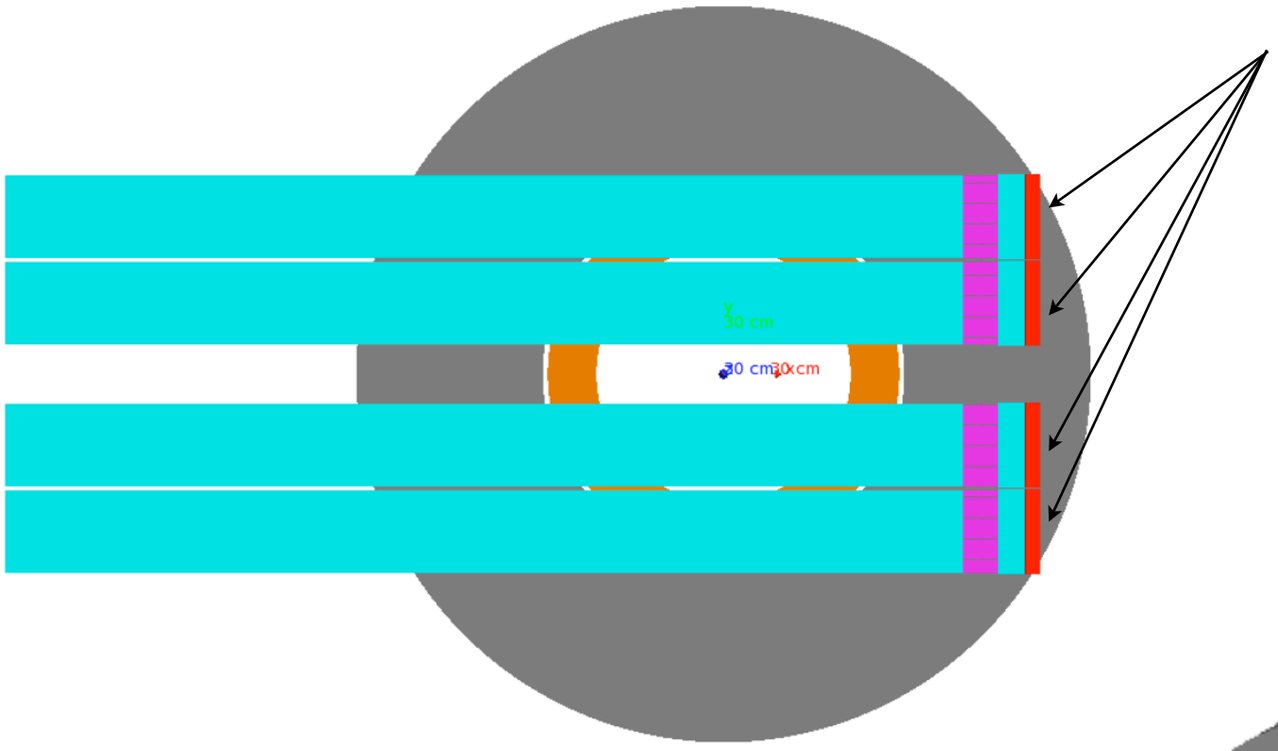
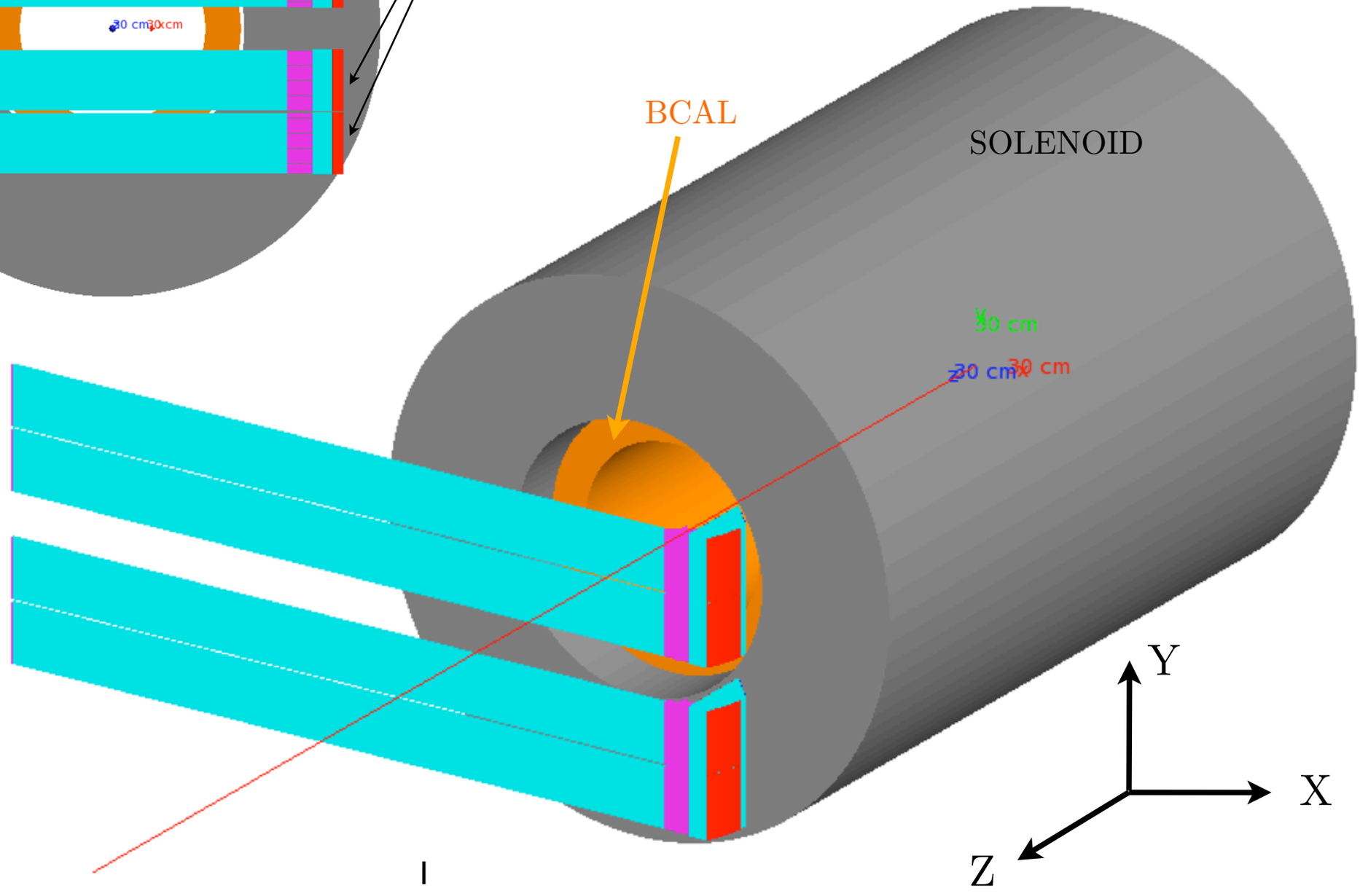
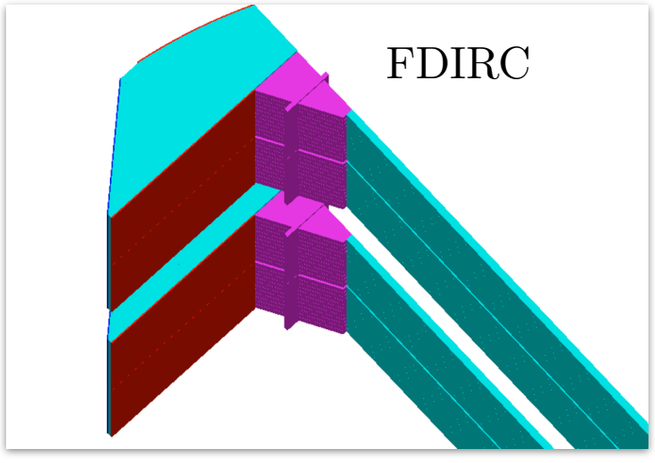
Focusing DIRC @ GlueX:



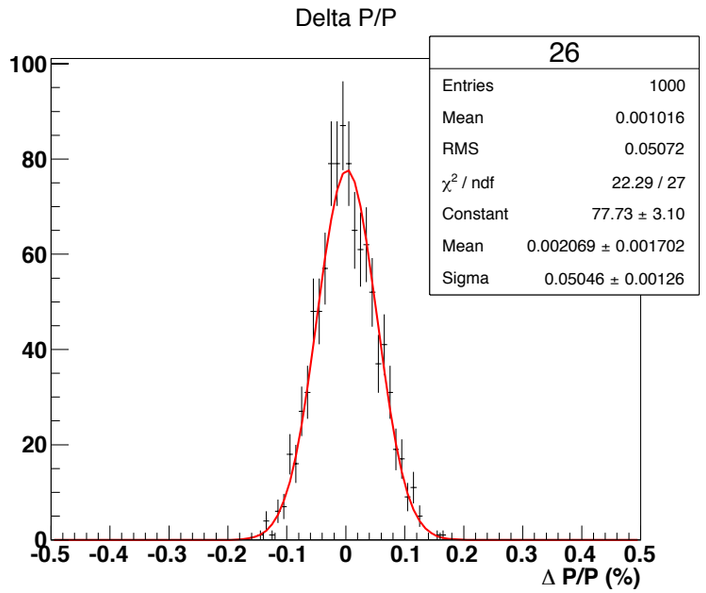


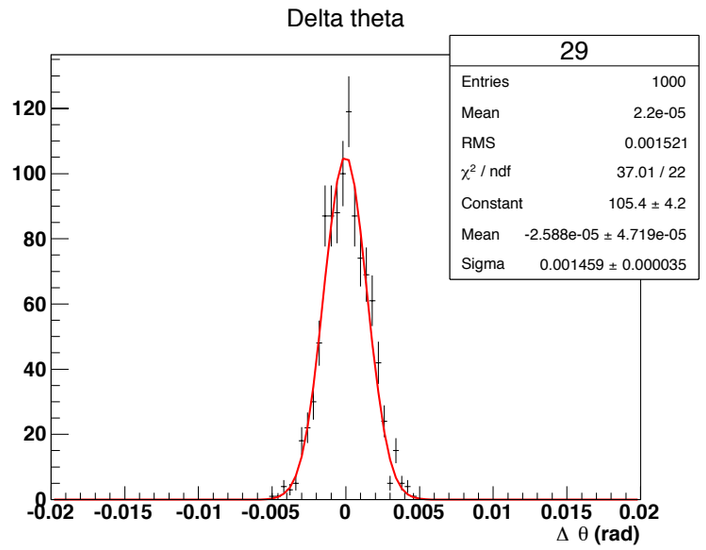


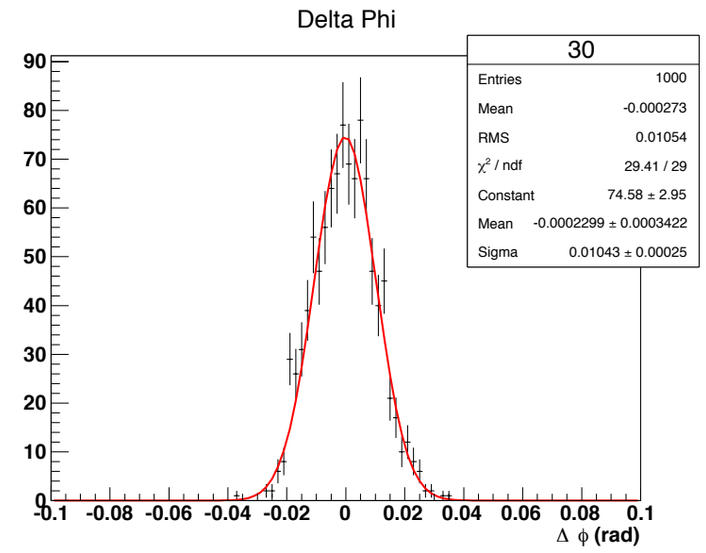
Pions/kaons are thrown perpendicularly to a bar.

