DCA Resolution Study

Sasha Lebedev and Andrew Bergstrom (ISU)

New amount of material: ~12-13%

- 2.1% per pixel layer, 3.7% per strip layer, plus other stuff.

Study vs P_T, chi2phi, electron/pion, centrality

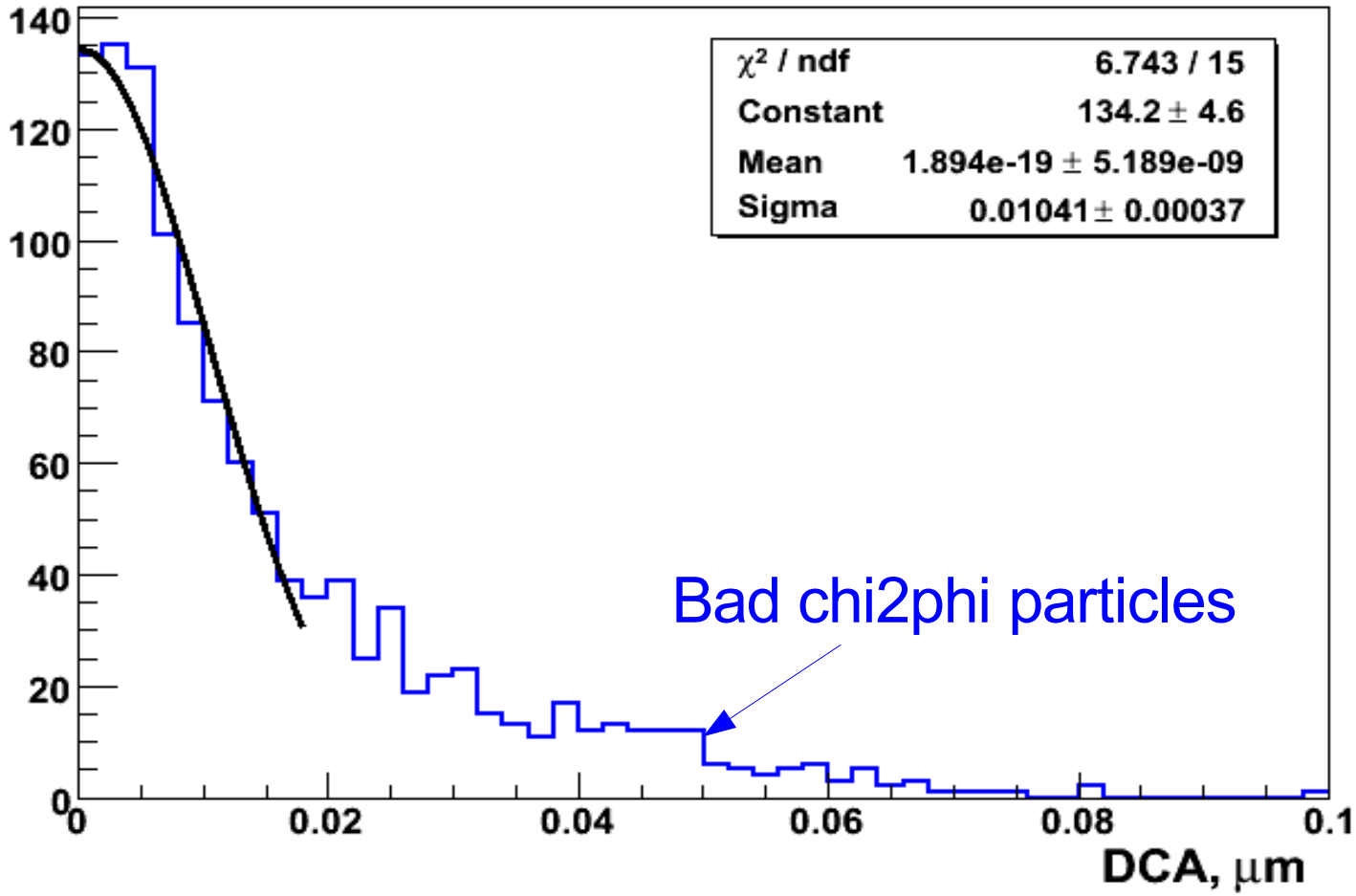
5 particle events – AuAu events study under way

