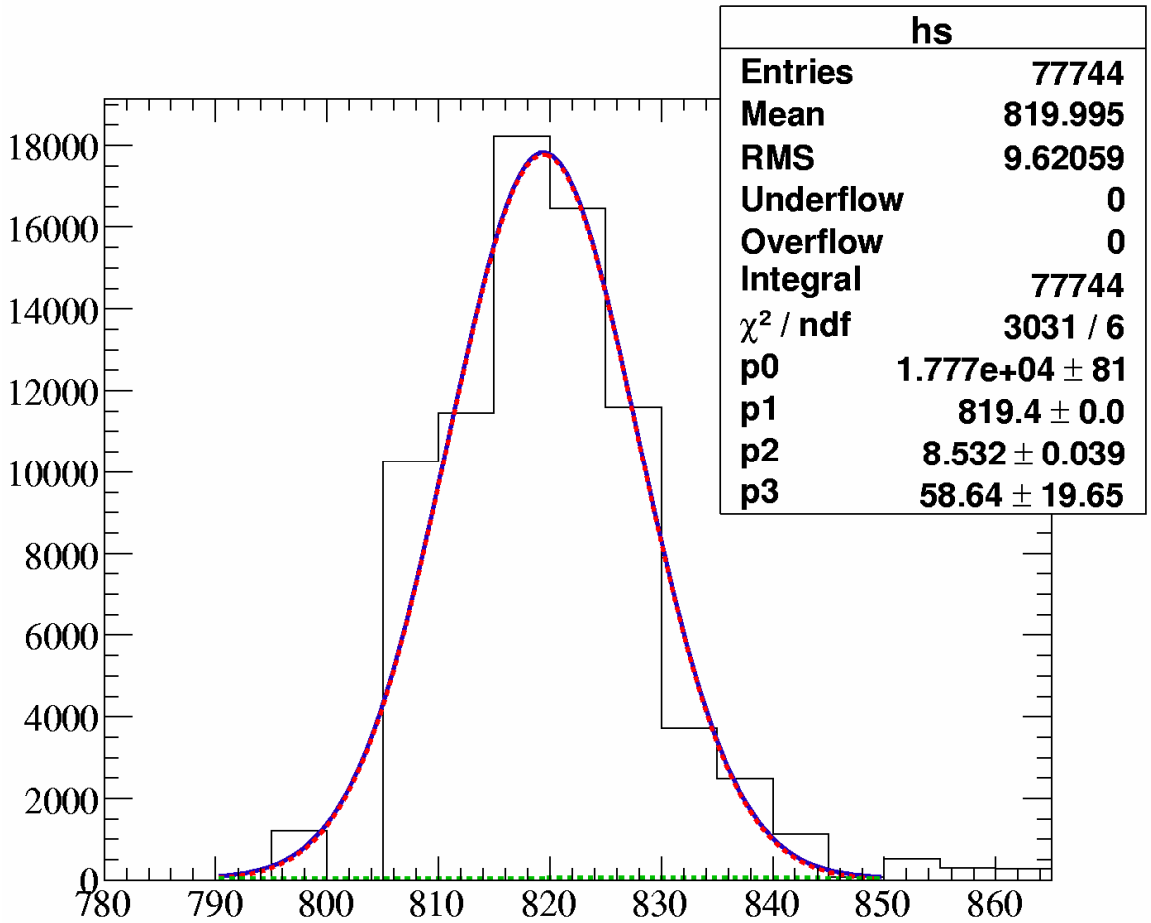
Example: pos 1, run 22, direct photons → 9.2 mrad