Taking into account (for the forward region):

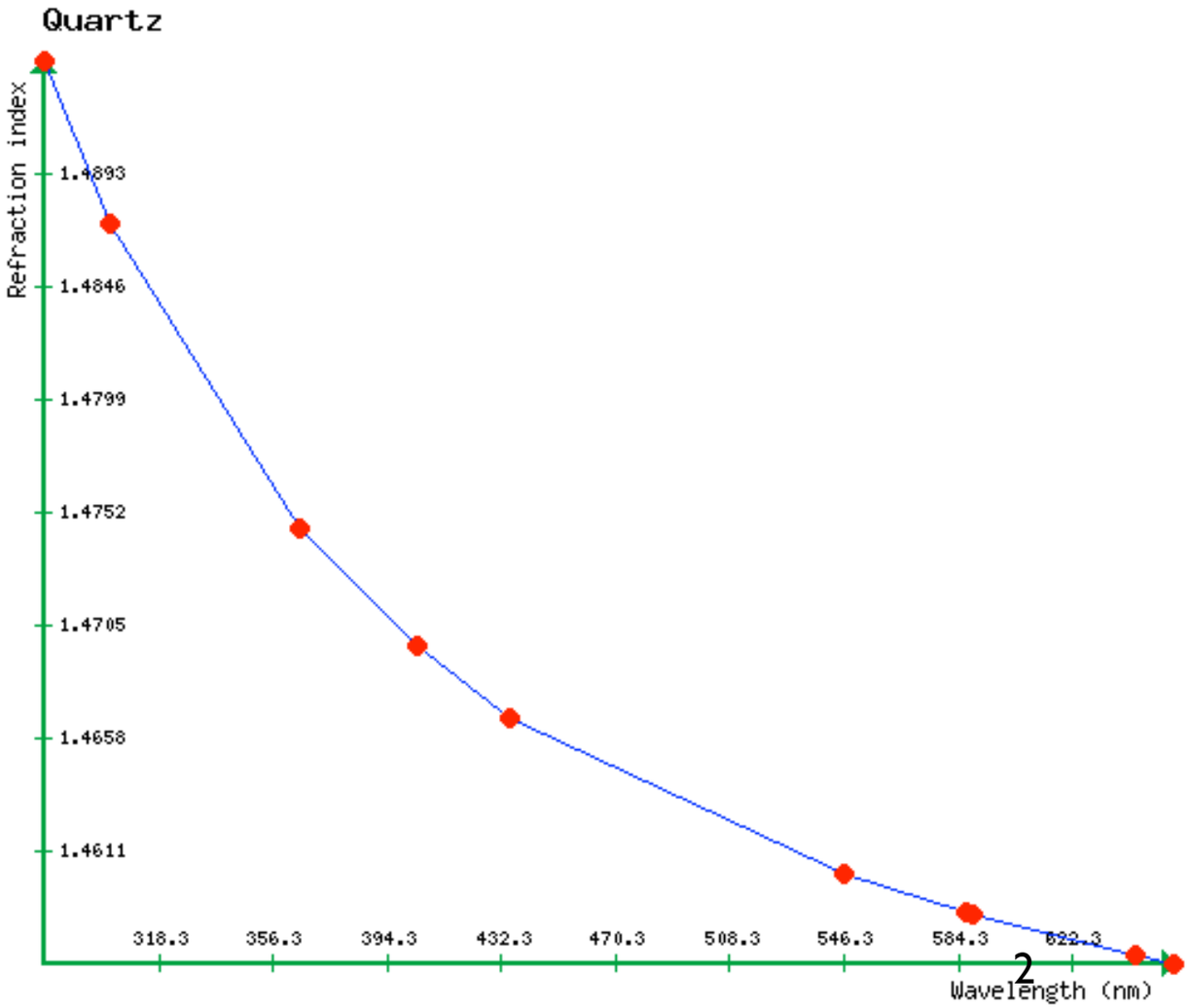
- the momentum resolution (5%)
- the polar angle (1mrad)
- the azimuthal angle (10mrad)

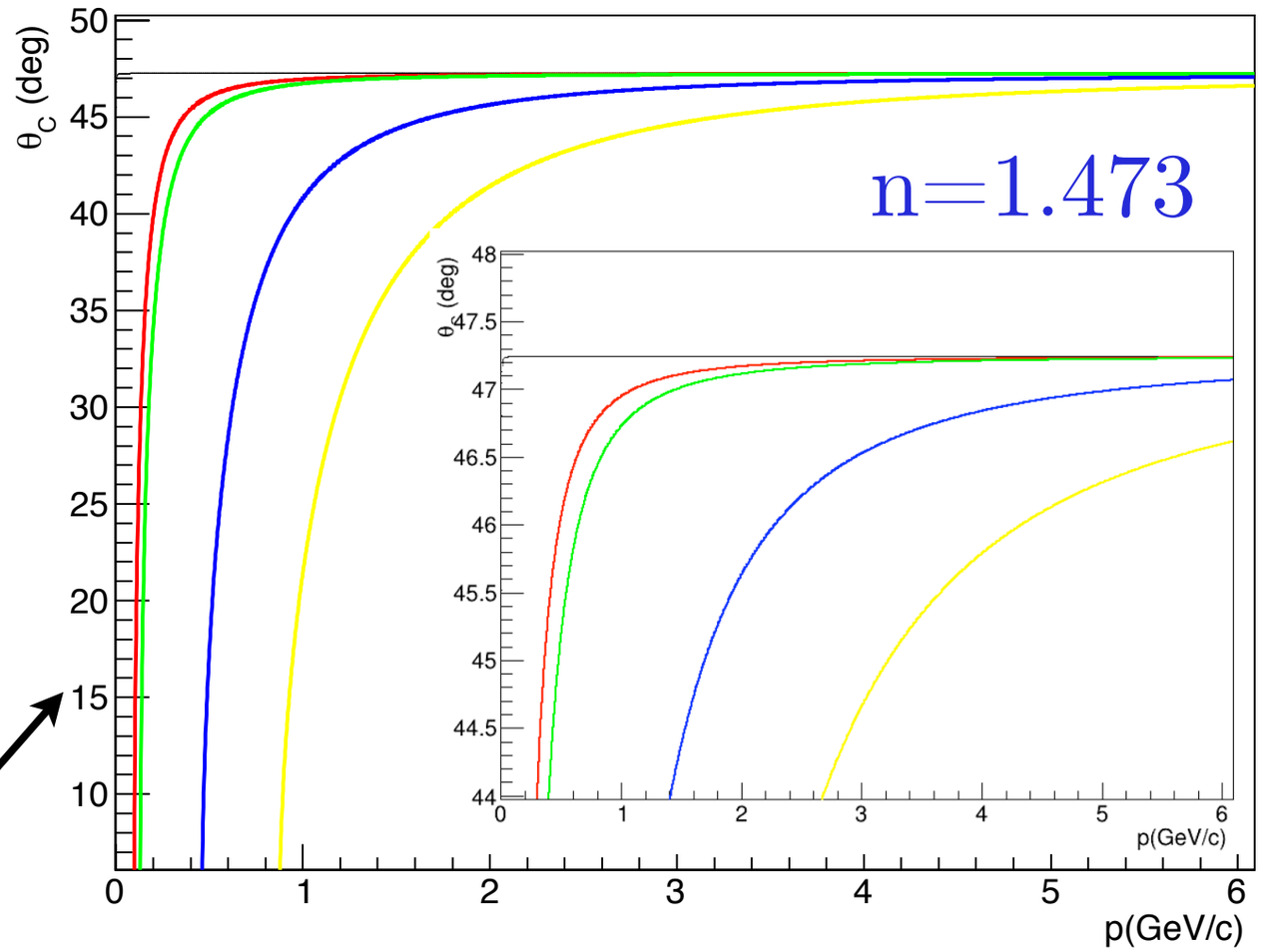


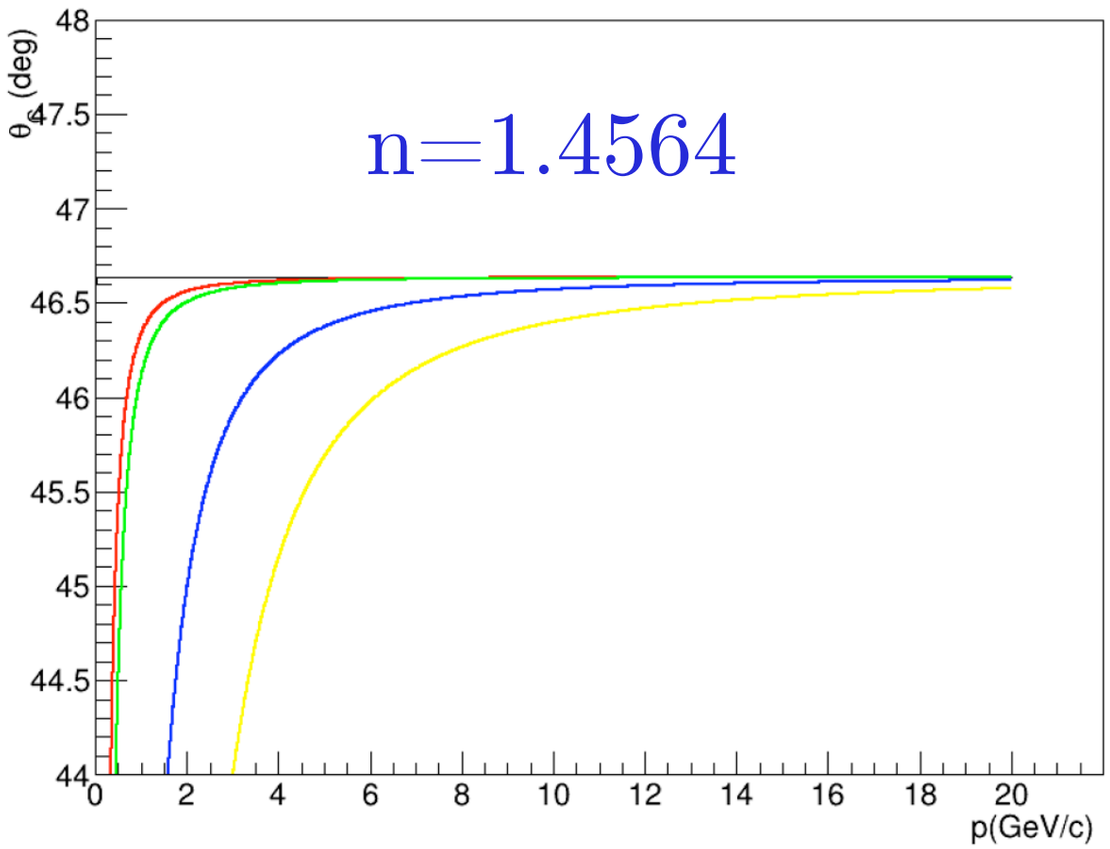


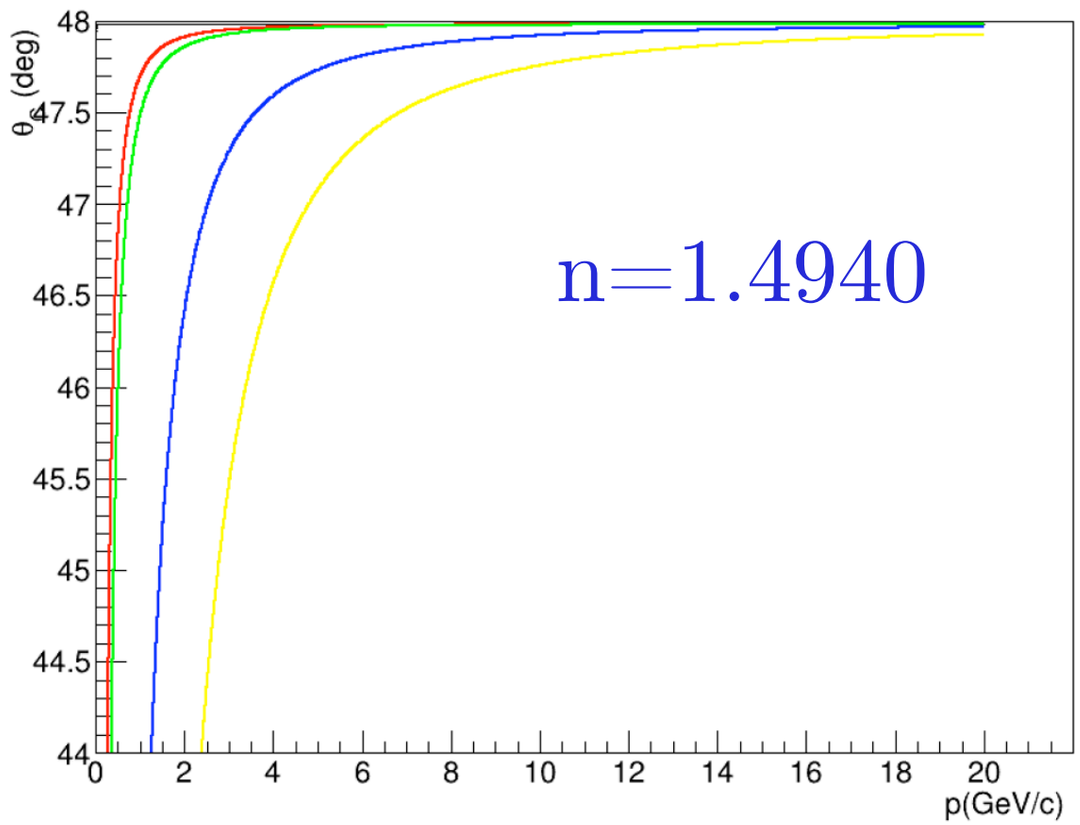


Quartz index of refraction (approximation):




n=1.473
θC (deg)
p(GeV/c)


n=1.4564
θC (deg)
p(GeV/c)