Kalman Fit errors (inverse weights):

layer	new	old (original)
0	15/sqrt(12)	50/sqrt(12)
1	50/sqrt(12)	50/sqrt(12)
2	99999999.	80/sqrt(12)
3	99999999.	80/sqrt(12)

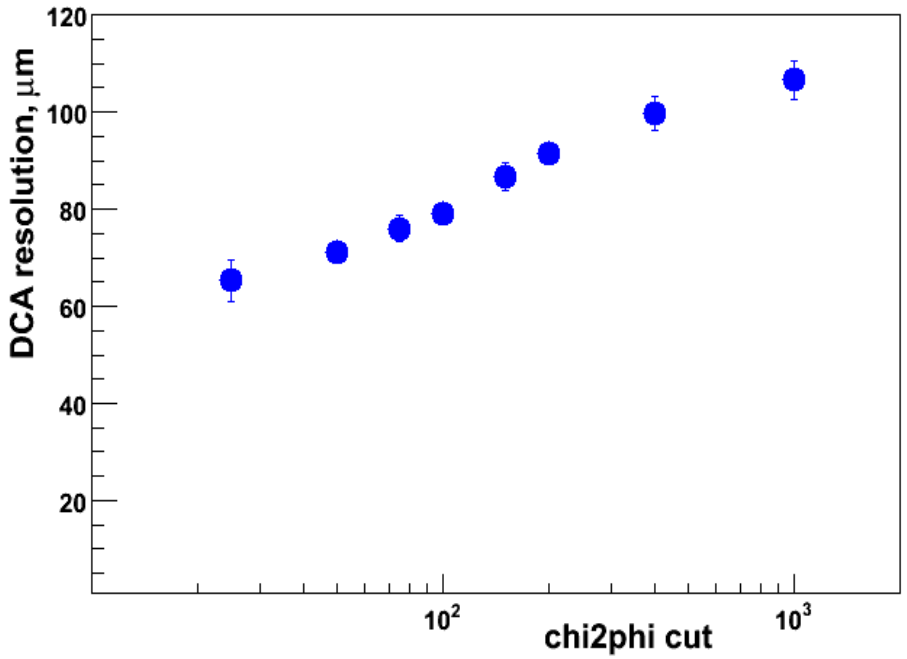
Example of DCA distribution

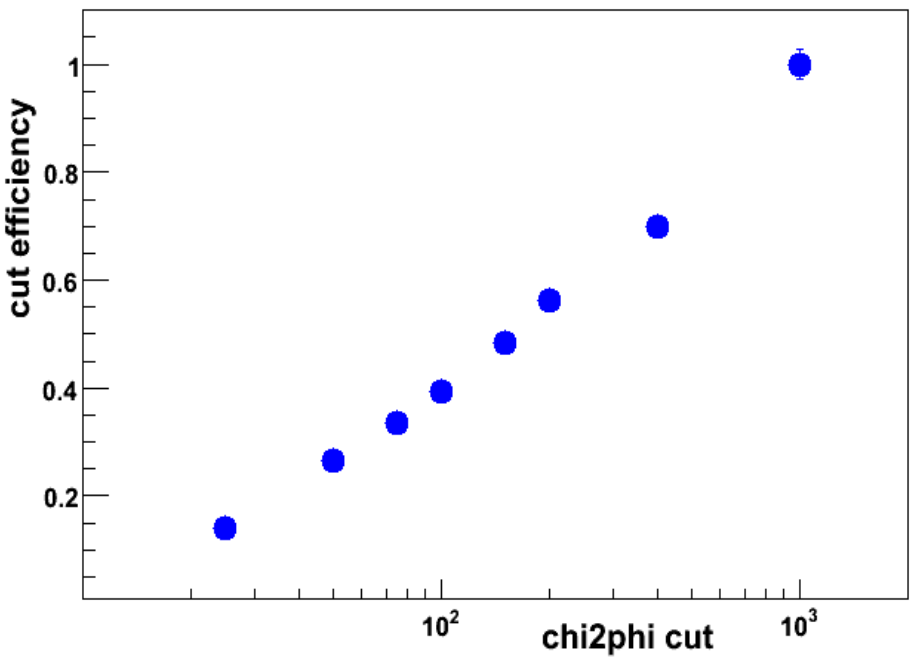
Typical DCA distribution from Kalman Fit