my fits look as OK to me as Jose's and Jerry's



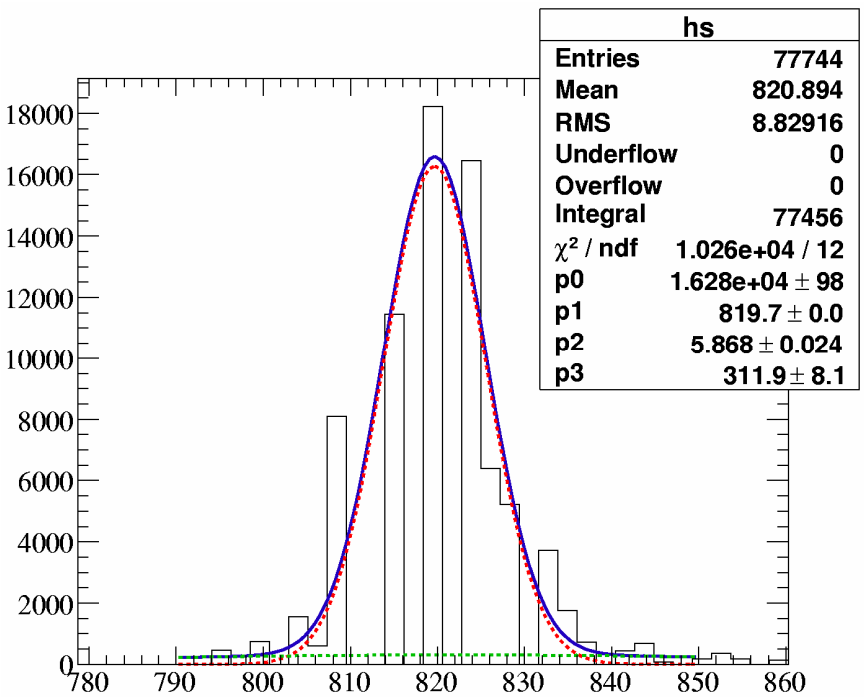
ROOT has another fit option: log likelihood (ELR0)