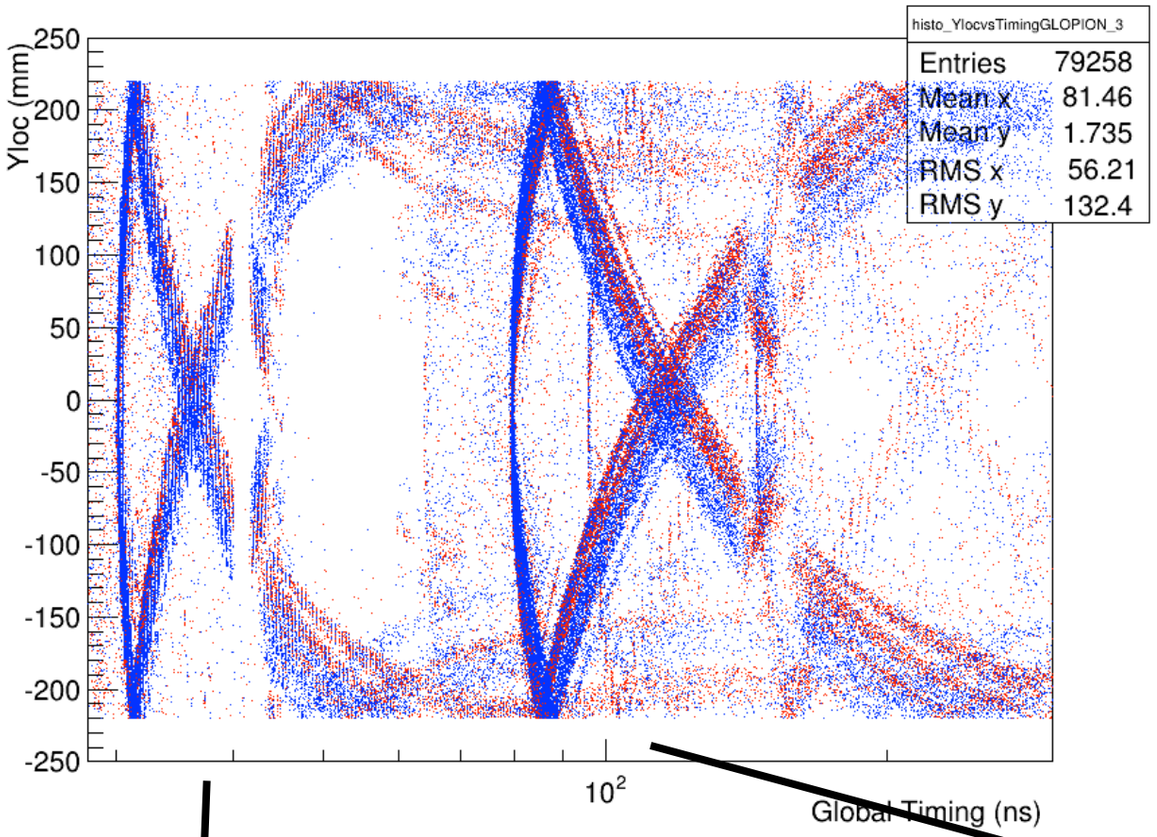

n=1.4940
θC (deg)
p(GeV/c)

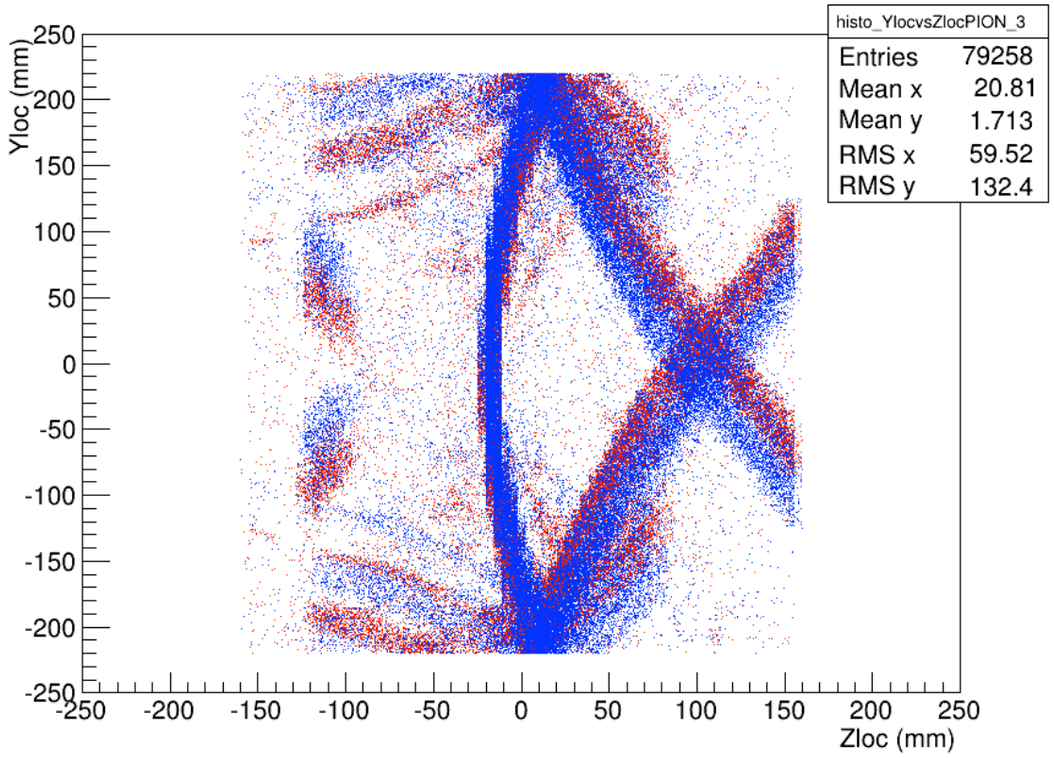
Pions @4GeV

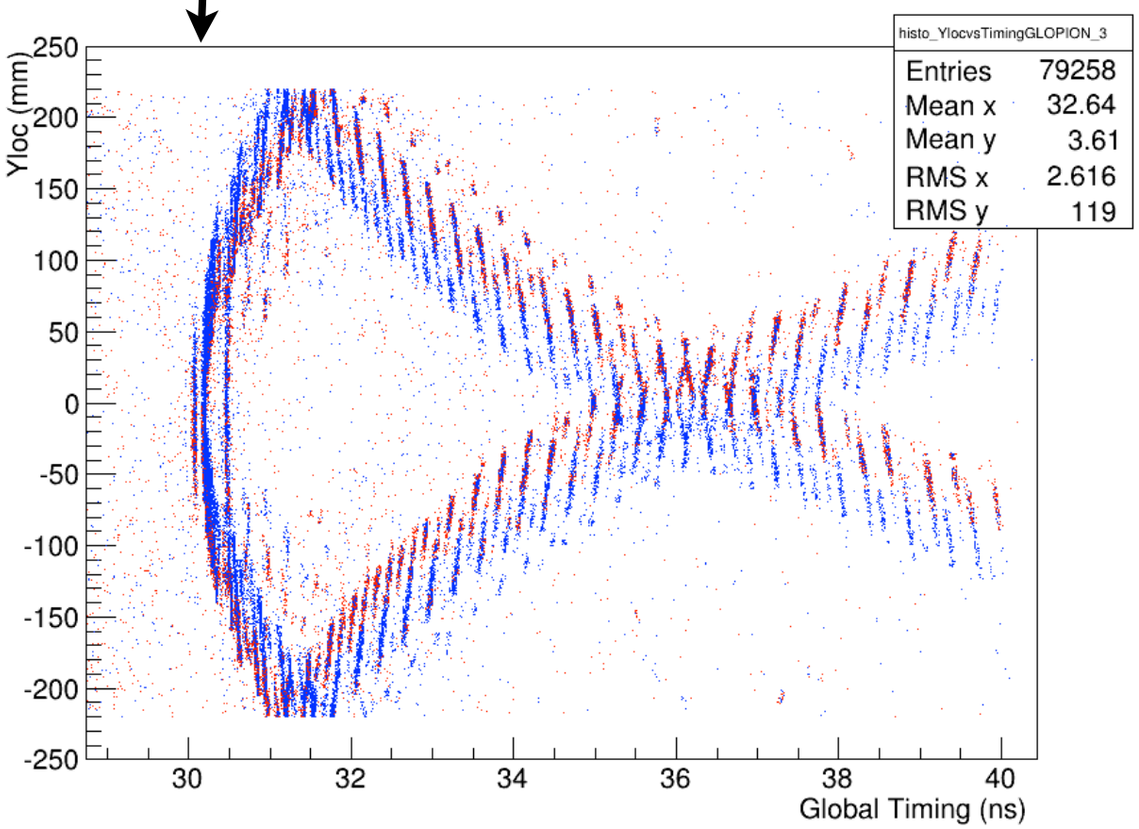
Effect of the pion resolution: no resolution