chi2phi cut

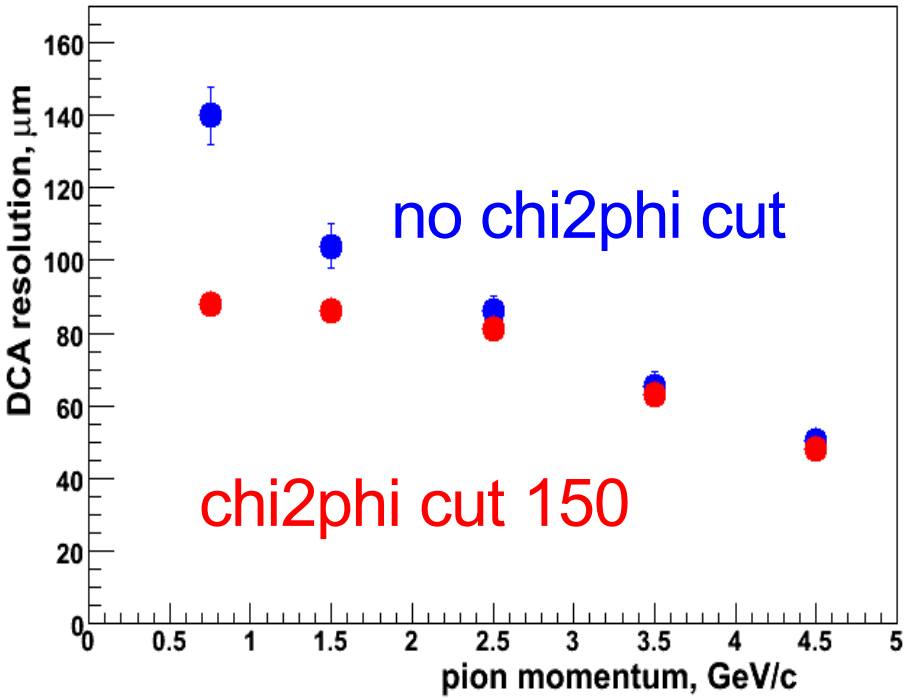
1-2 GeV pions are used for these plots.
For high P_T particles chi2cut kills less, but is also less effective.
chi2z cut does not affect DCA resolution.