Example: pos 1, run 22, direct photons → 8.5 mrad

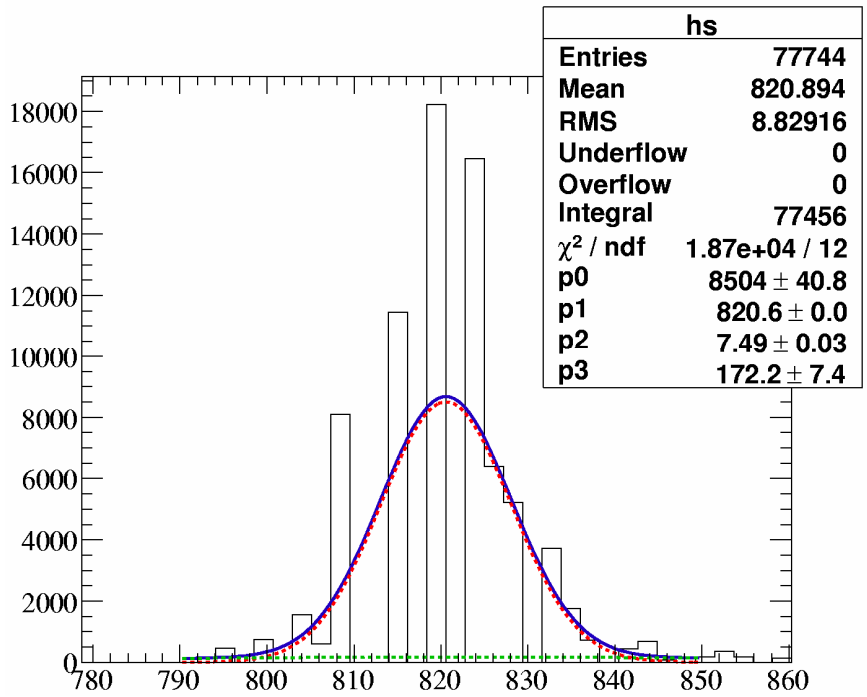


The two method produce significantly different results

chi squared