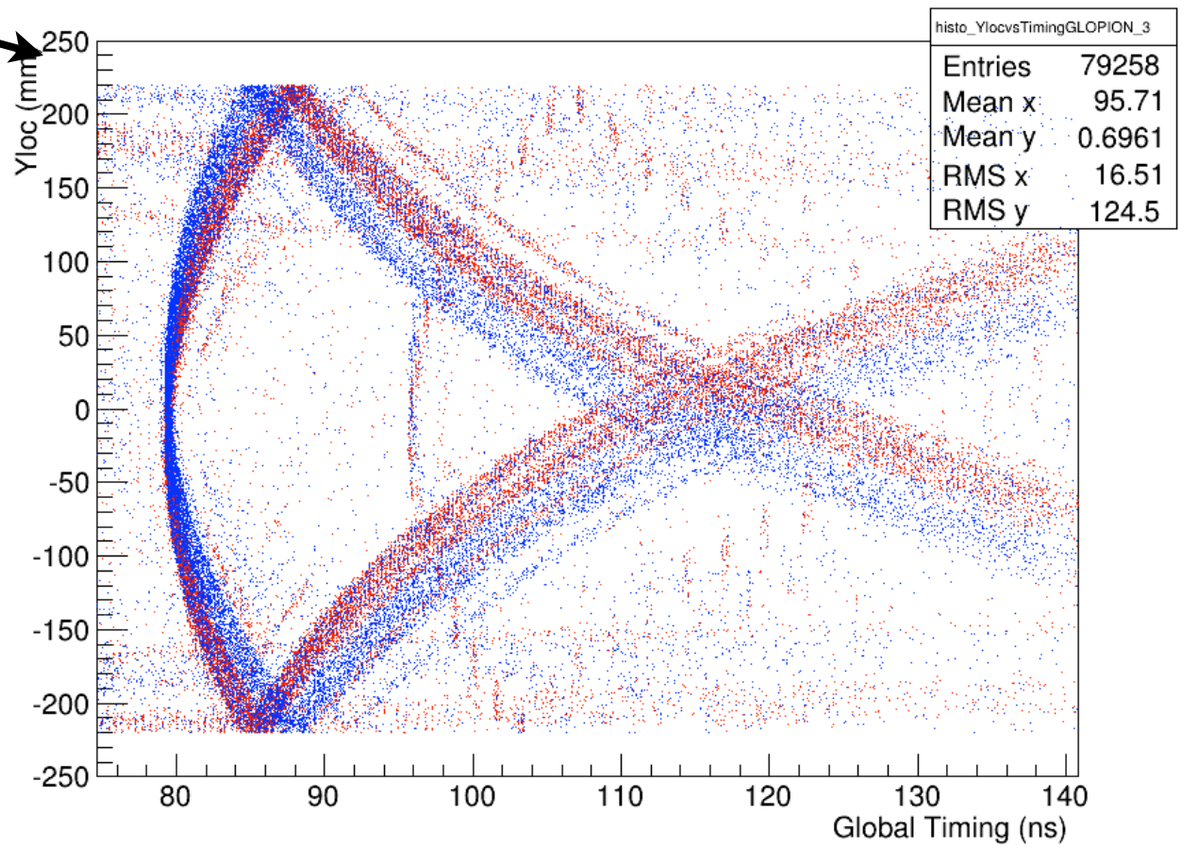
with resolution

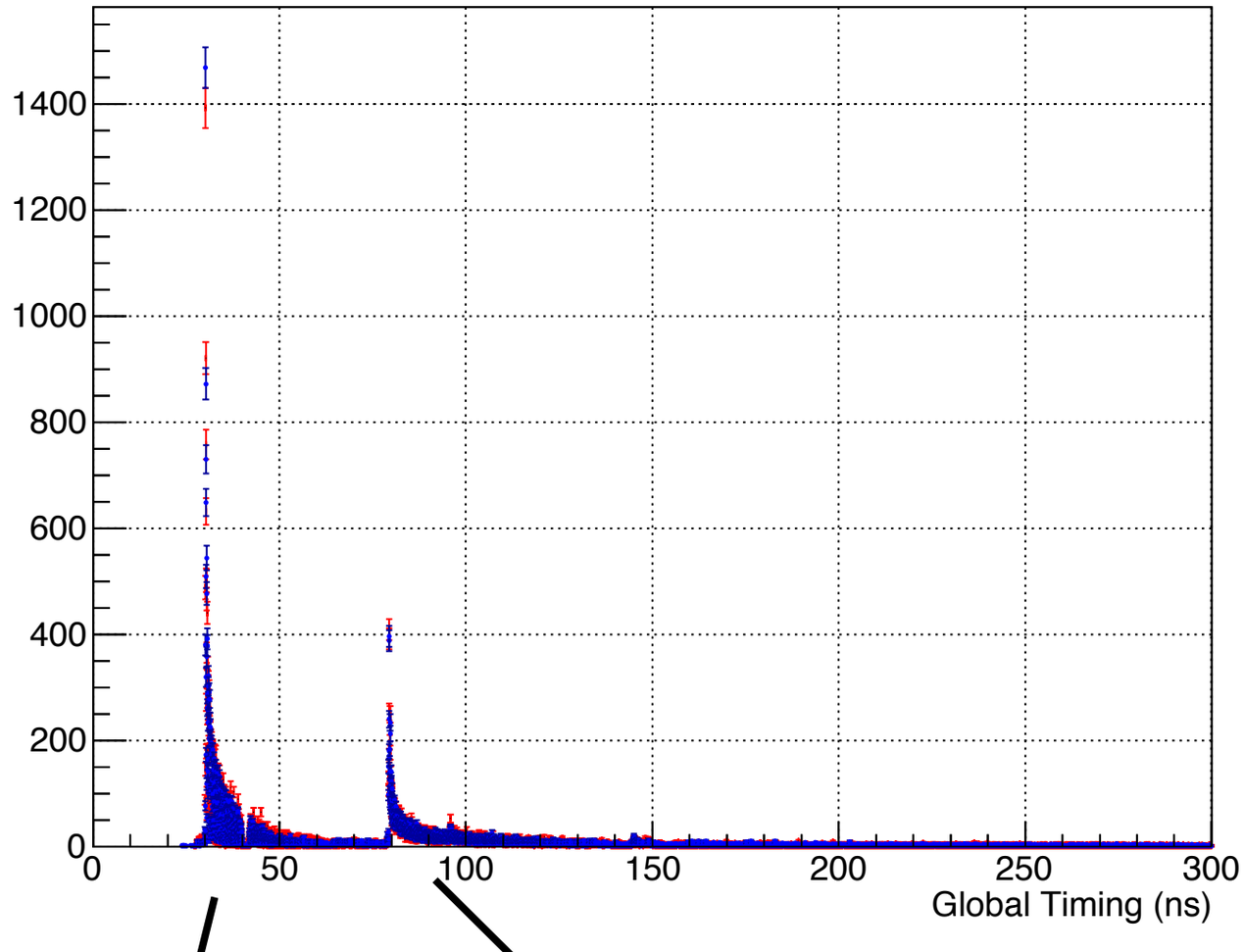
For a fixed n







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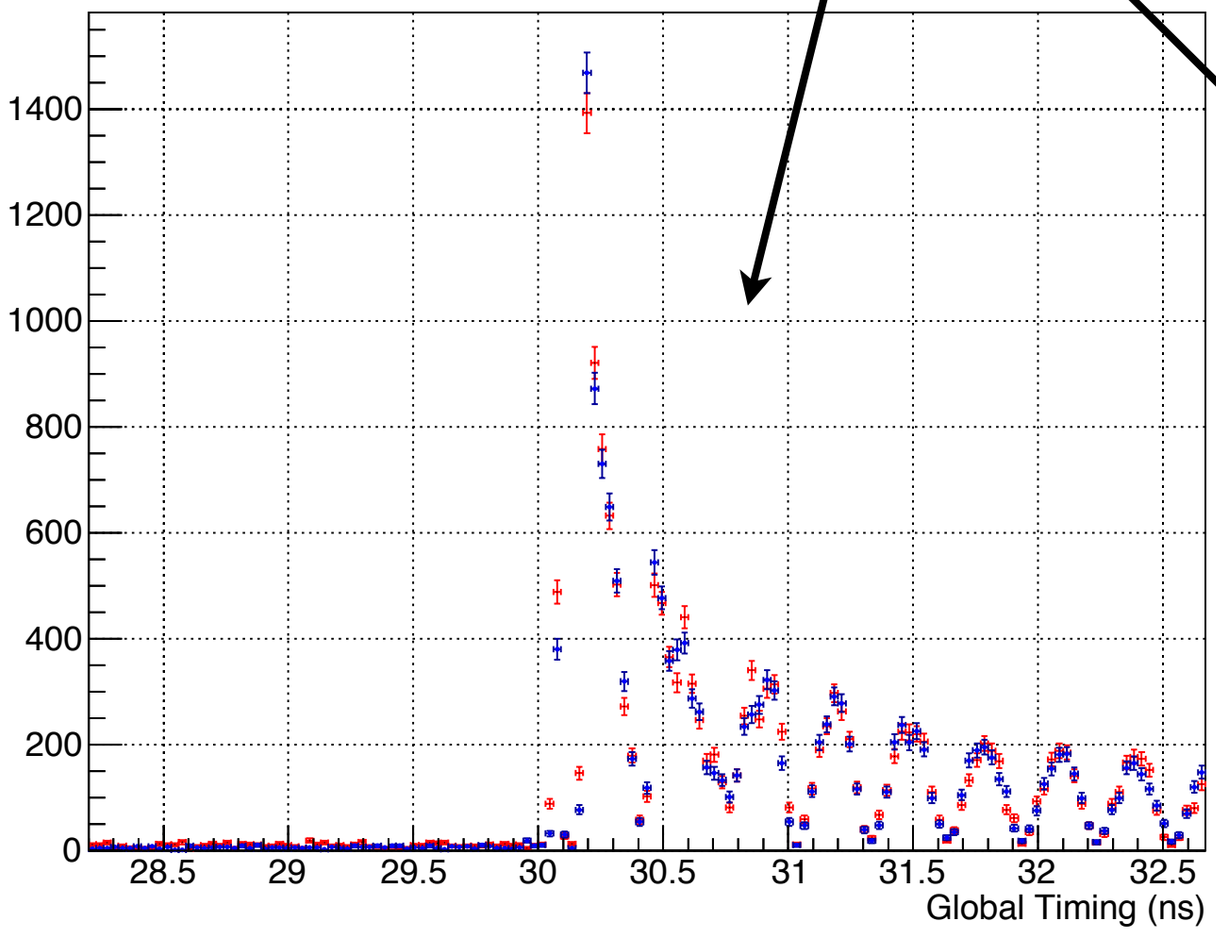
250
300
Global Timing (ns)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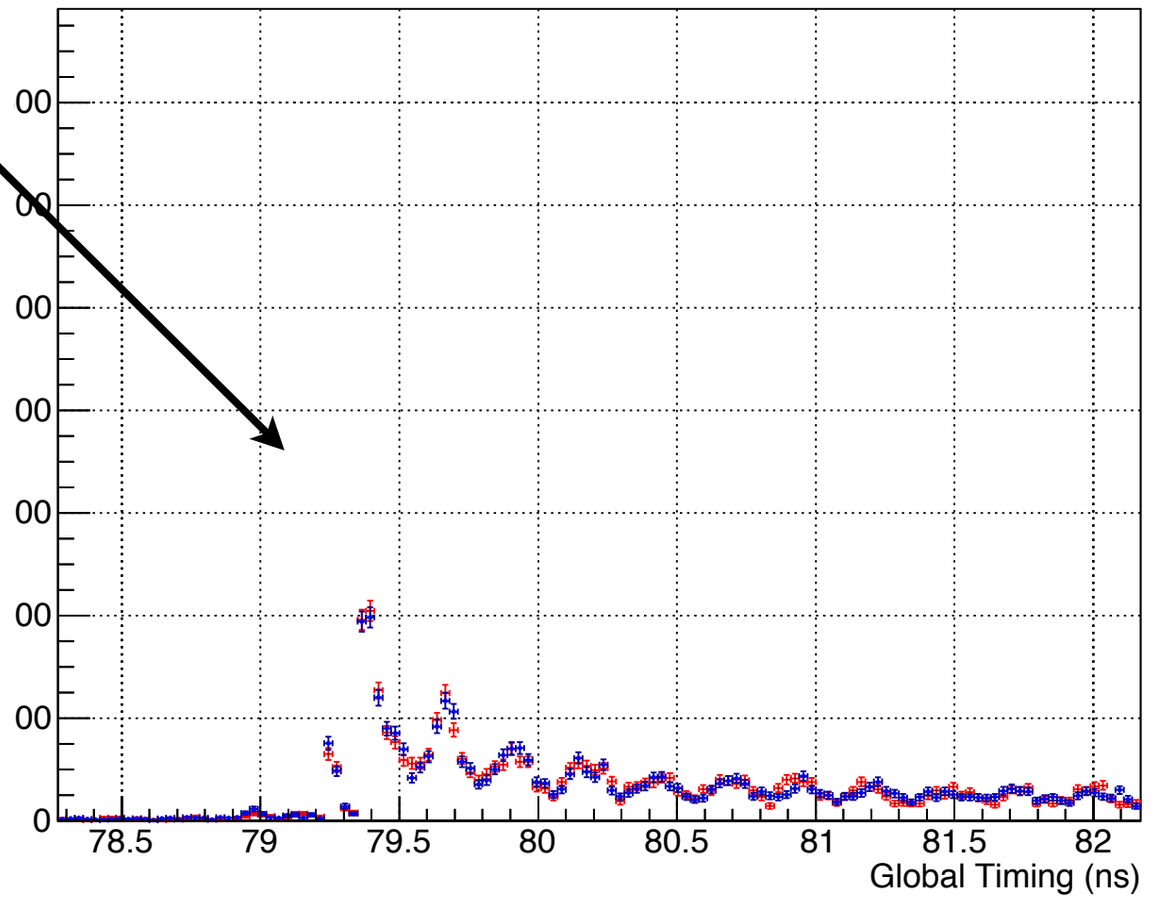
30.5
31
31.5
32
32.5
Global Timing (ns)


00
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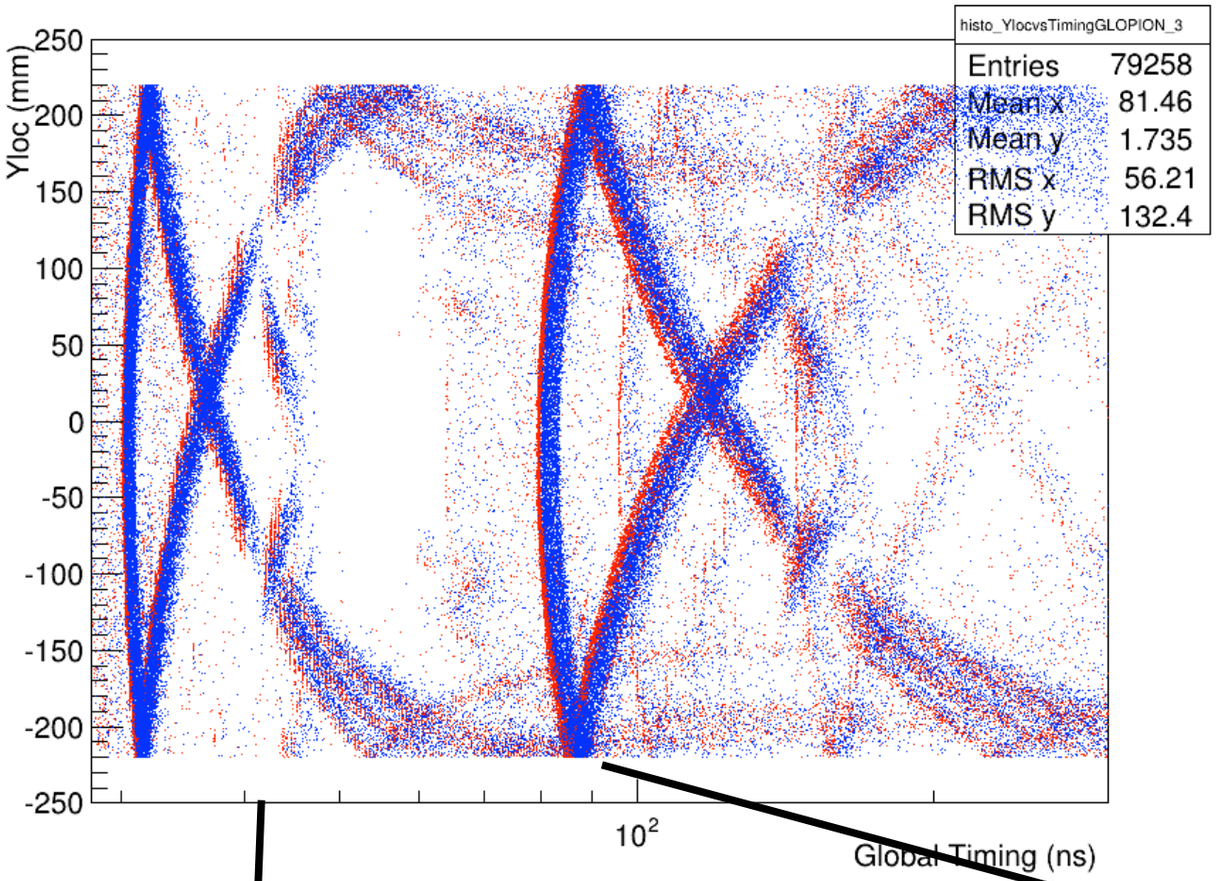
00
00
00
00
00
0
78.5
79
79.5
80
80.5
81
81.5
82
Global Timing (ns)