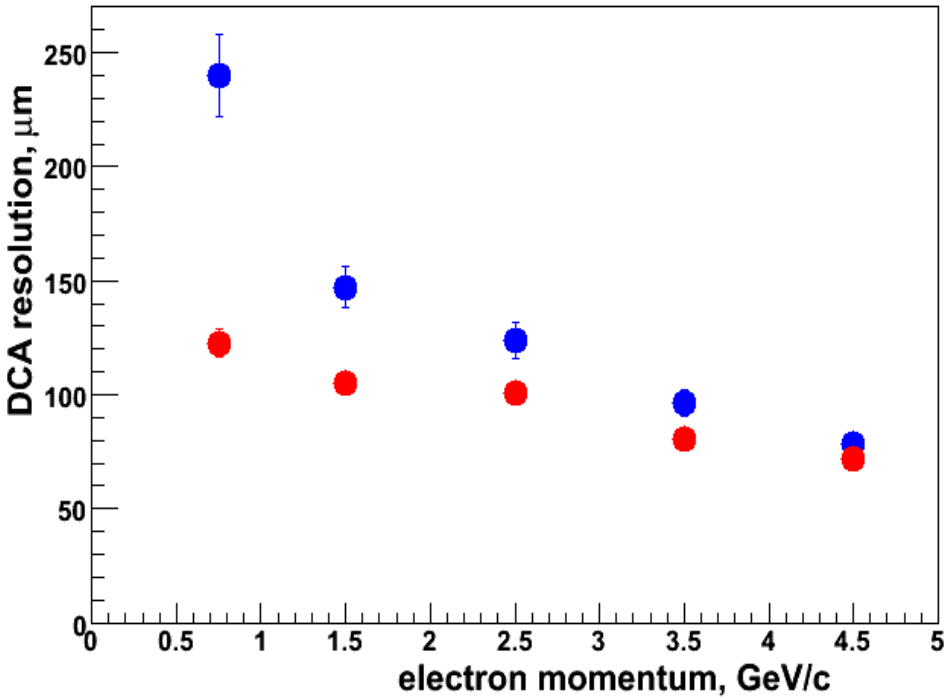


DCA vs P_T

pions

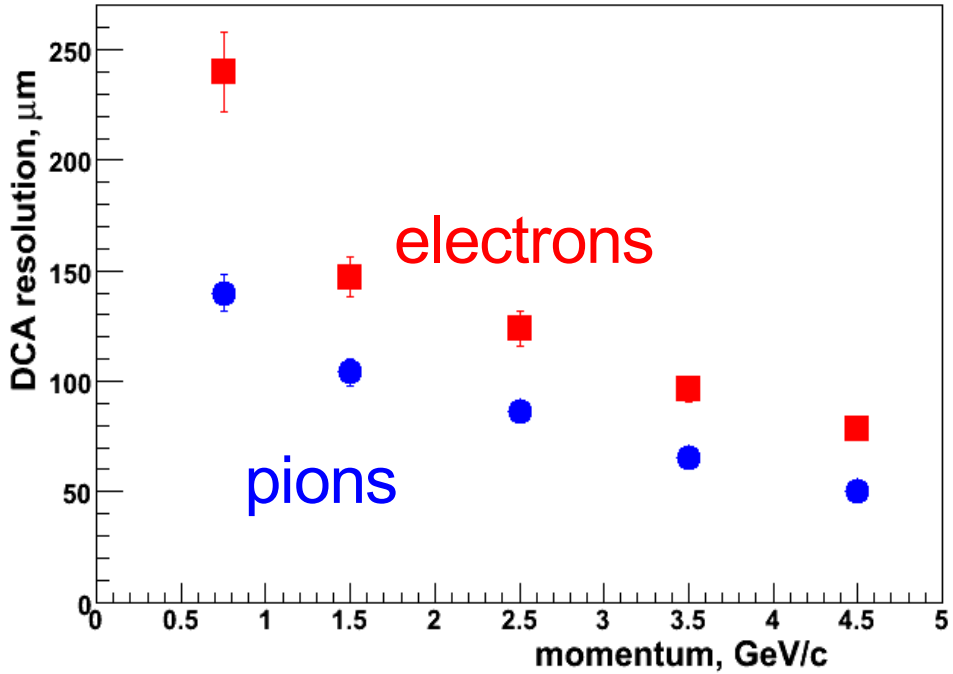


electrons (note scale difference)

