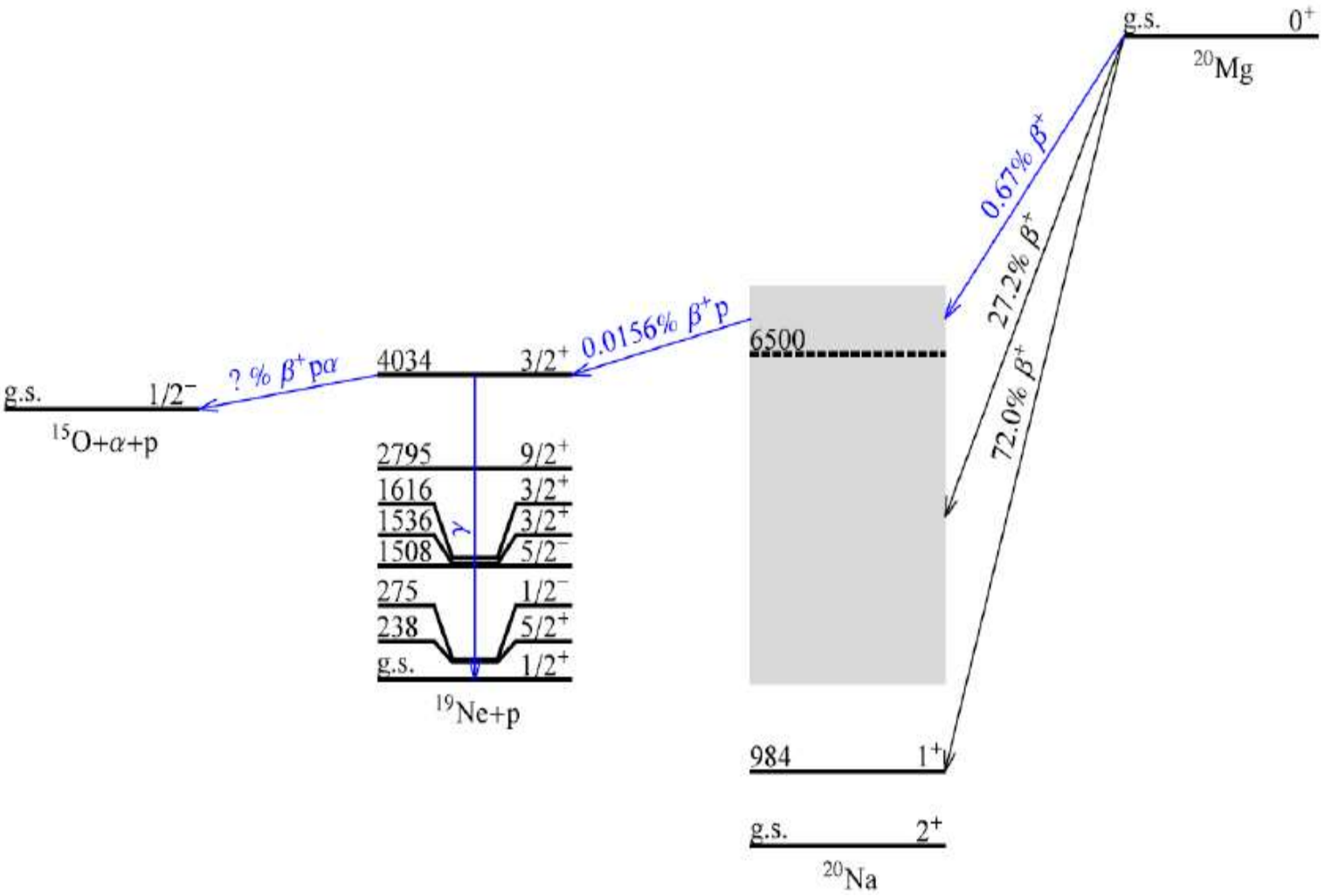
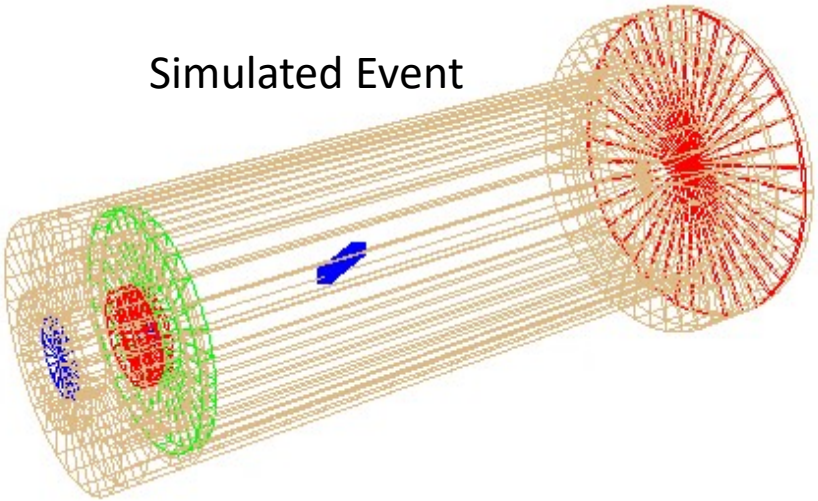
20Mg Decay Scheme