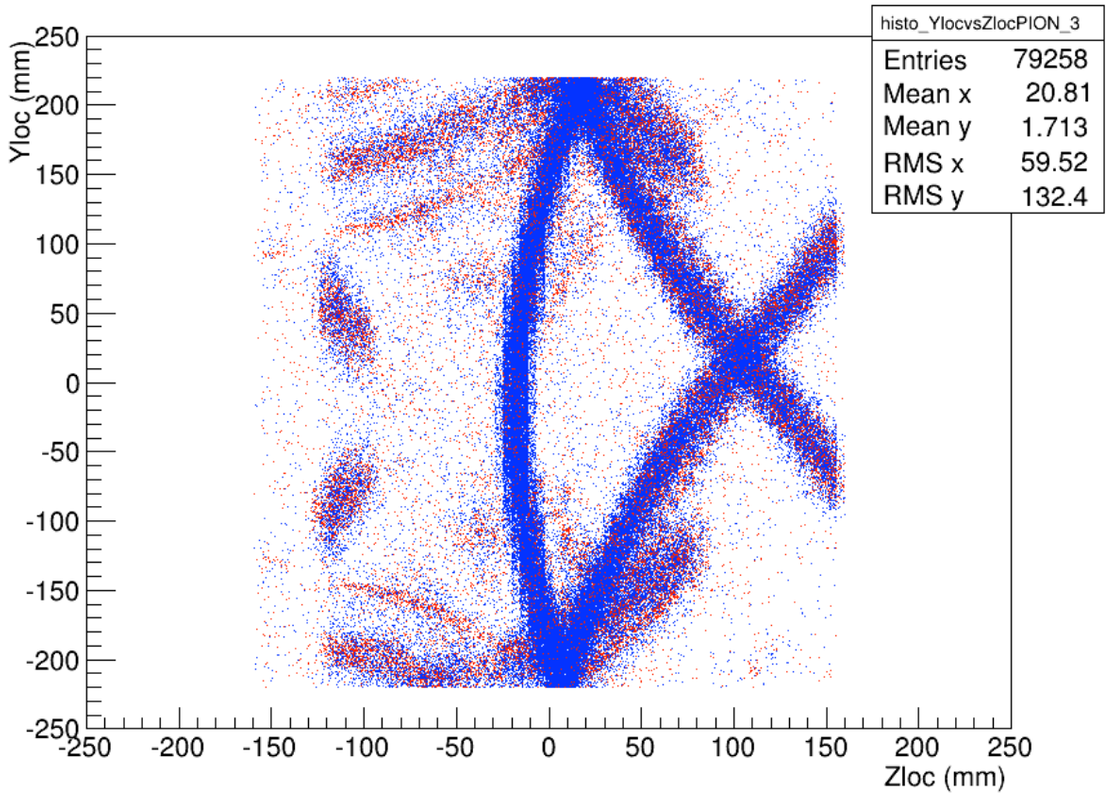
Pions @4GeV

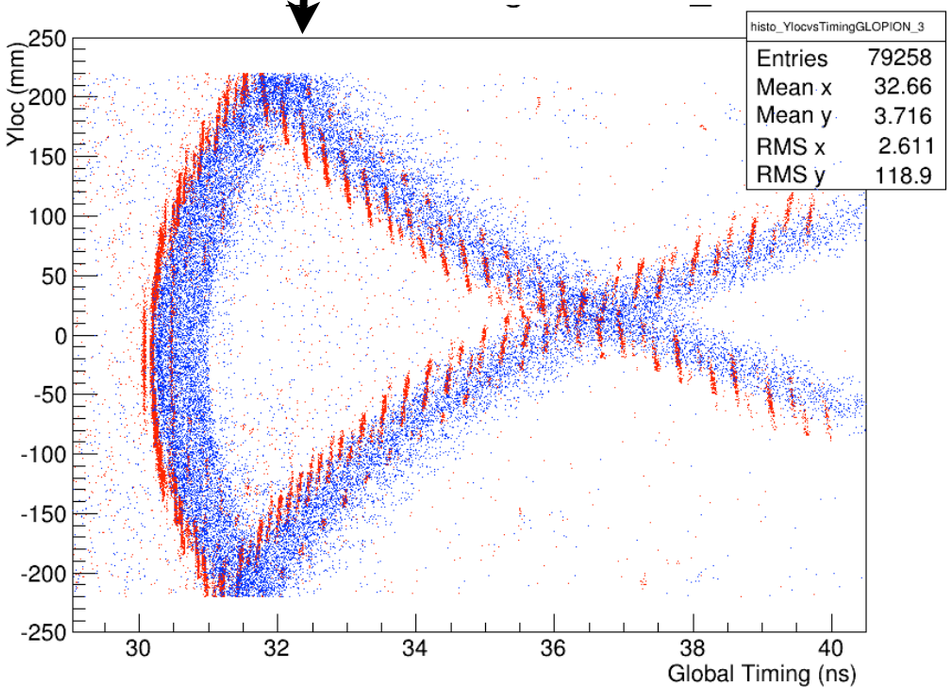
Effect of nind: fixed n

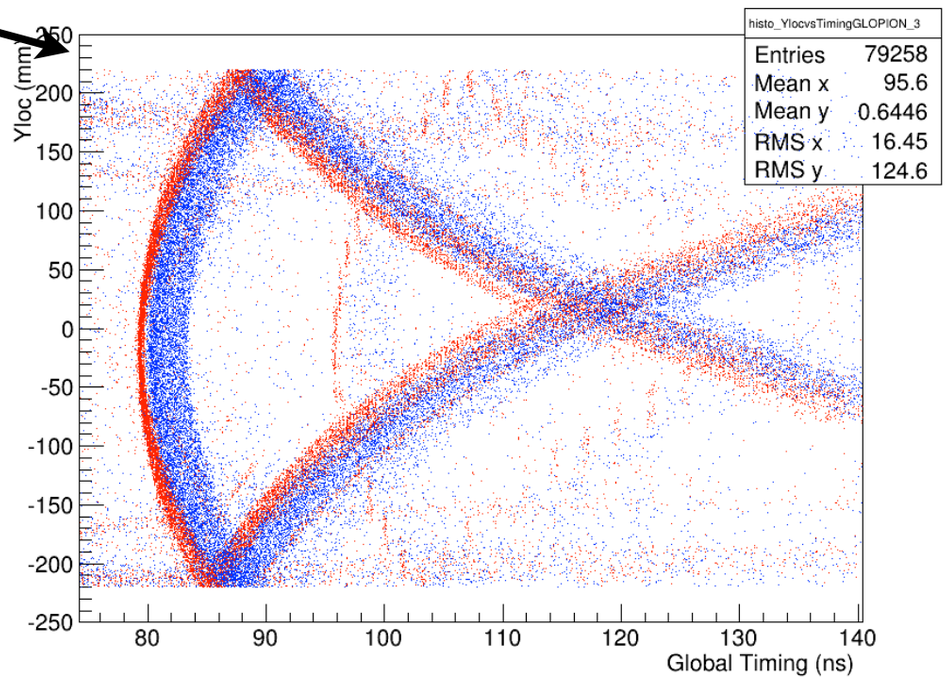
variable n

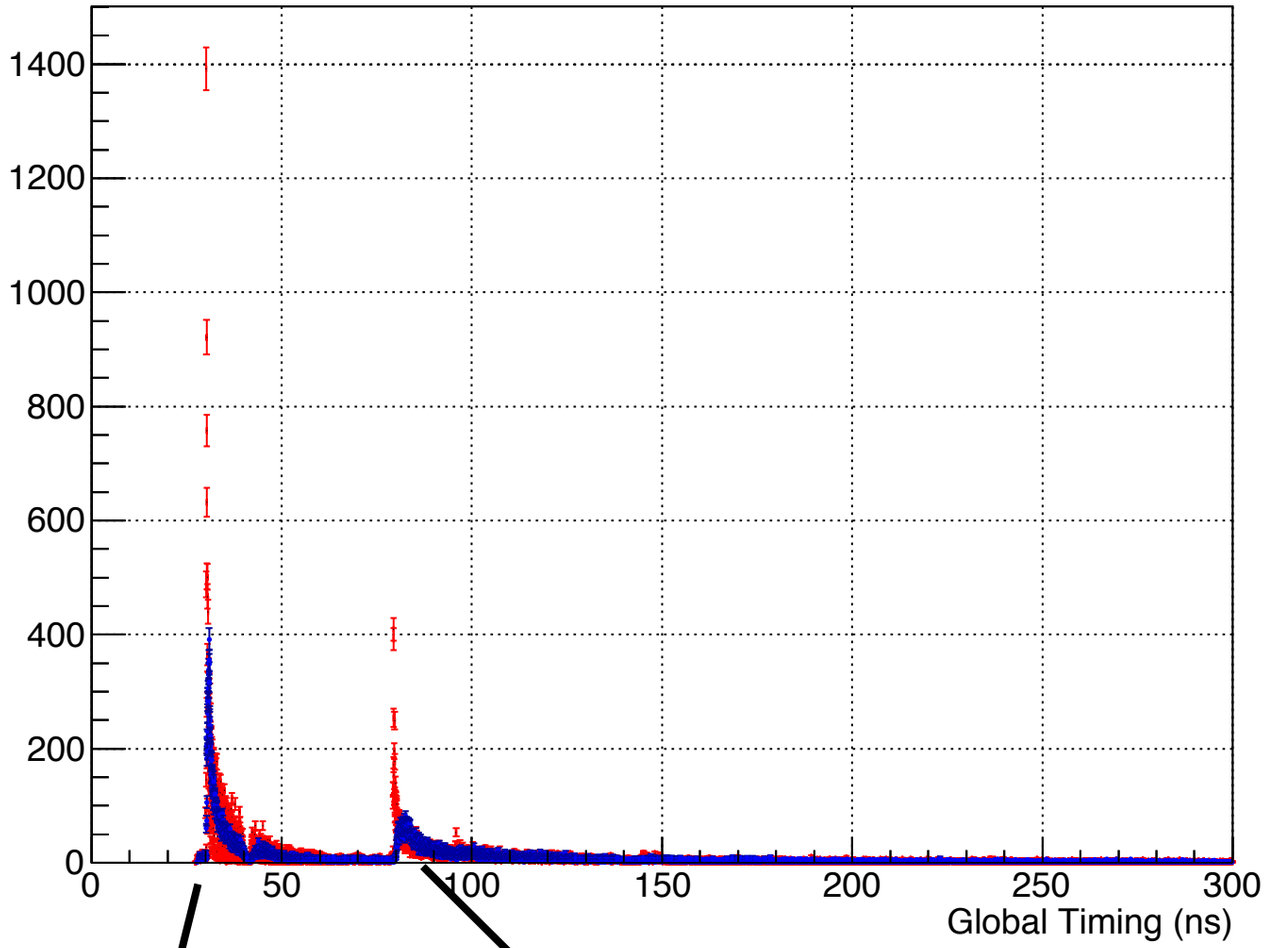
No resolution







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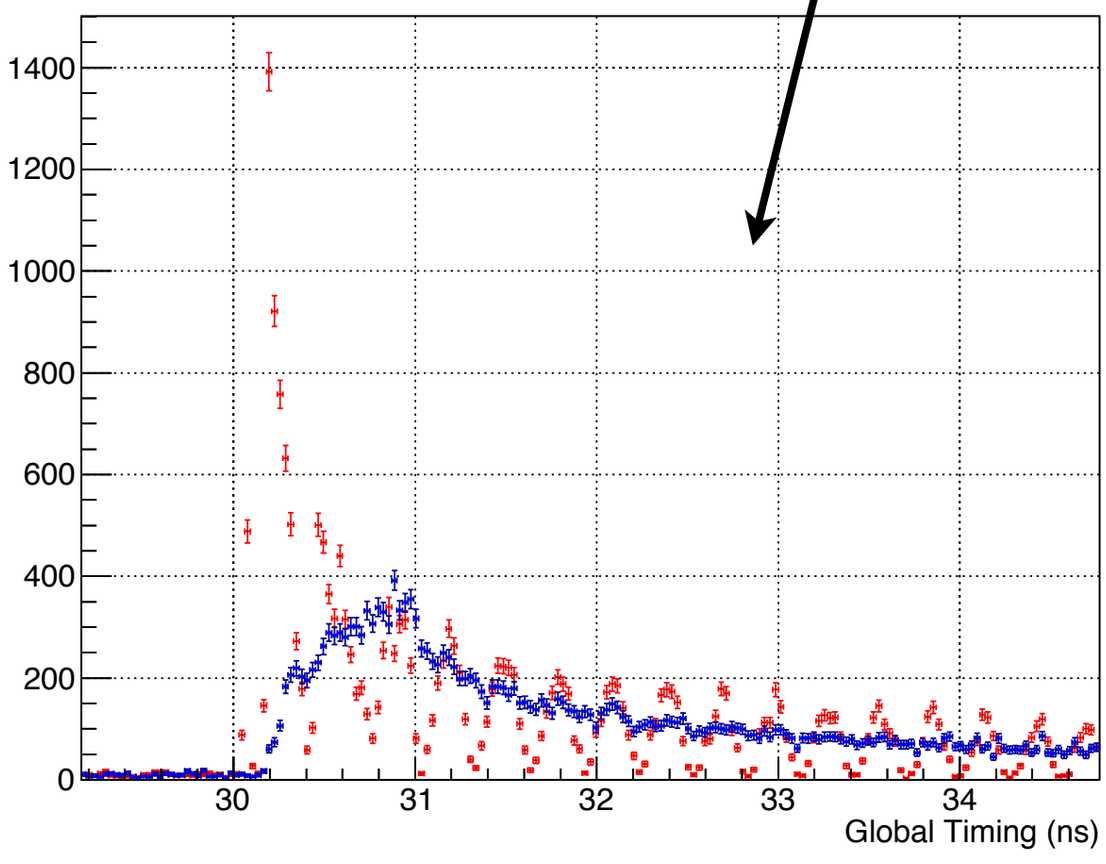
300