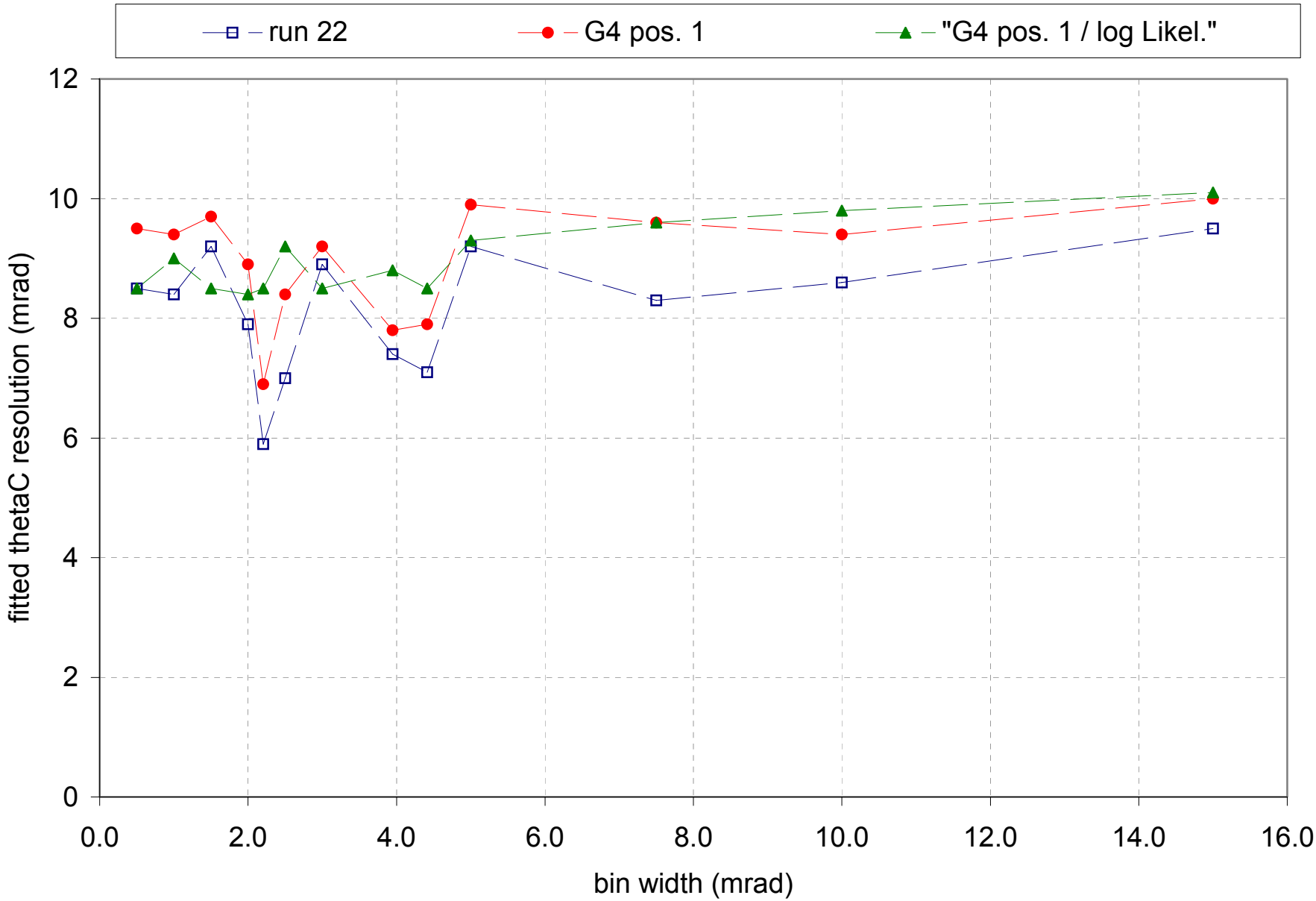


log likelihood

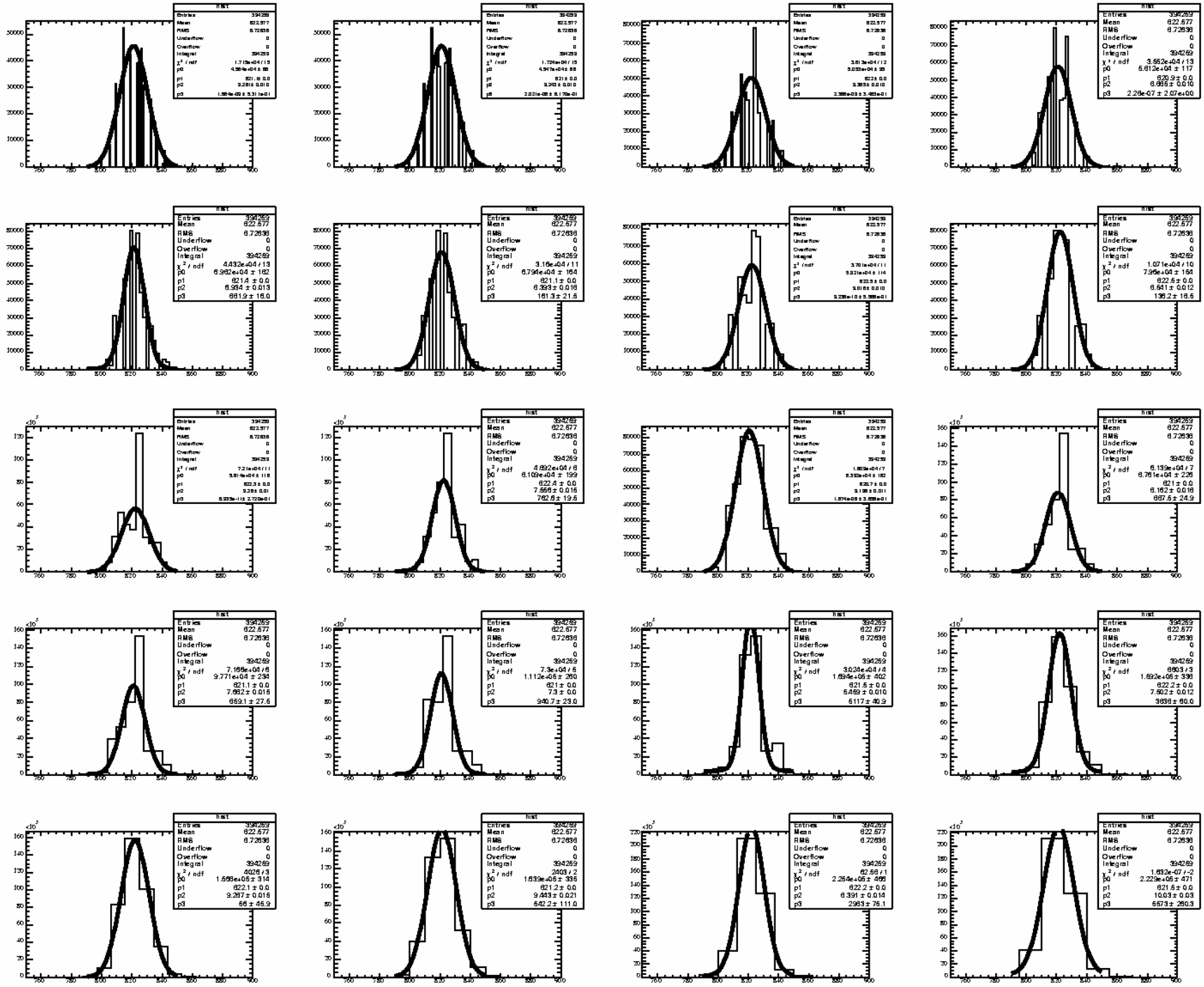


I verified that chi squared fit properly ignores bins with zero content and zero error.