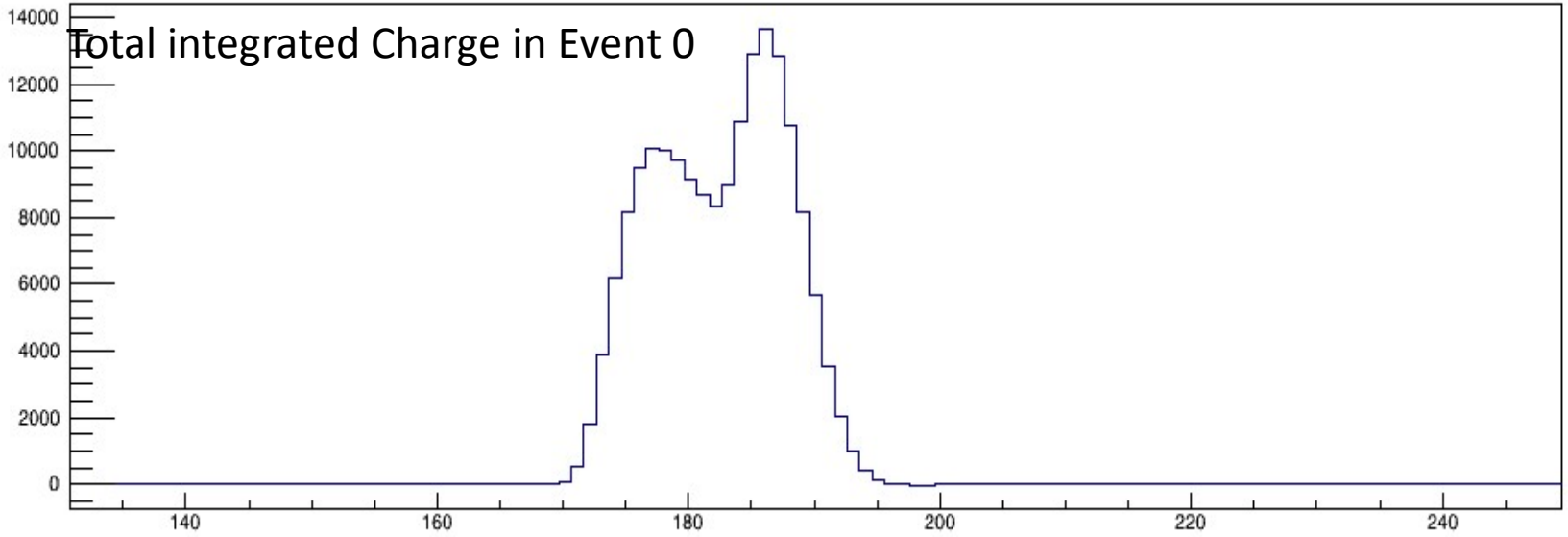


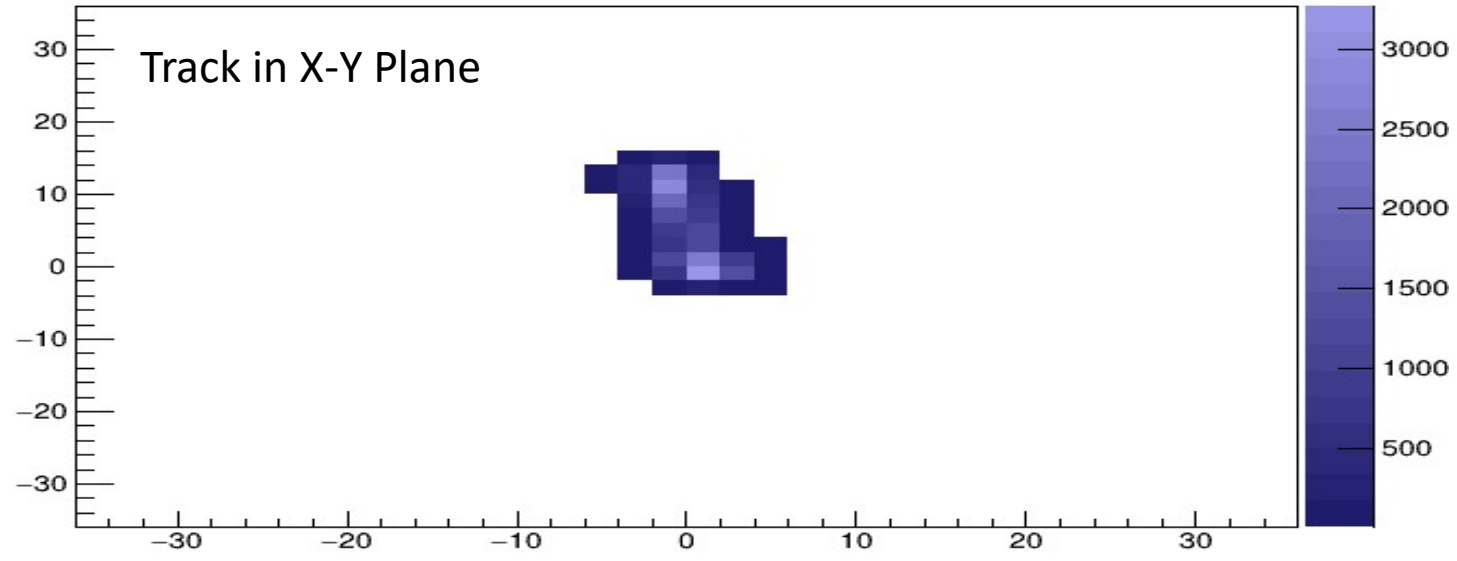
p (1.2 MeV) +α (0.506 MeV) event

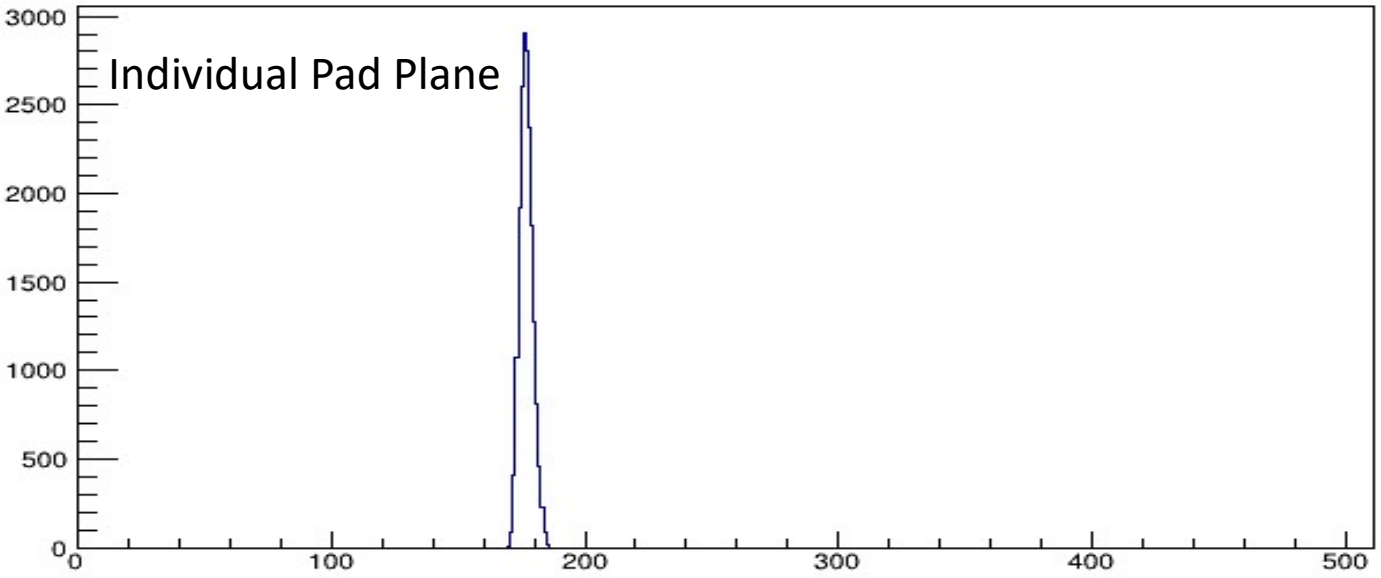
Simulated Event



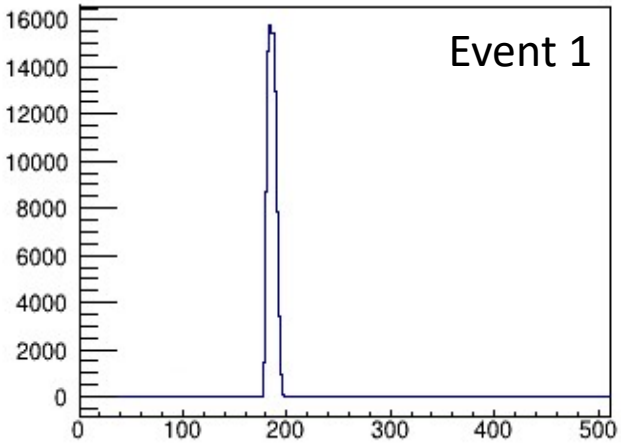
Event after Digitalization

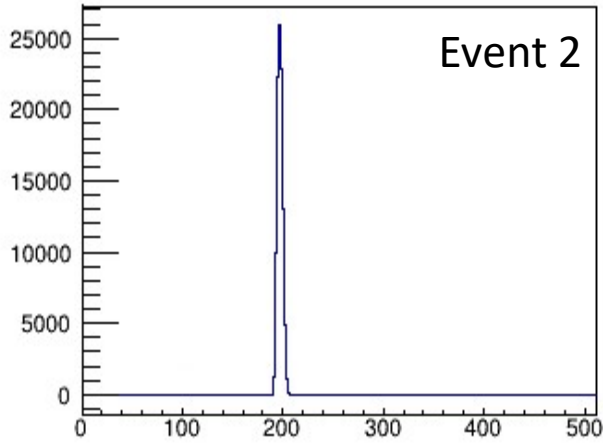


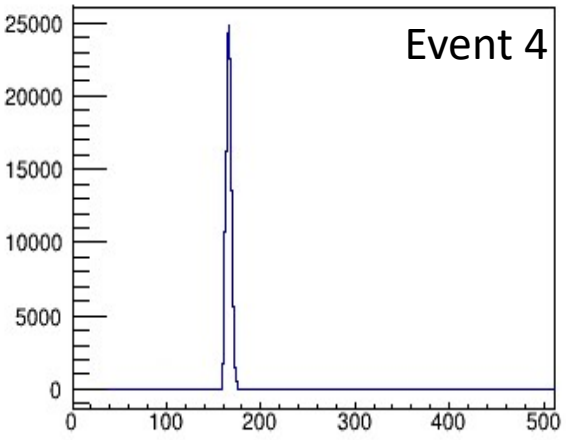

Track in X-Y Plane
30
20
10
0
−10
−20
−30
−30
−20
−10
0
10
20
30
3000
2500
2000
1500
1000
500