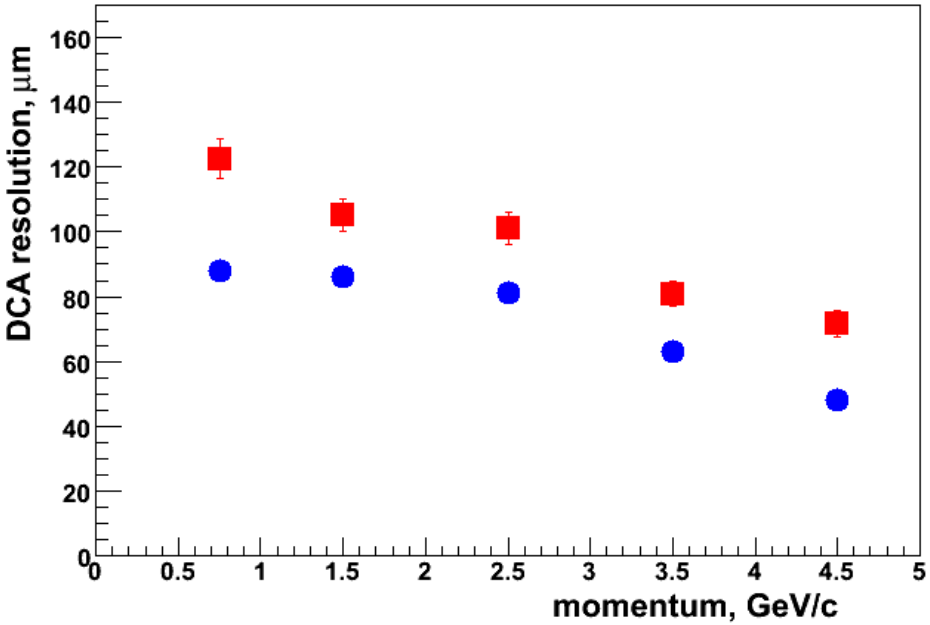


Pion/electron comparizon

No chi2phi cut



chi2phi cut 150



Comparison to old results

Current result:

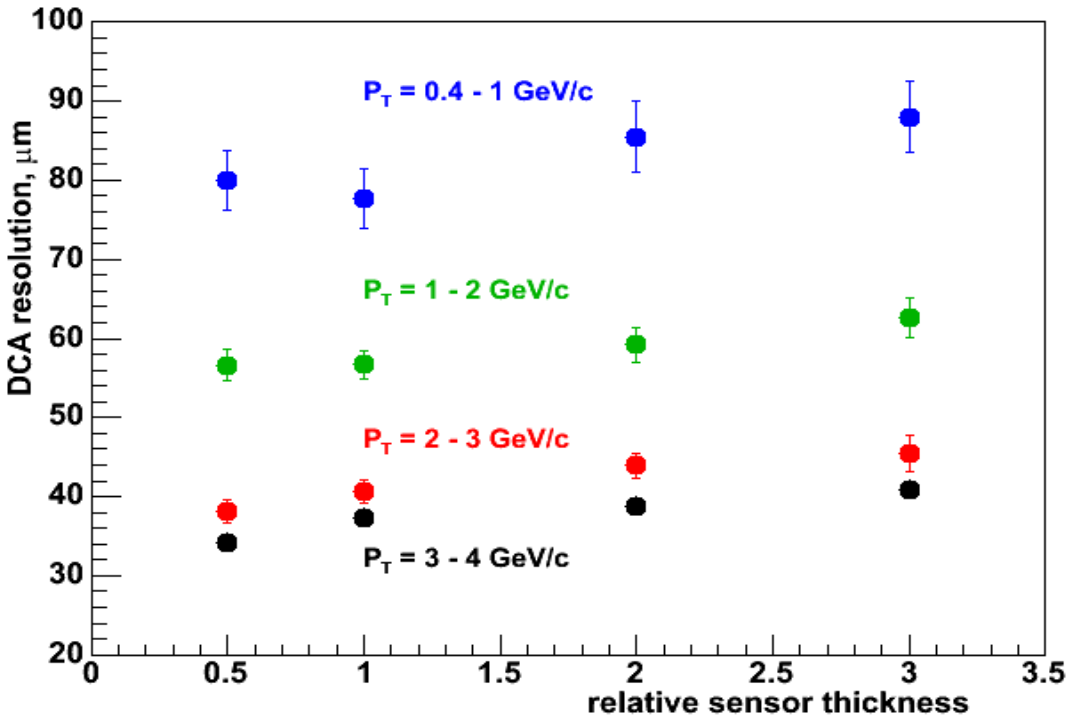
140 mm

104 mm

86 mm

51 mm

Pions, no chi2phi cut, ~ 2 years ago



5.6% 6.4% 7.2%