Global Timing (ns)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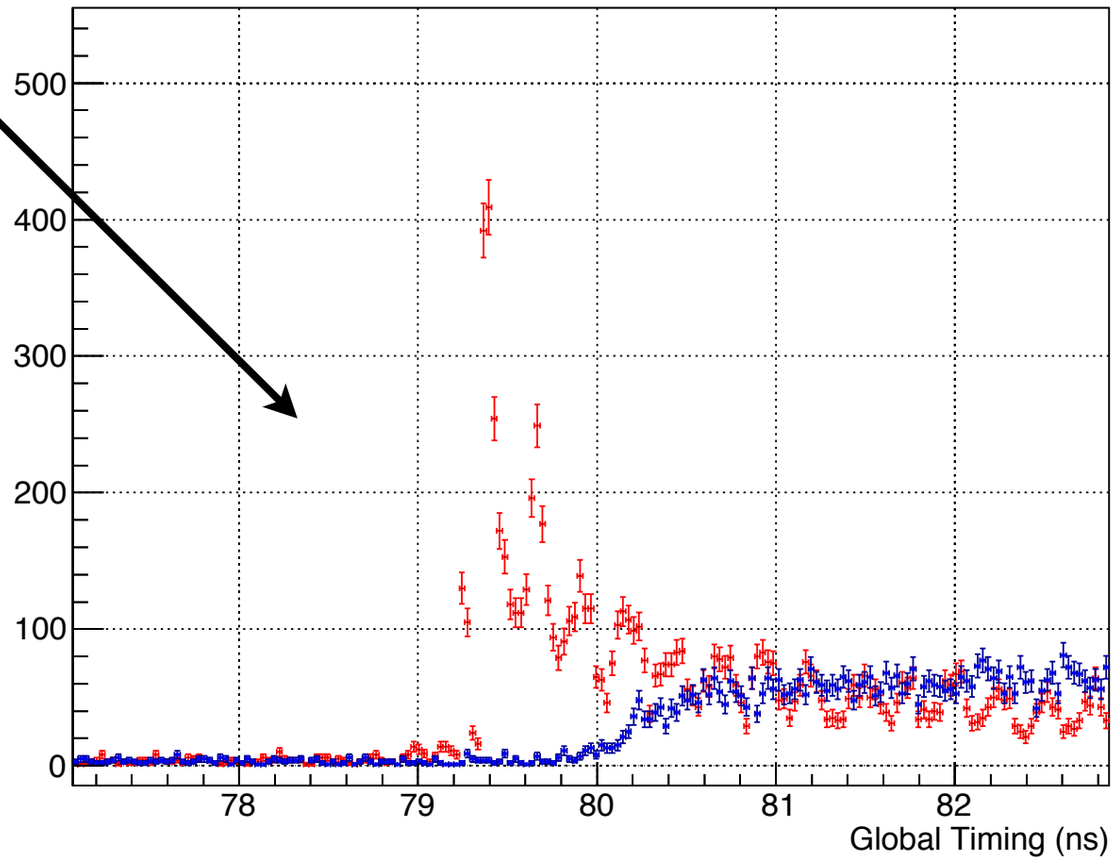
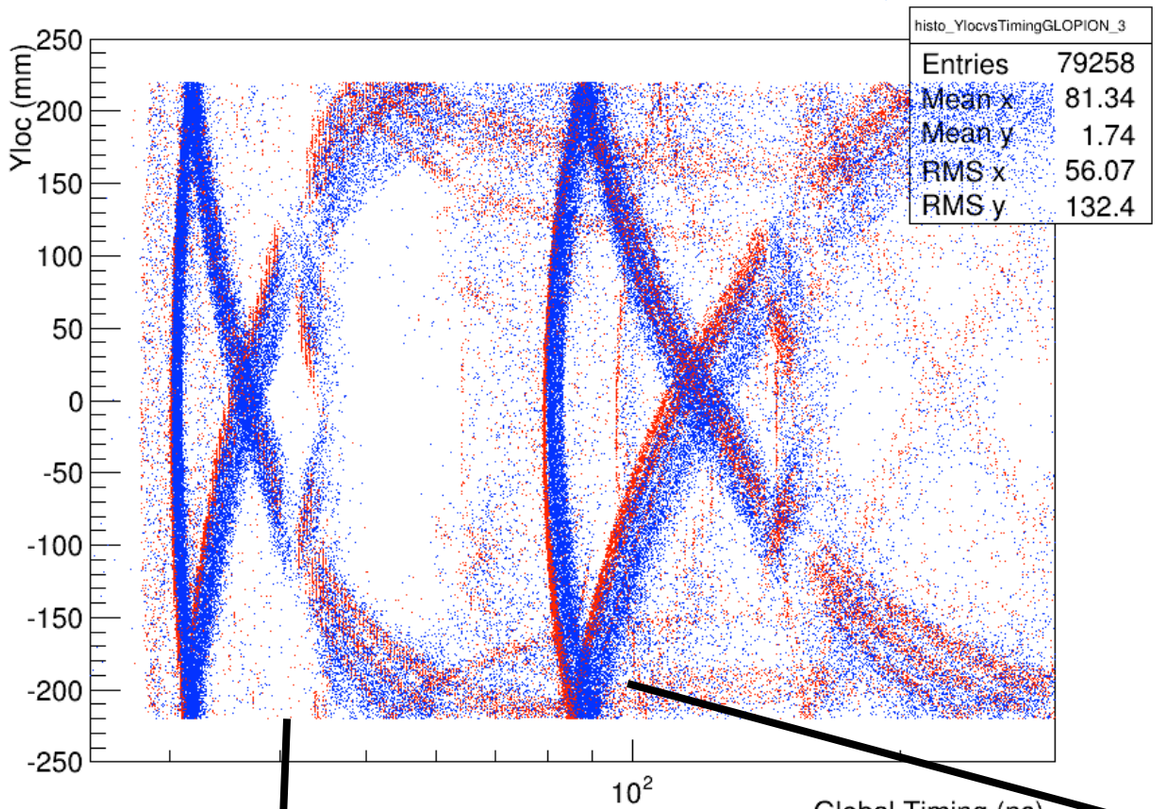
31
32
33
34
Global Timing (ns)

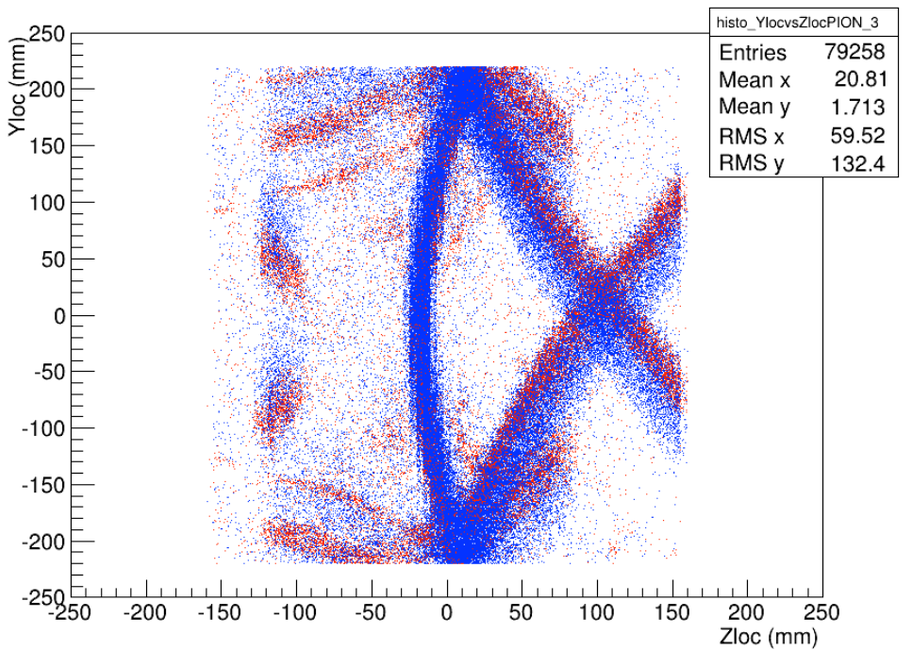

500
400
300
200
100
0
78
79
80
81
82
Global Timing (ns)

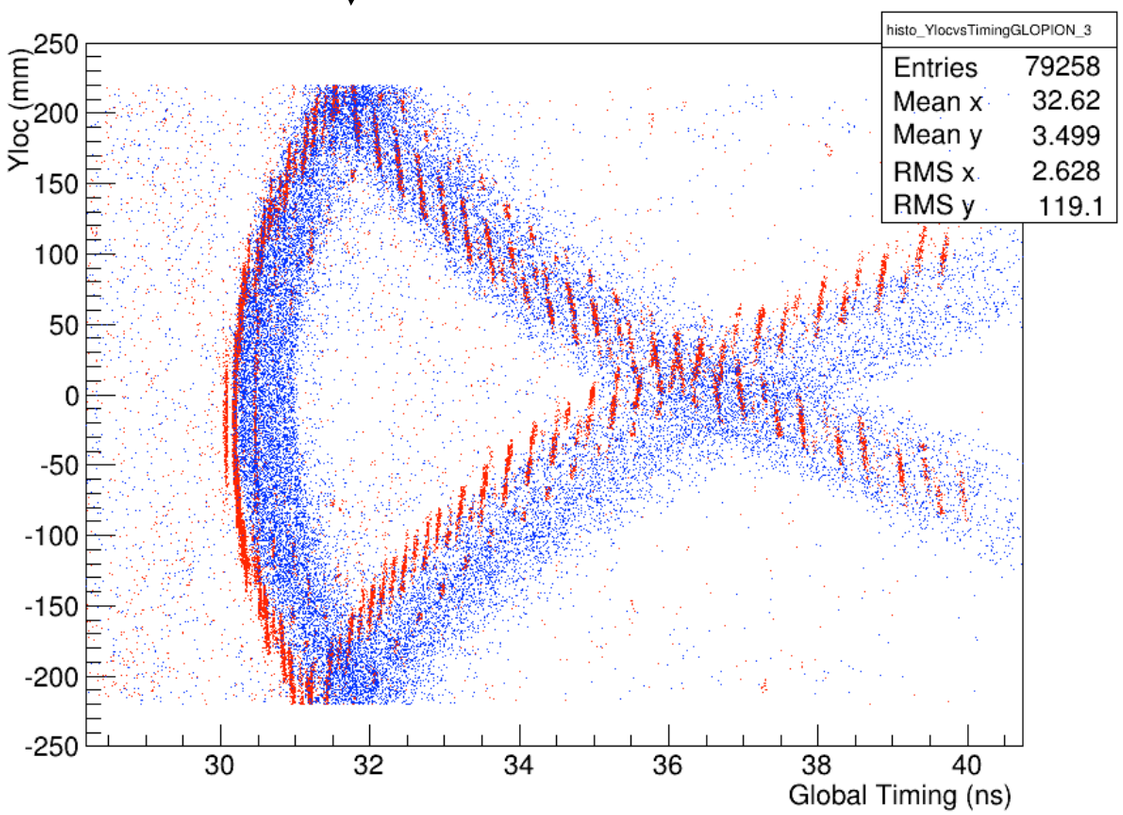
Pions @4GeV Effect of resolution+nind:

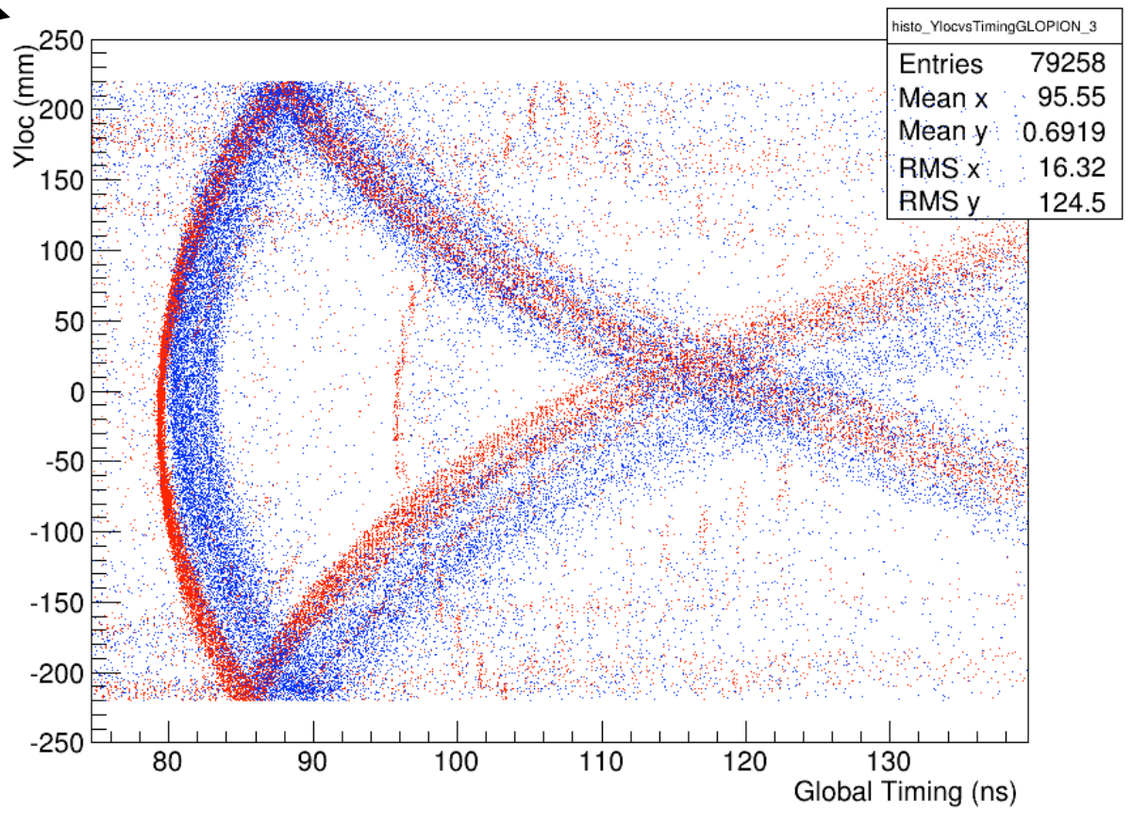
fixed n and no resolution

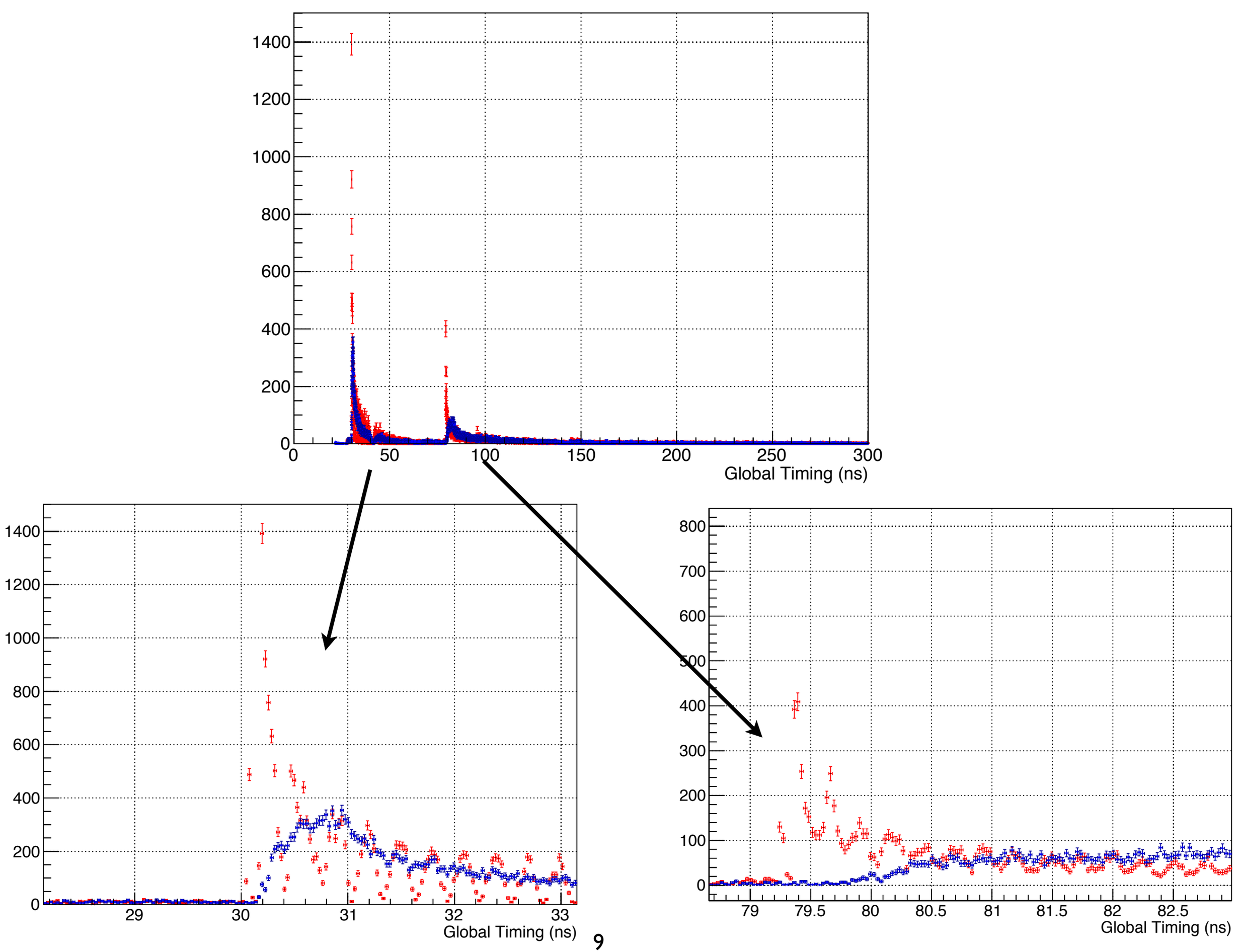
variable n+resolution










1400
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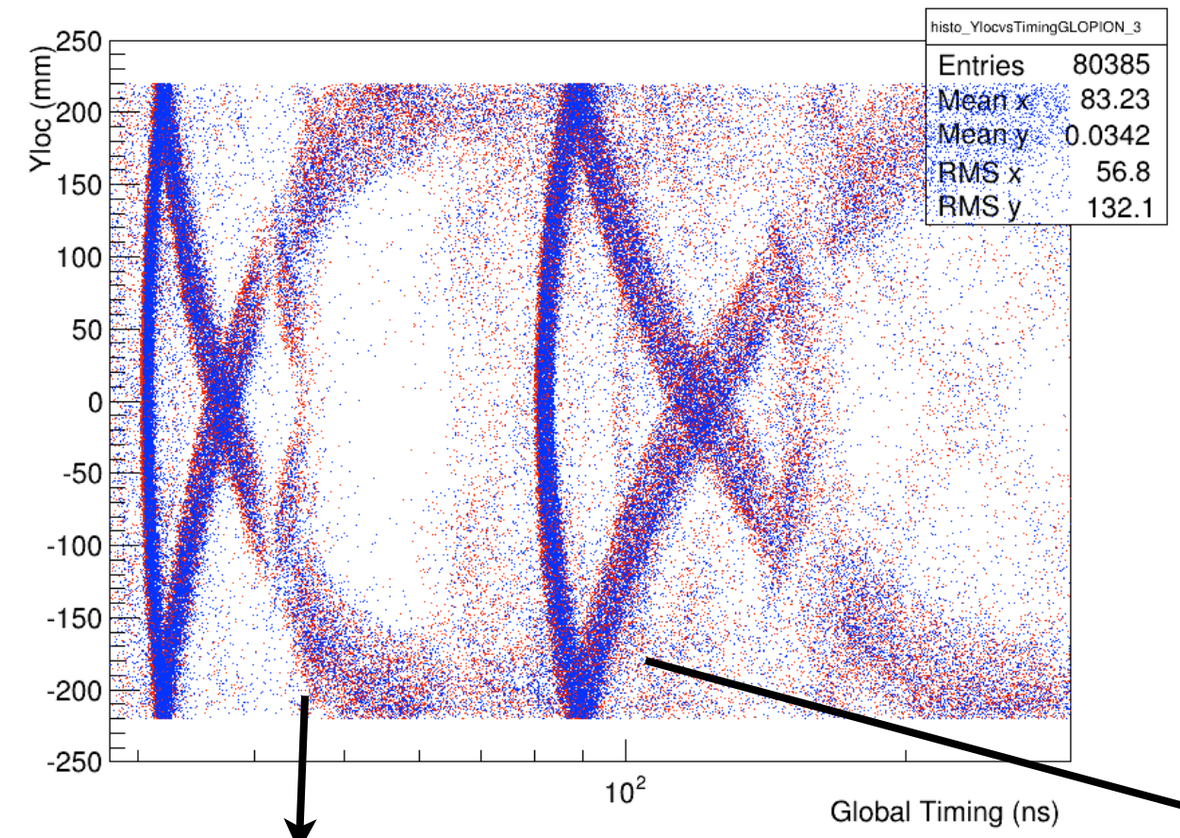
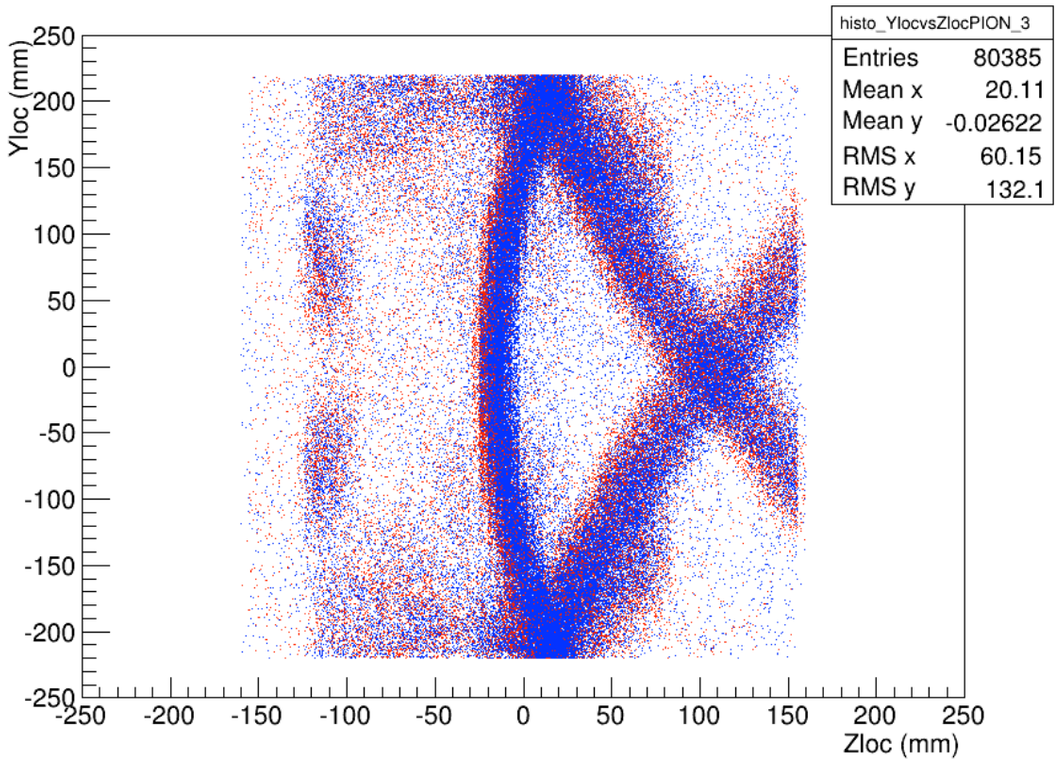
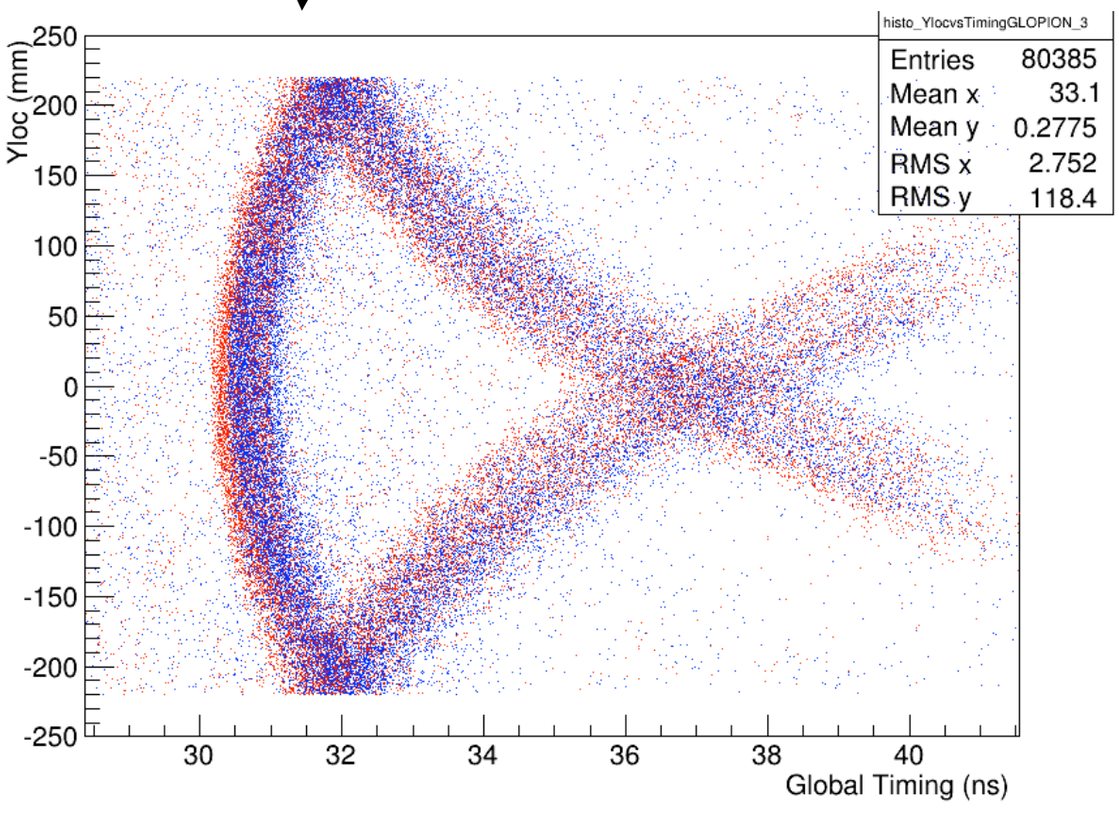
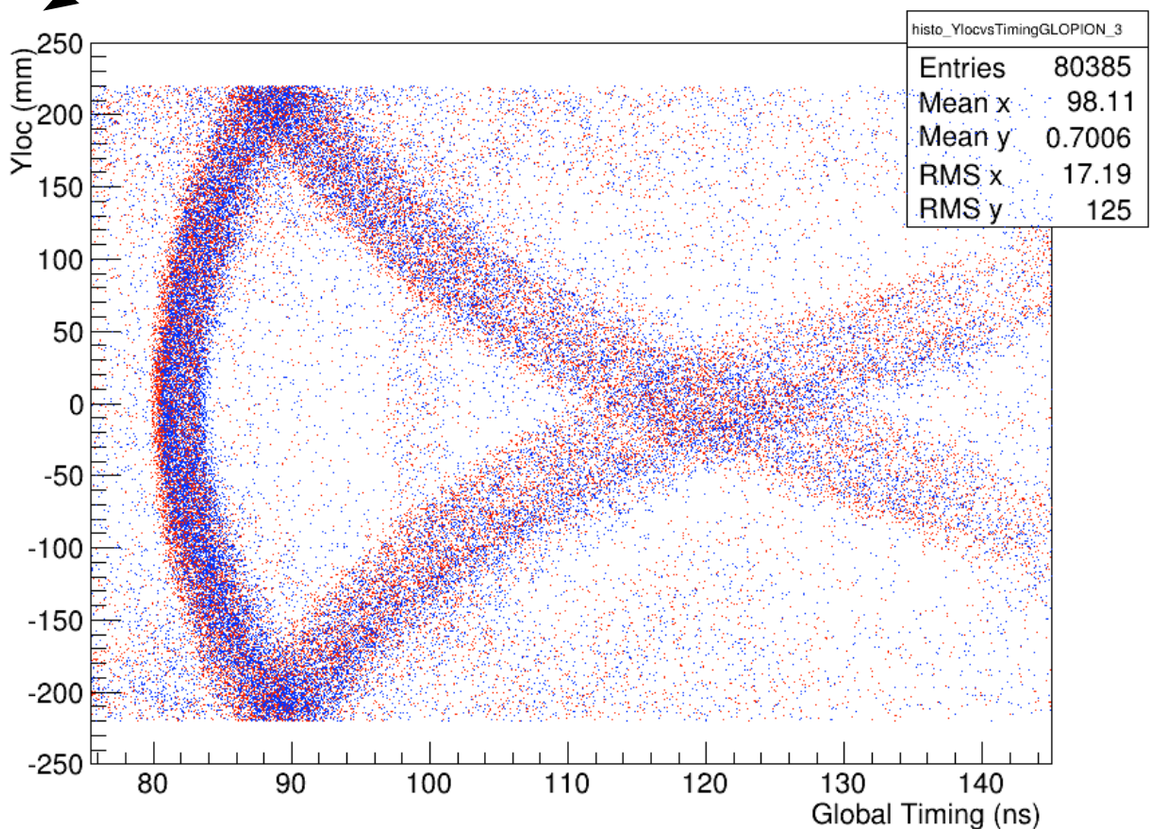
100
150
200
250
300
Global Timing (ns)
1400
1200
1000
800
600
400
200
0
29
30
31
32
33
Global Timing (ns)
800
700
600
500
400
300
200
100
0
79
79.5
80
80.5
81
81.5
82
82.5
Global Timing (ns)