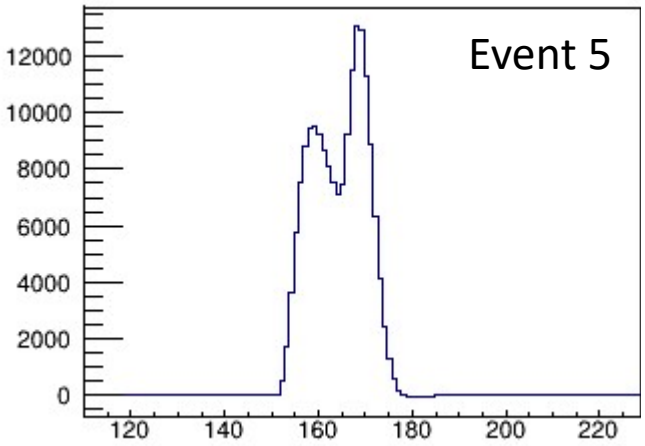

Individual Pad Plane
3000
2500
2000
1500
1000
500
0
0
100
200
300
400
500

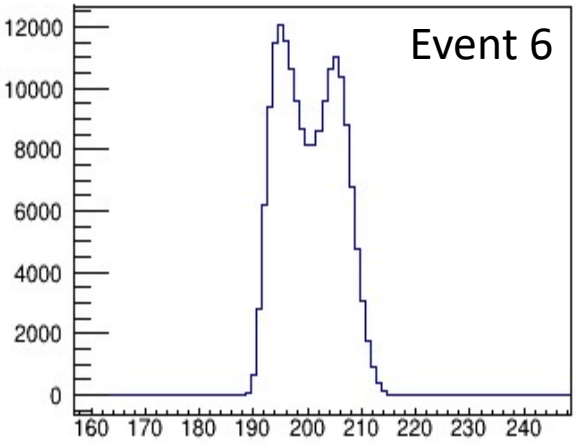
Total Integrated Charge in each Event

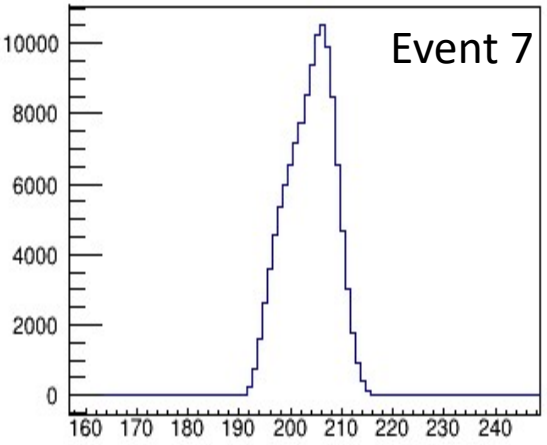


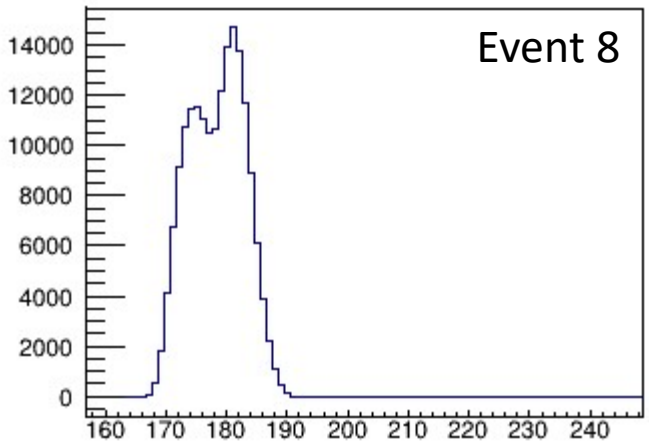


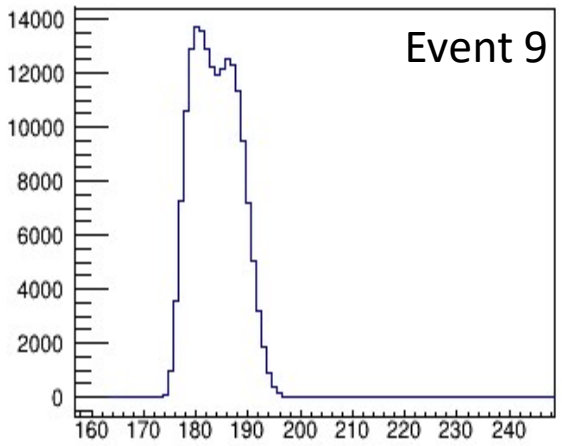









Event 8
14000
12000
10000
8000
6000
4000
2000
0
160 170 180 190 200 210 220 230 240


Event 9
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12000
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8000
6000
4000
2000
0
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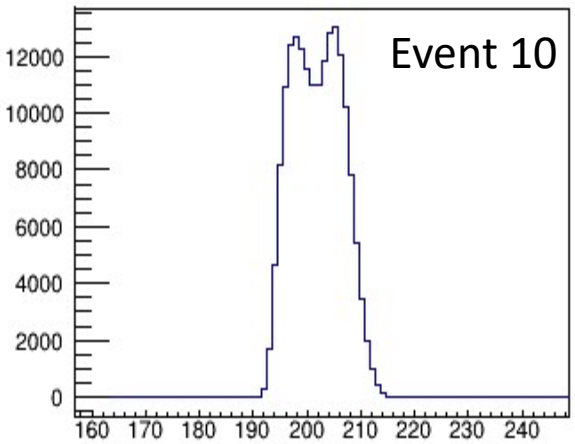
Event 10
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4000
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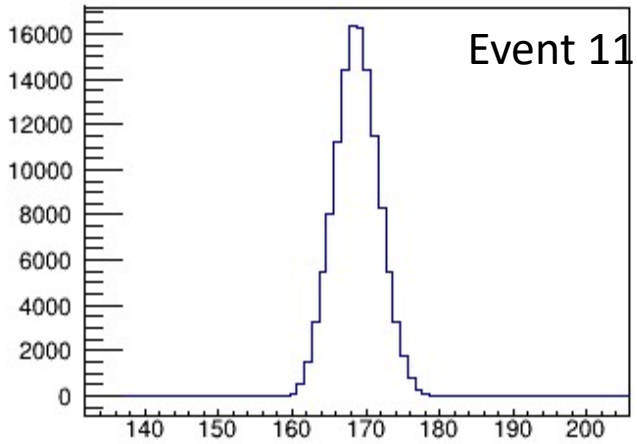
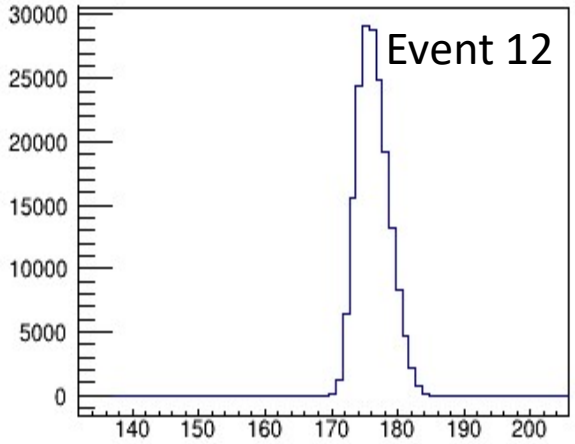

Event 11
16000
14000
12000
10000
8000
6000
4000
2000
0
140 150 160 170 180 190 200


Event 12
30000
25000
20000
15000
10000
5000
0
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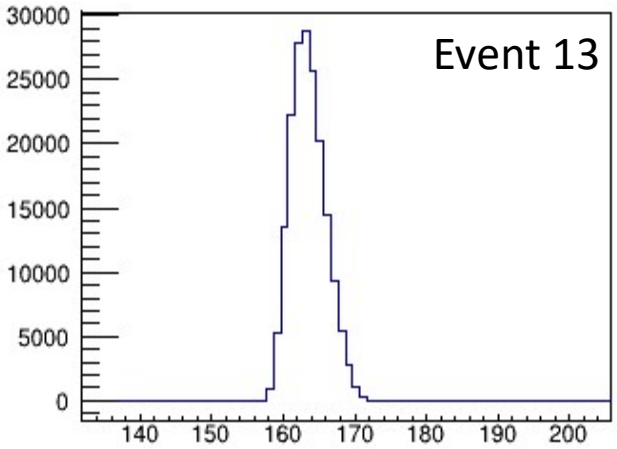
Event 13
30000
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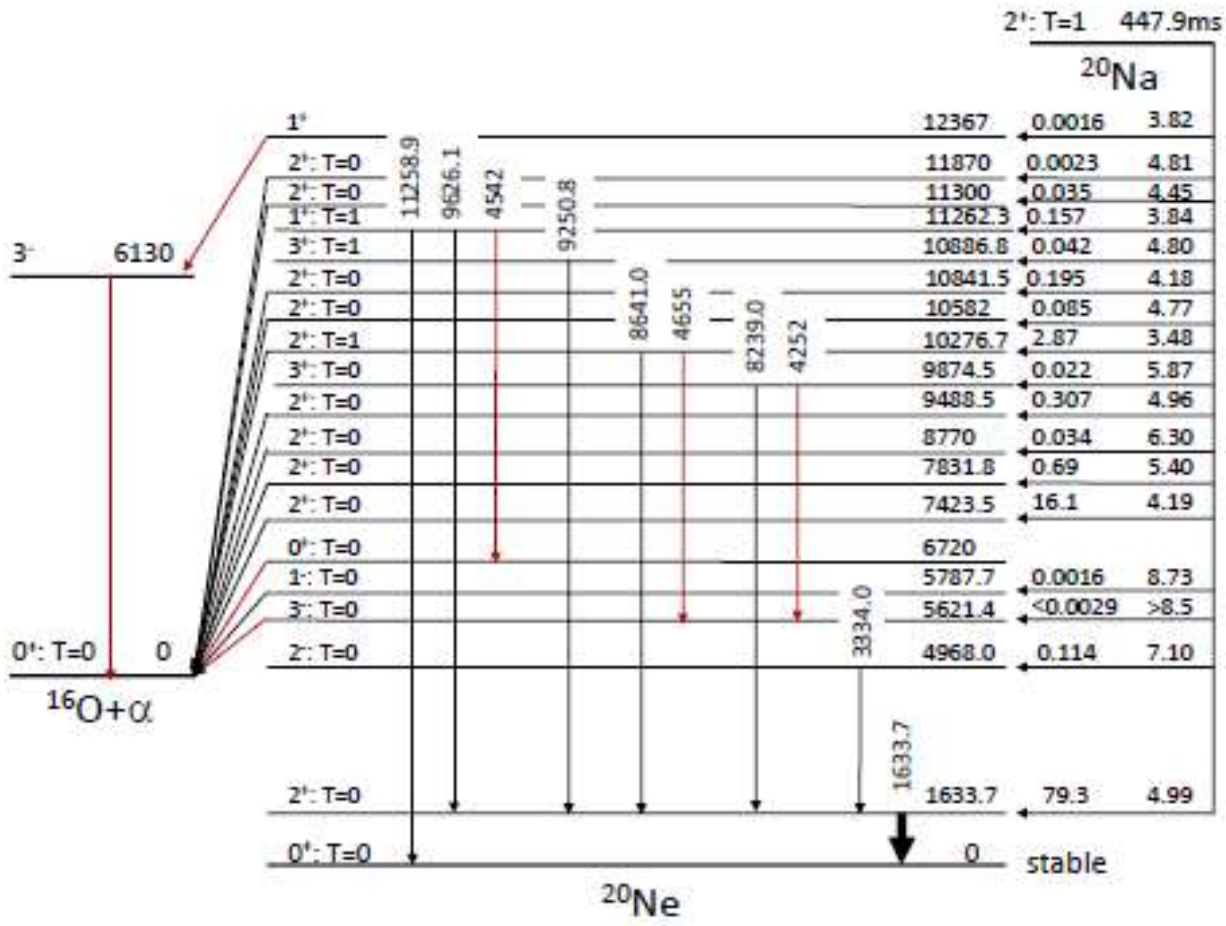
20000
15000
10000
5000
0
140 150 160 170 180 190 200