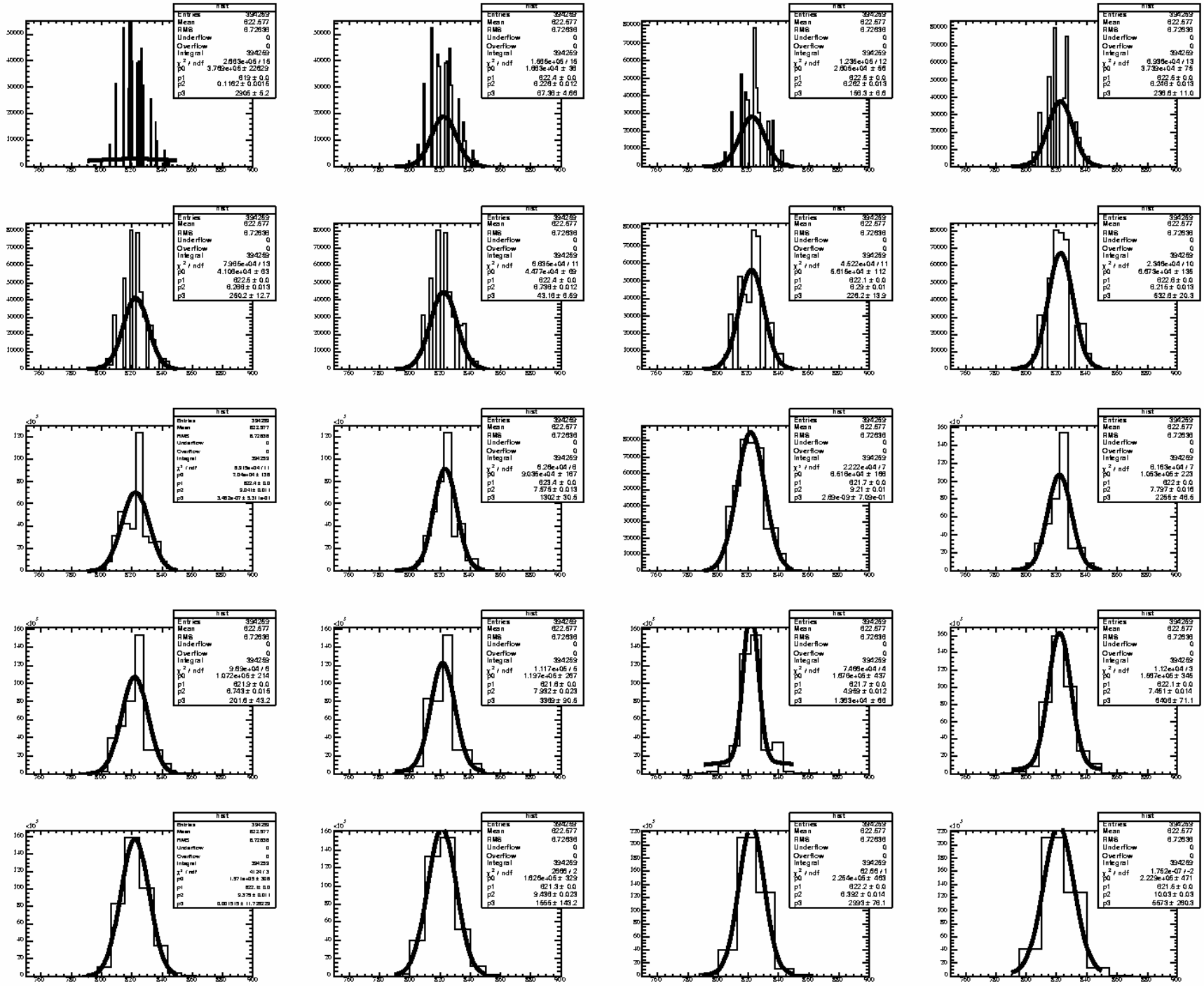
Plot fit result for various bin sizes:

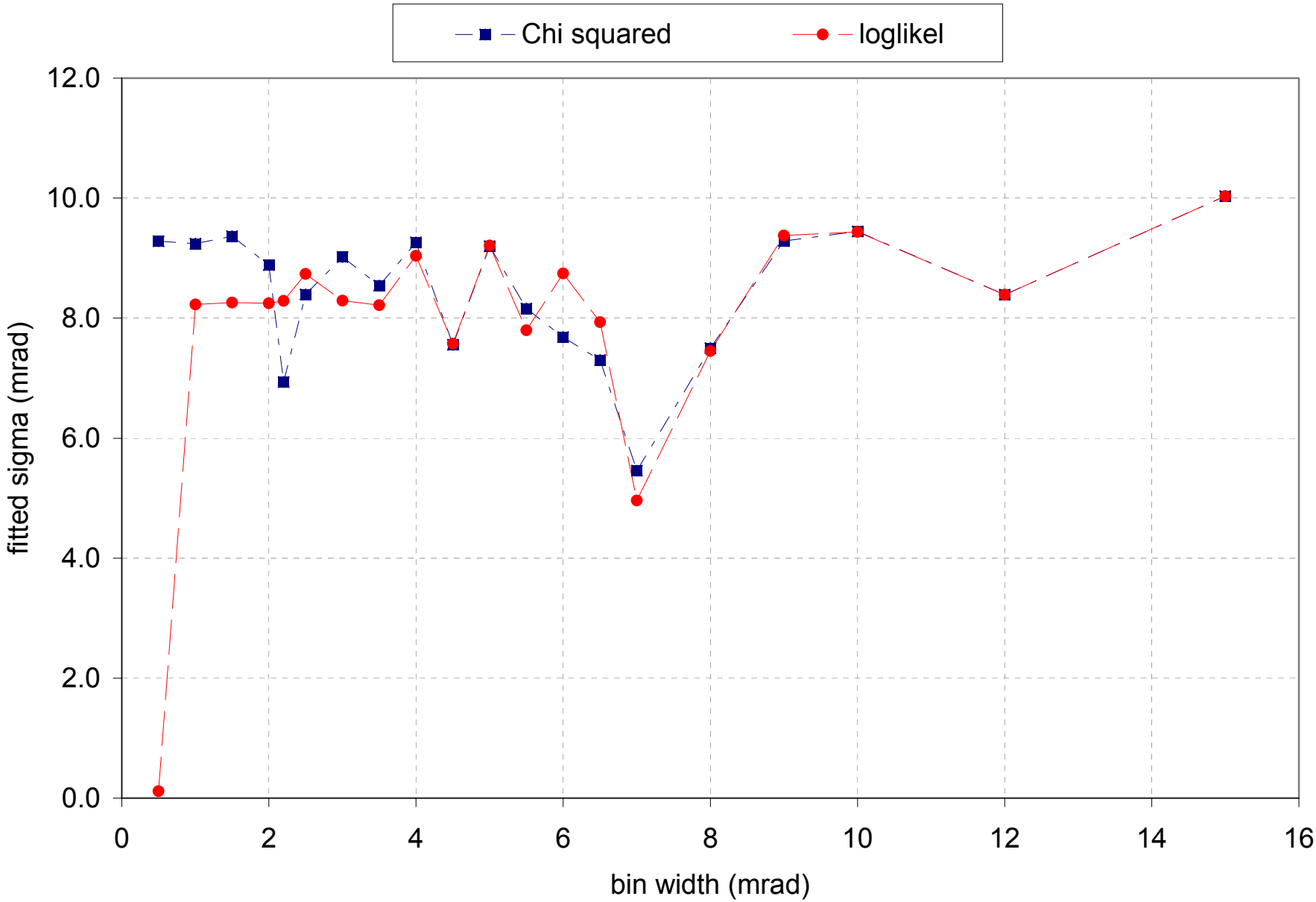

run 22
G4 pos. 1
"G4 pos. 1 / log Likel."
fitted thetaC resolution (mrad)
bin width (mrad)
0
2
4
6
8
10
12
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0

G4 - chi squared fit



G4 - log likkelihhod fit





Not sure what to do – average and FWHM of binning method? What do you think?