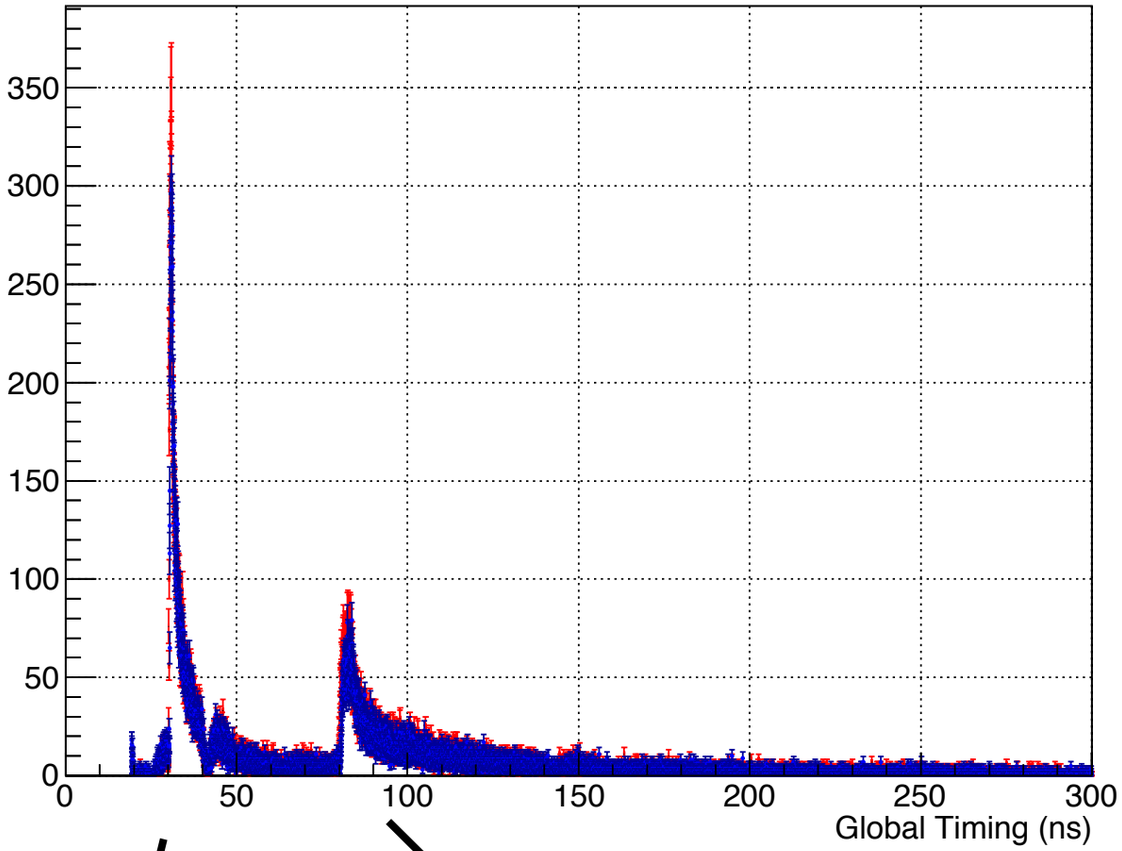
PION/KAON comparison @ 4GeV: resolution+nind:







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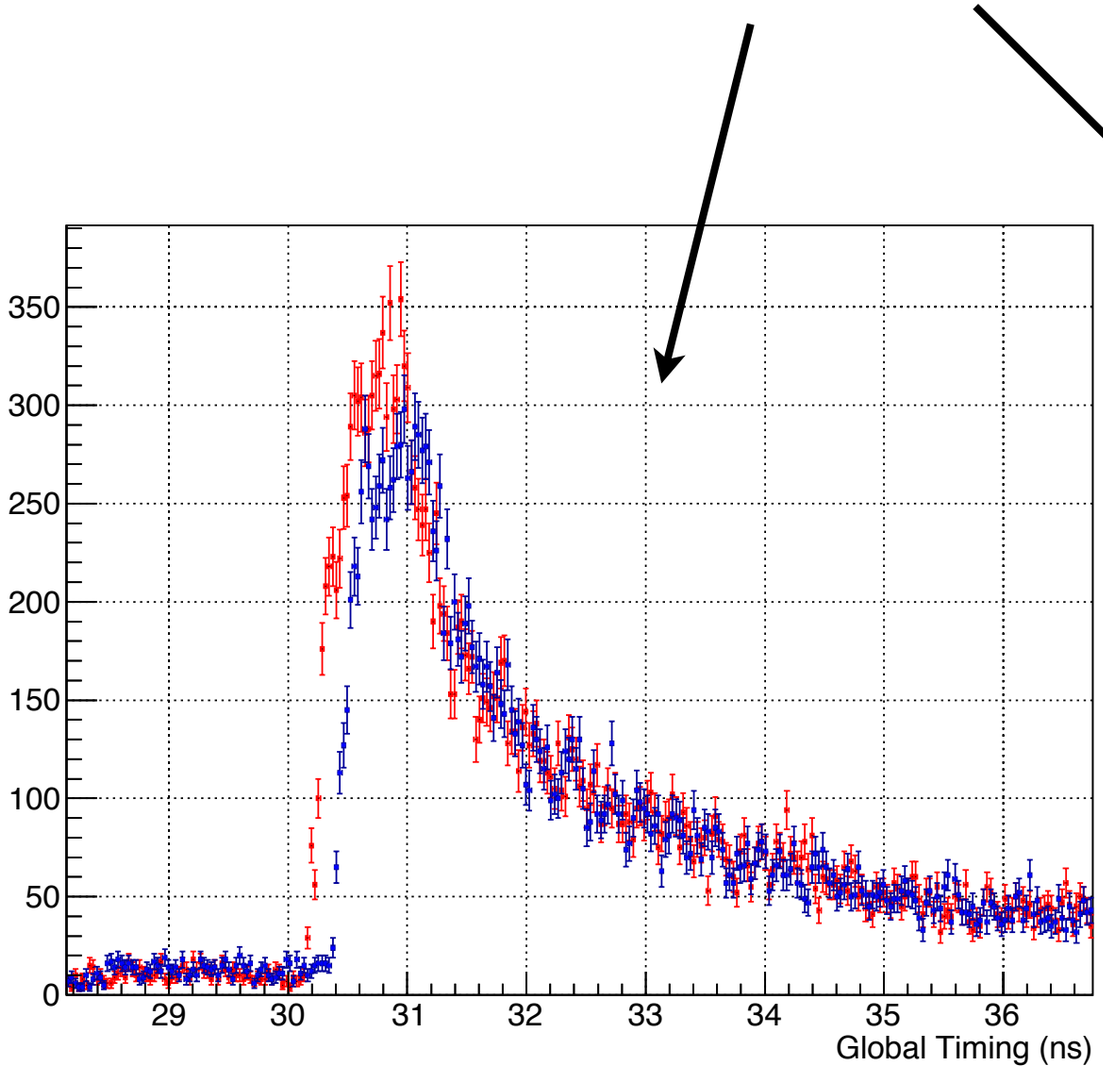
50
0
0
50
100
150
200
250
300
Global Timing (ns)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29
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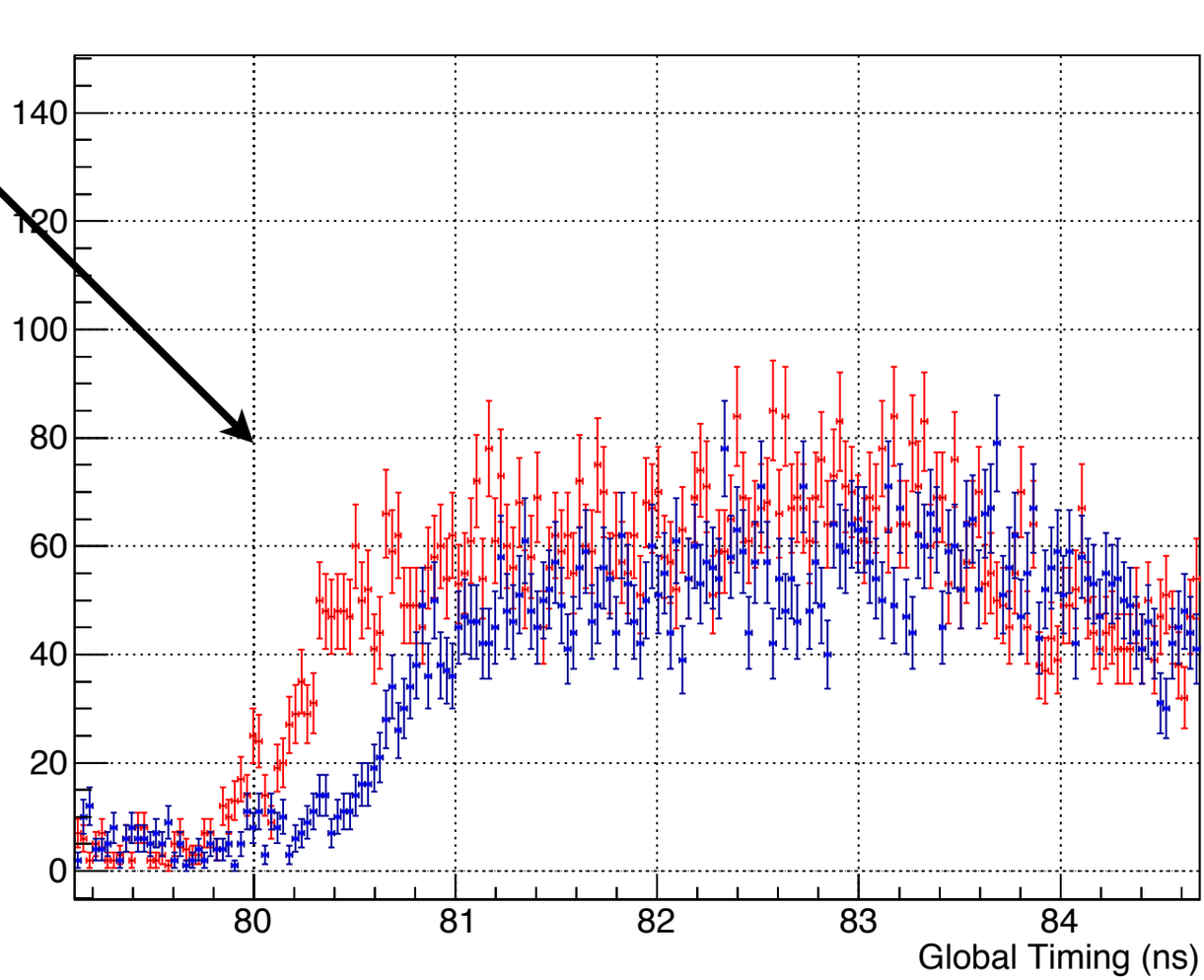
31
32
33
34
35
36
Global Timing (ns)


140
120
100
80
60
40
20
0
80
81
82
83
84
Global Timing (ns)