Decay Scheme of ^{20}Na



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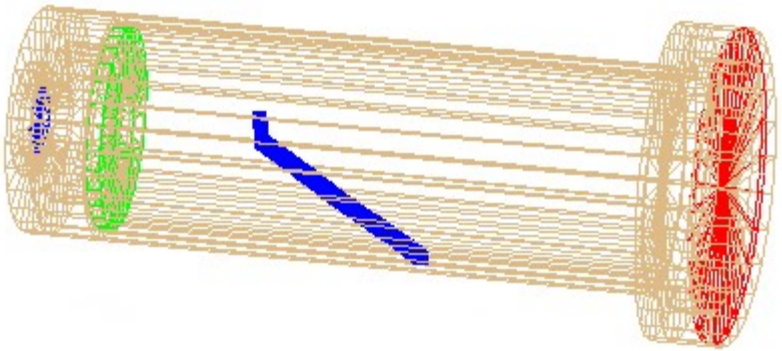
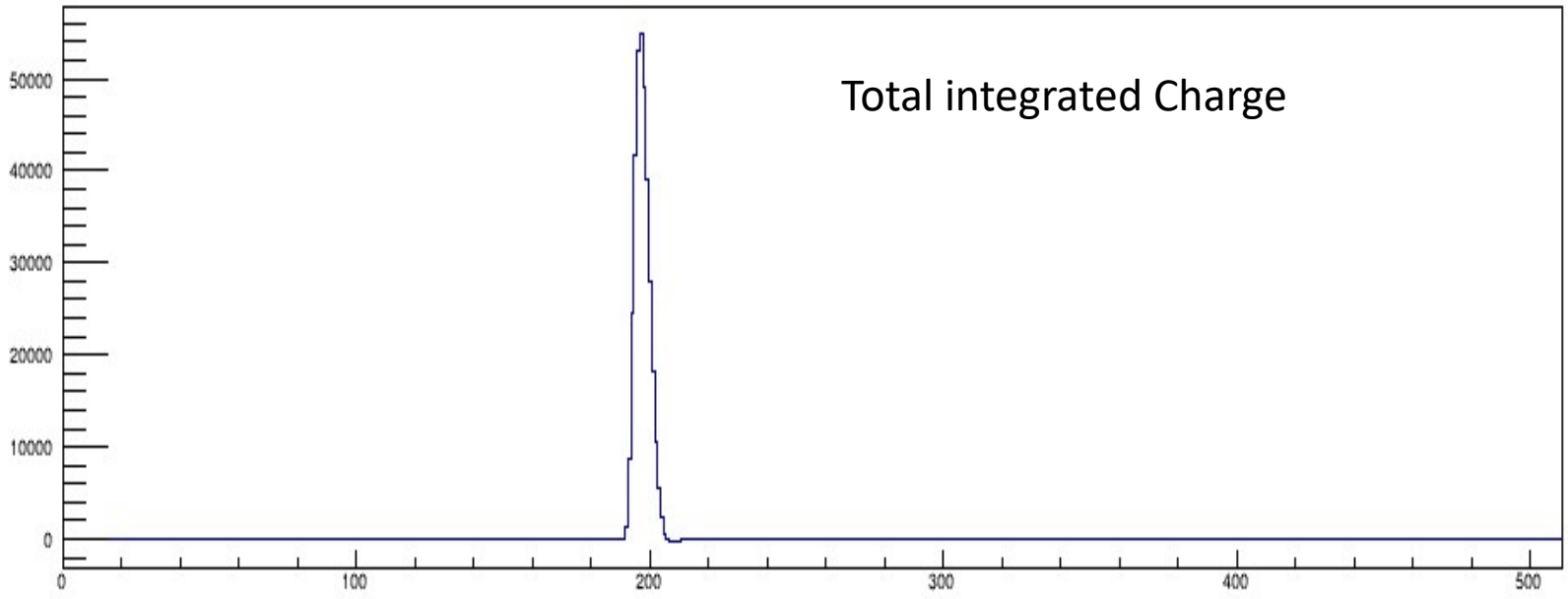
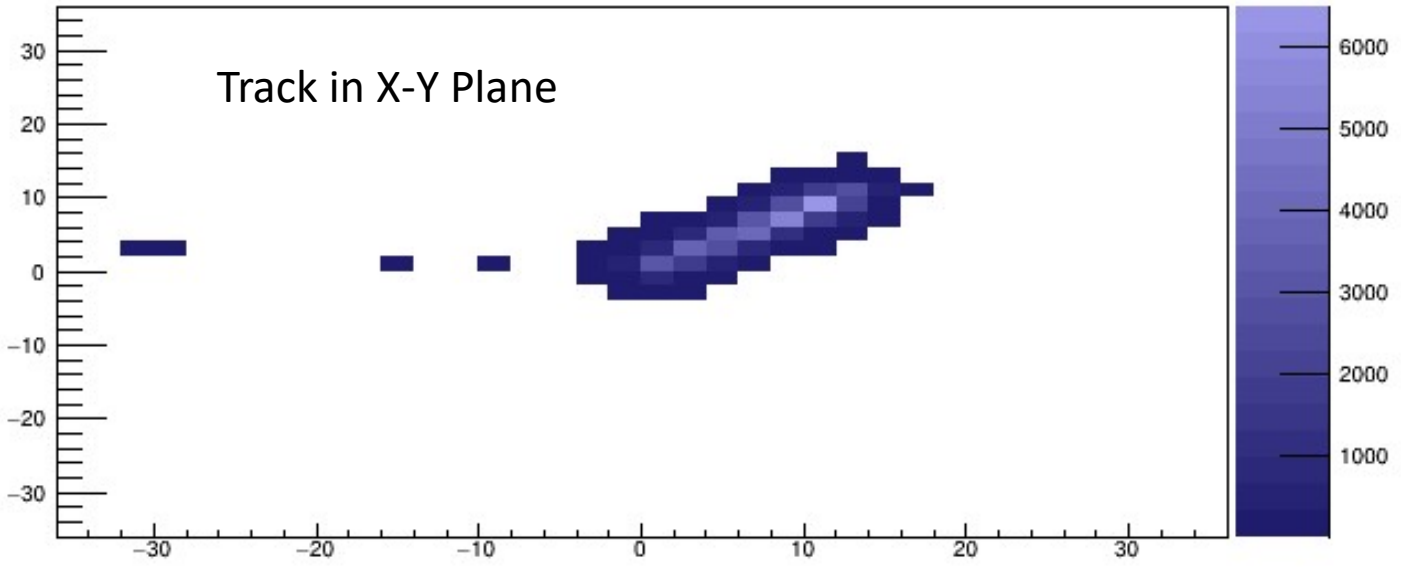
α(4.12 MeV) particle from 20Ne after β decay from 20Na

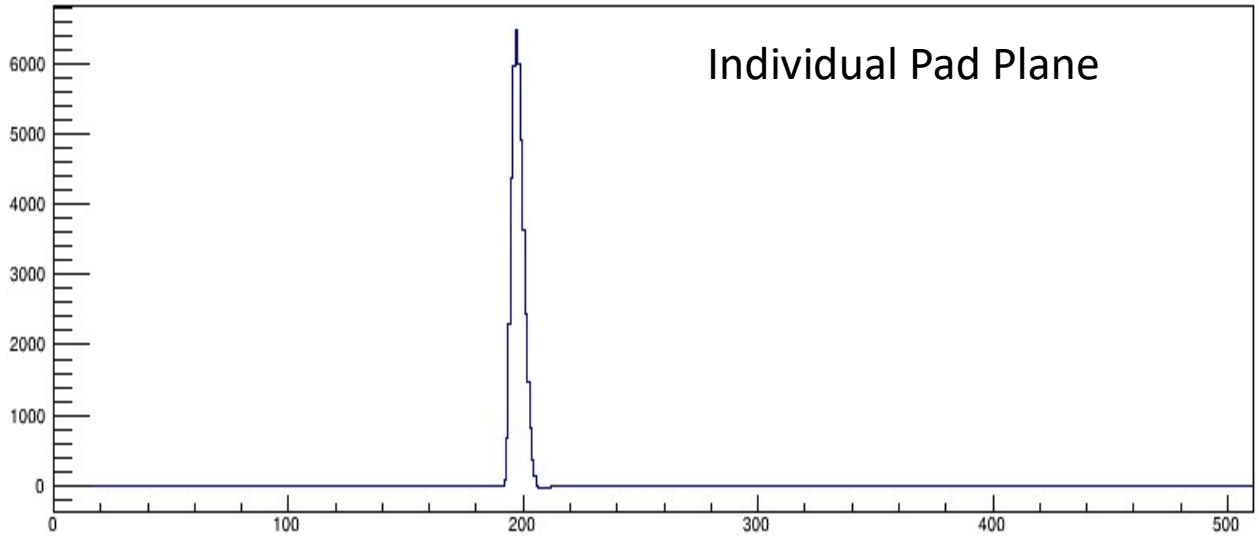
Simulated Event



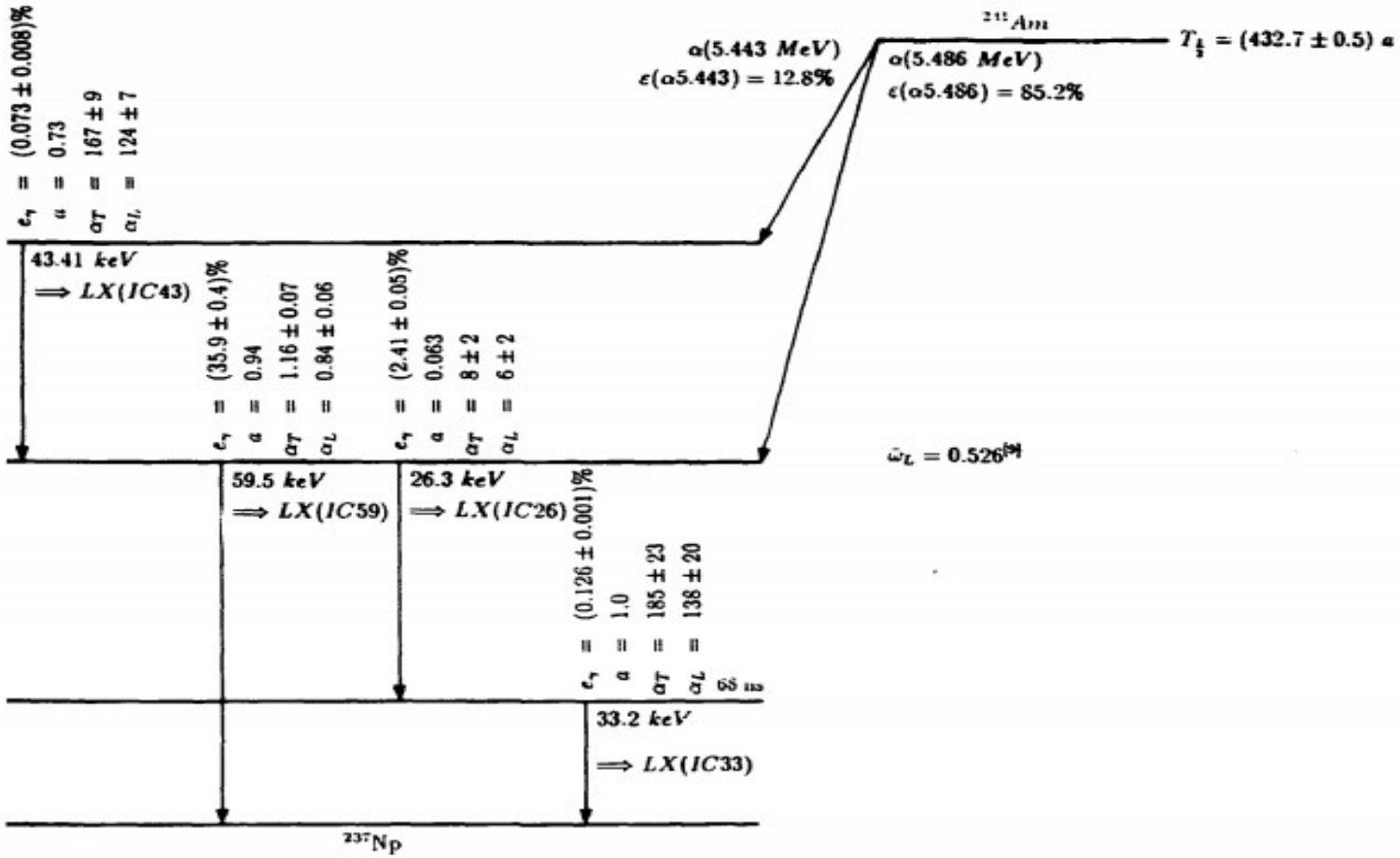
Event after Digitalization




Track in X-Y Plane
30
20
10
0
−10
−20
−30
−30
−20
−10
0
10
20
30
6000
5000
4000
3000
2000
1000


Individual Pad Plane
6000
5000
4000
3000
2000
1000
0
0
100
200
300
400
500

Simplified ^{241}Am decay scheme

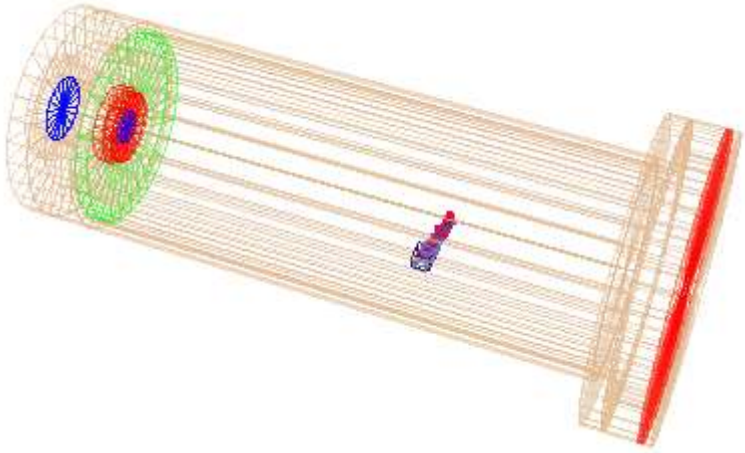


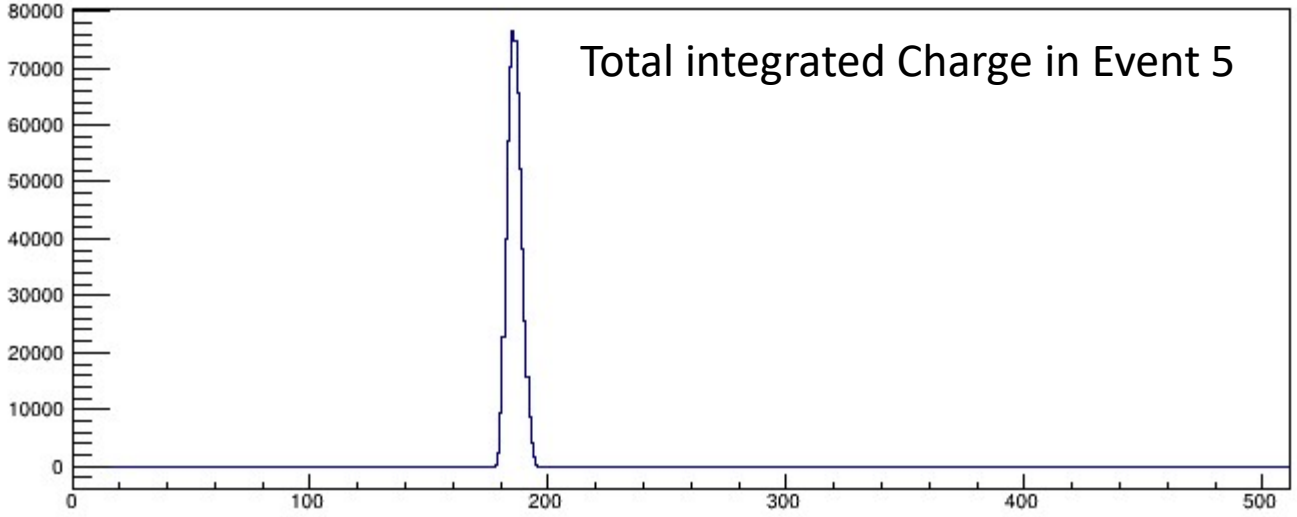
L X-rays	E_x (keV)	e_x (%)
L_ℓ	11.871	0.81±0.10
L_α	13.927	13.0±1.2
$L_\eta + L_\beta$	17.58	20.5±2.4
L_γ	20.997	5.2±0.7

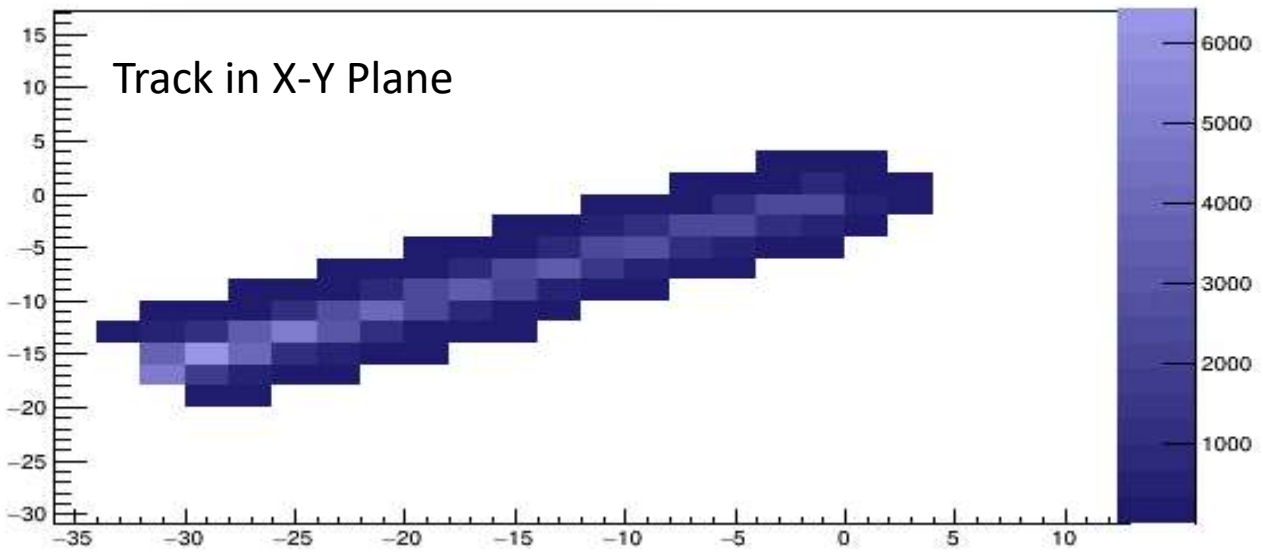
α(5.485 MeV) +X-ray (11.871 keV) event

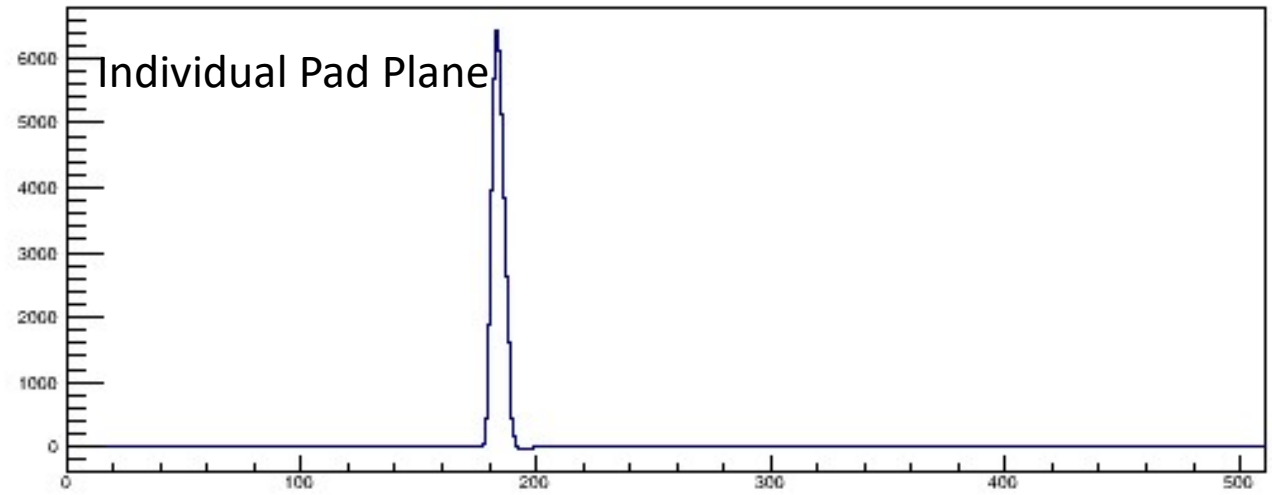
Simulated Event

Event after Digitalization



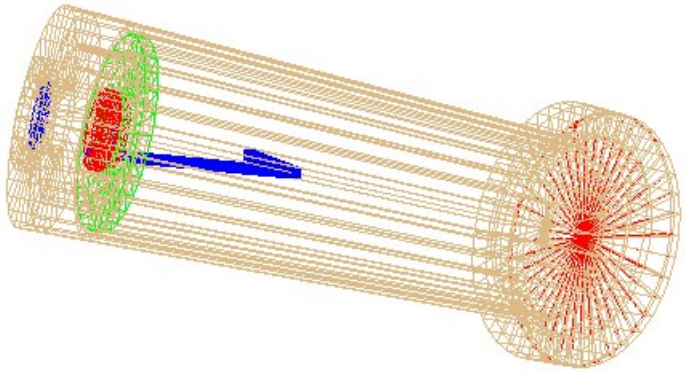



Track in X-Y Plane
15
10
5
0
−5
−10
−15
−20
−25
−30
−35
−30
−25
−20
−15
−10
−5
0
5
10
6000
5000
4000
3000
2000
1000

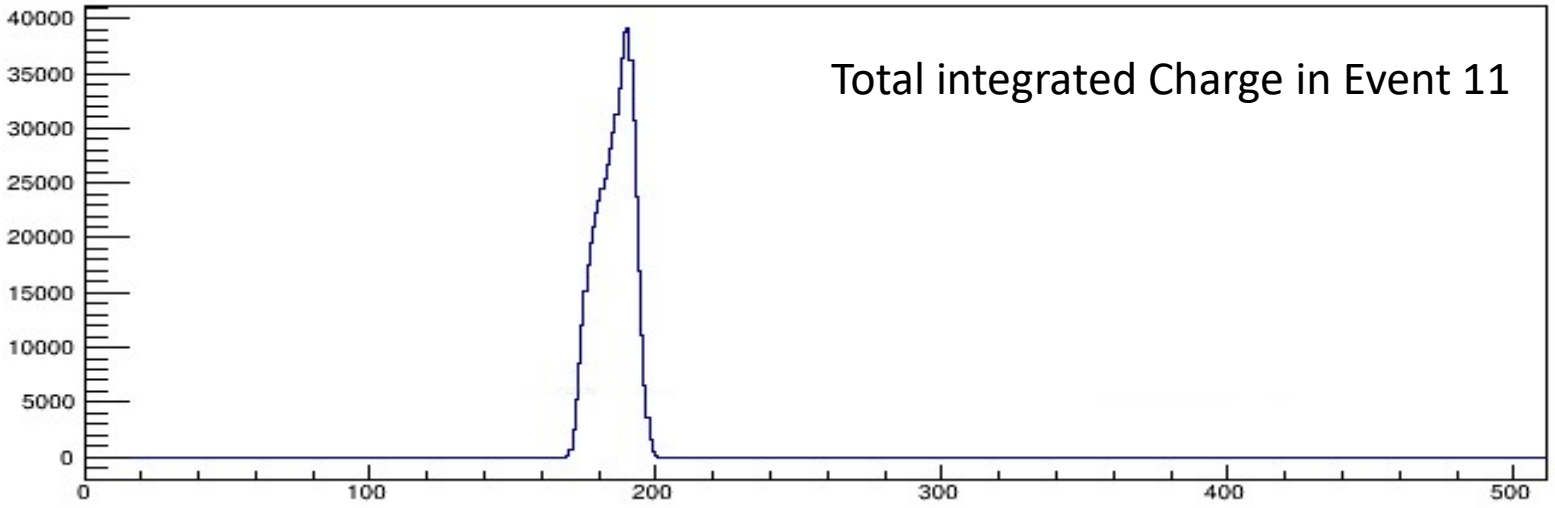

Individual Pad Plane
6000
5000
4000
3000
2000
1000
0
0
100
200
300
400
500

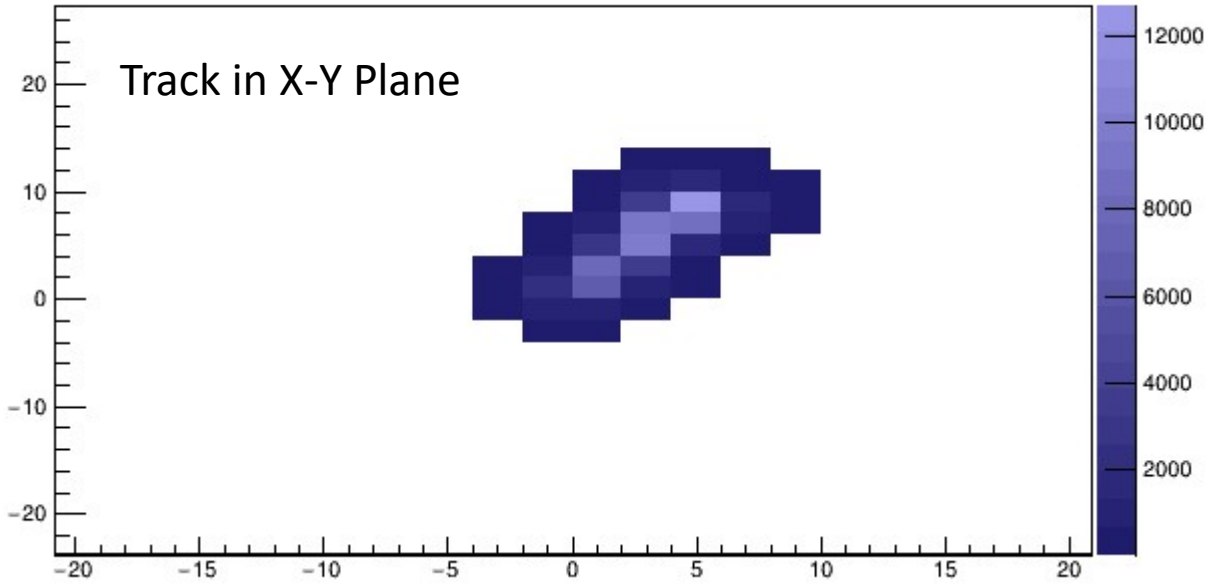
α(5.485 MeV) +X-ray (17.58 keV) event

Simulated Event



Event after Digitalization




Track in X-Y Plane
20
10
0
−10
−20
−20
−15
−10
−5
0
5
10
15
20
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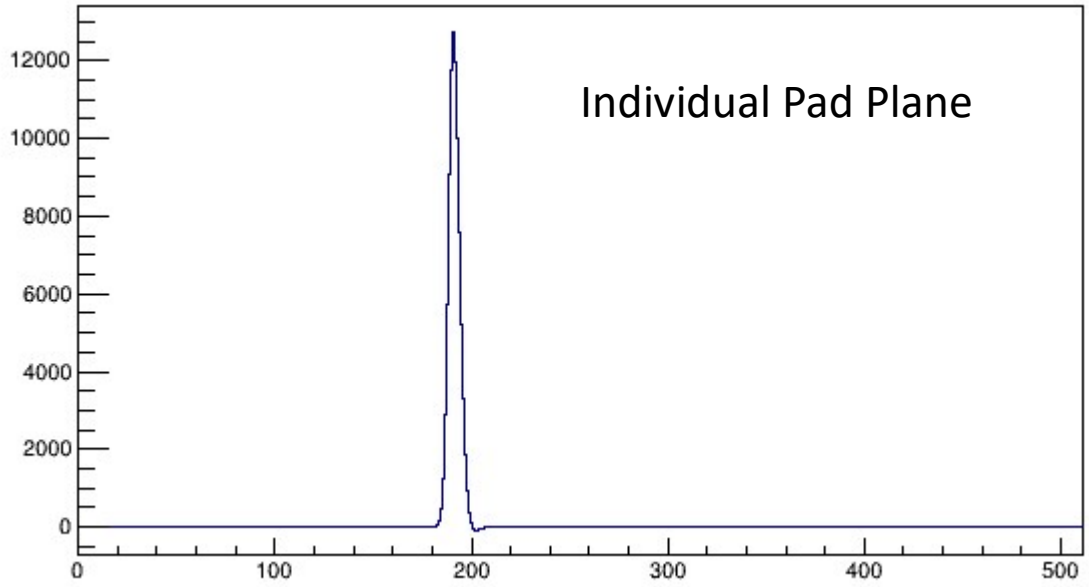
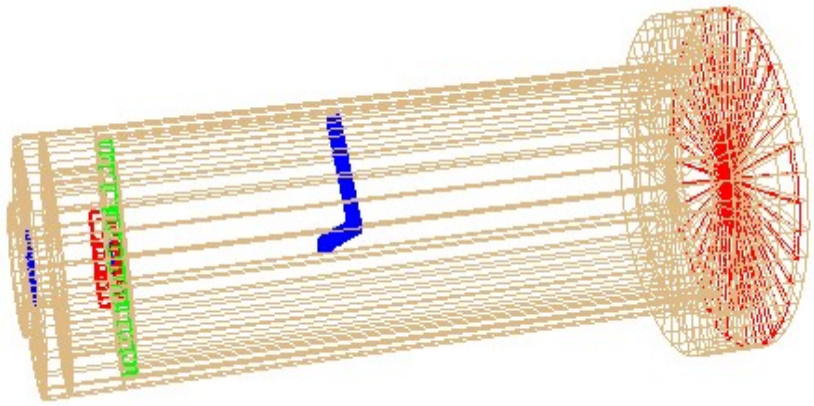
10000
8000
6000
4000
2000

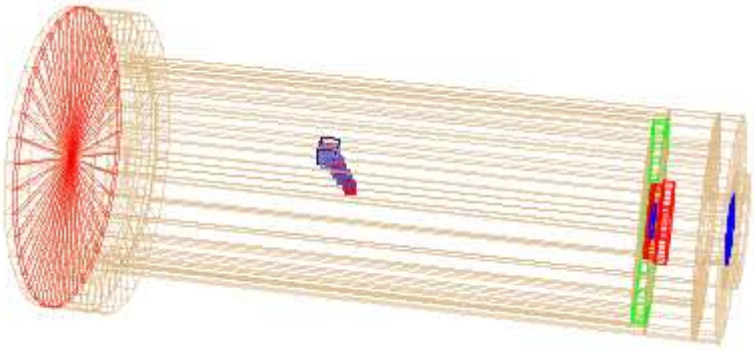

Individual Pad Plane
12000
10000
8000
6000
4000
2000
0
0
100
200
300
400
500

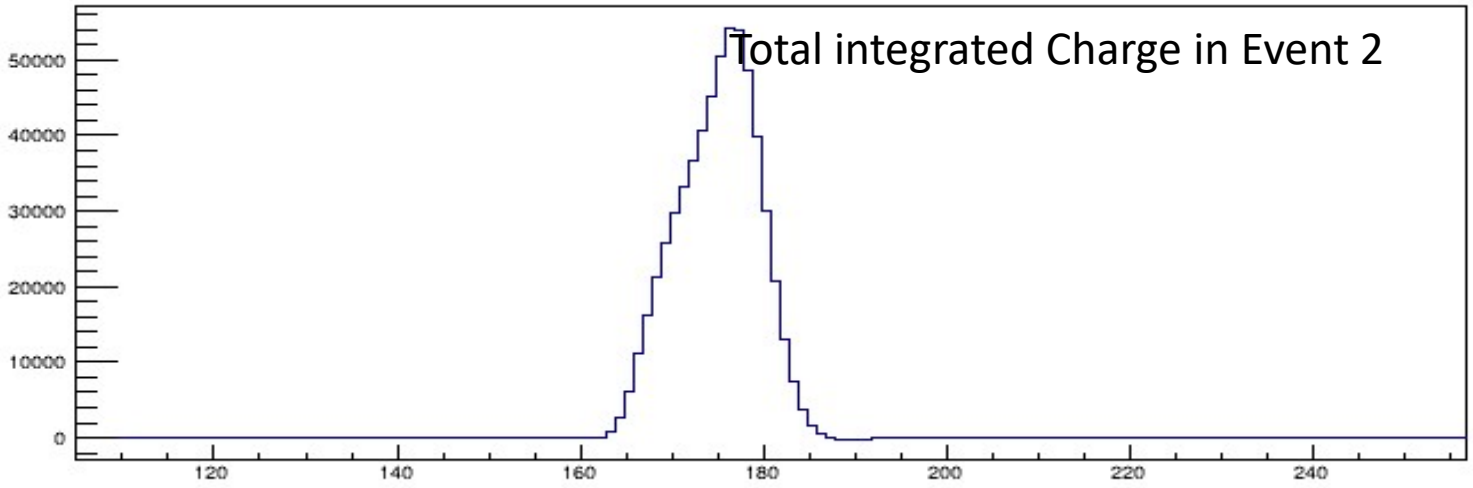
α(5.485 MeV) +X-ray (20 keV) event

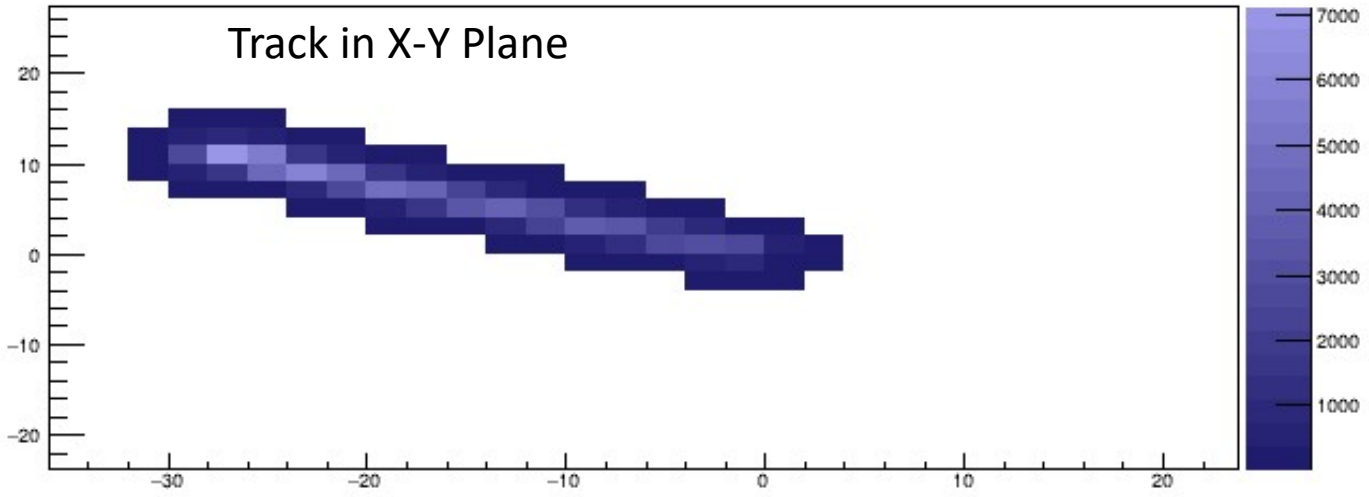
Simulated Event

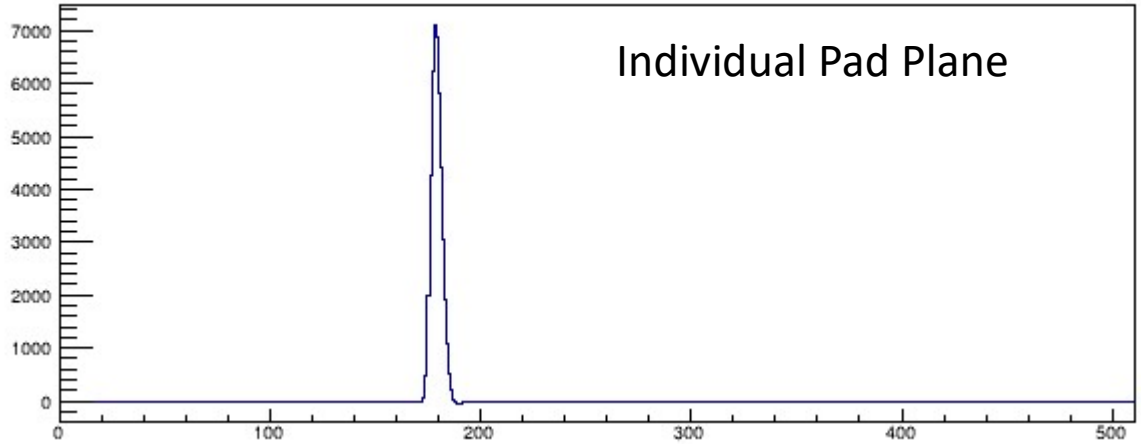


Event after Digitalization



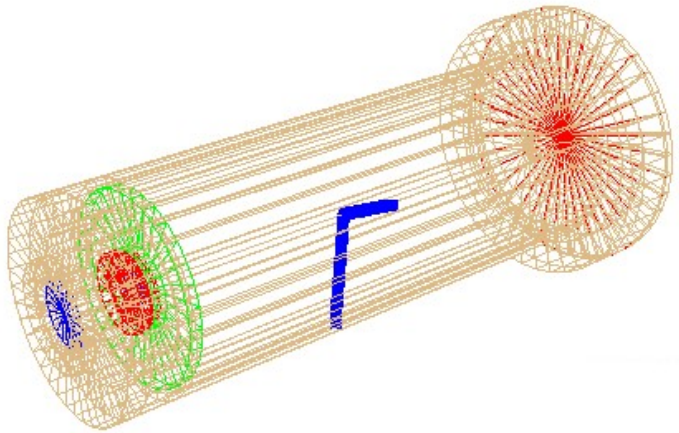



Track in X-Y Plane
20
10
0
−10
−20
−30
−20
−10
0
10
20
7000
6000
5000
4000
3000
2000
1000

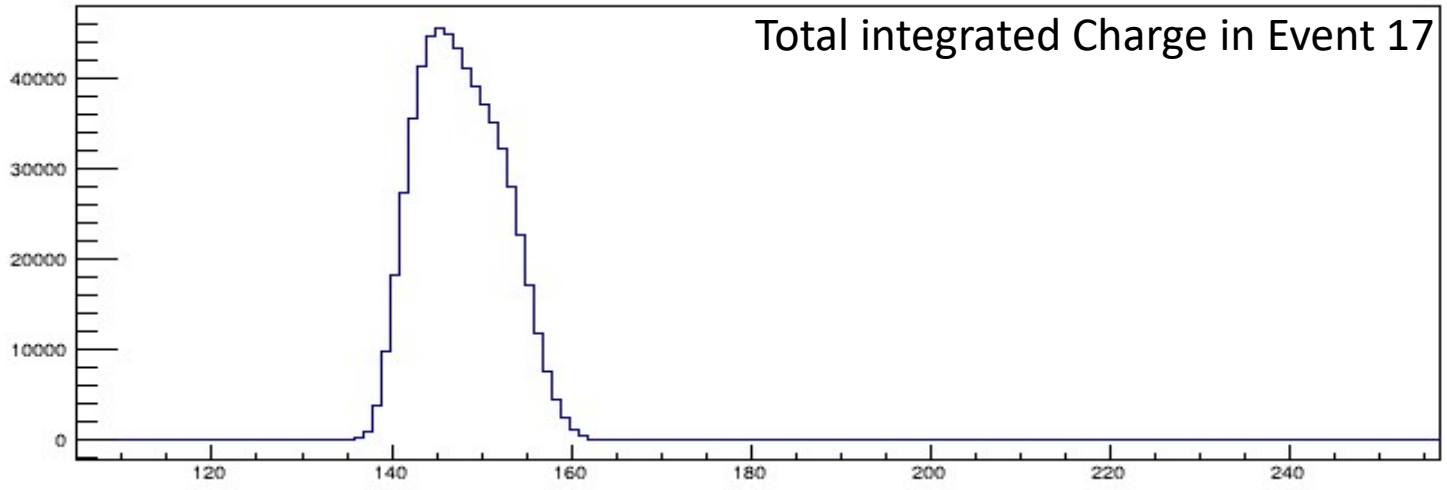

Individual Pad Plane
7000
6000
5000
4000
3000
2000
1000
0
0
100
200
300
400
500

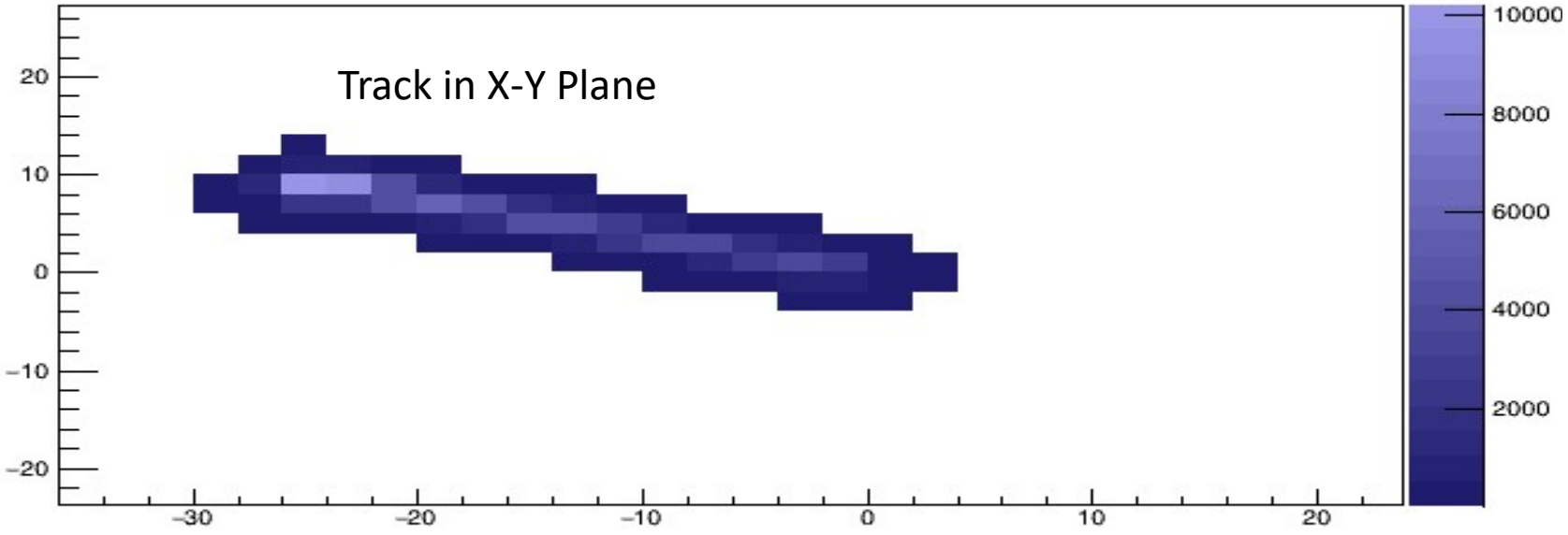
α(5.485 MeV) + γ -ray (59.5 keV) event

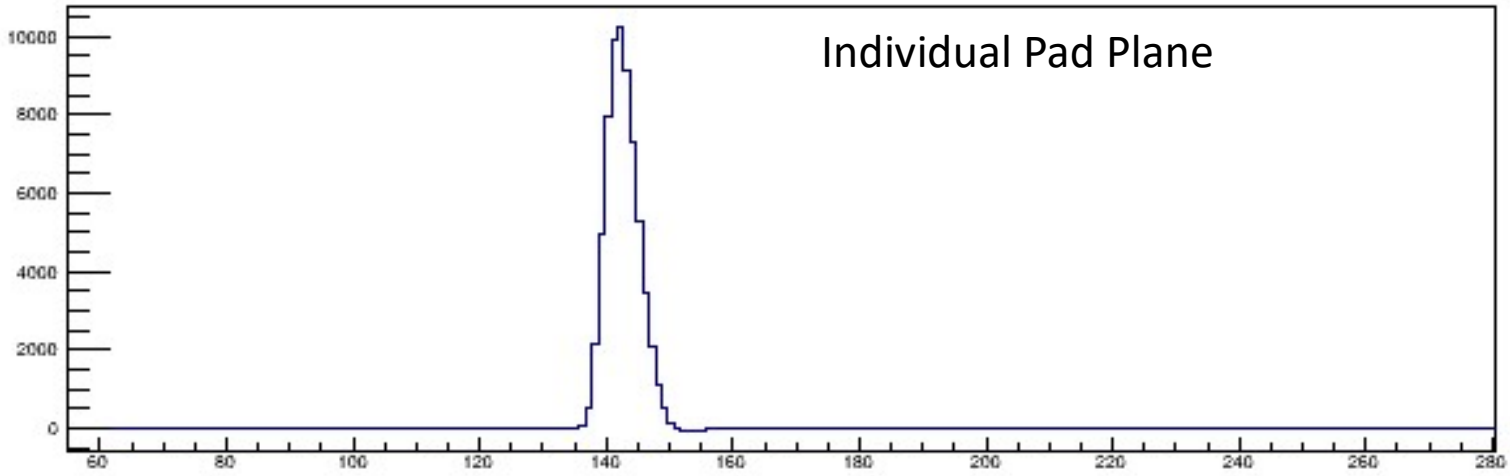
Simulated Event



Event after Digitalization




Track in X-Y Plane
20
10
0
−10
−20
−30
−20
−10
0
10
20
10000
8000
6000
4000
2000


Individual Pad Plane
10000
8000
6000
4000
2000
0
60
80
100
120
140
160
180
200
220
240
260
280

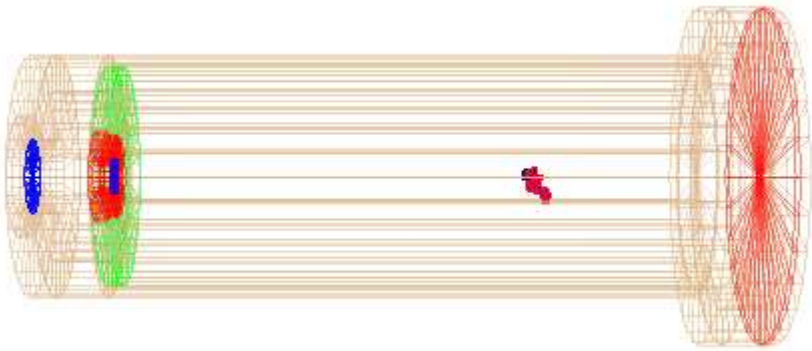
Full Decay of 20Mg

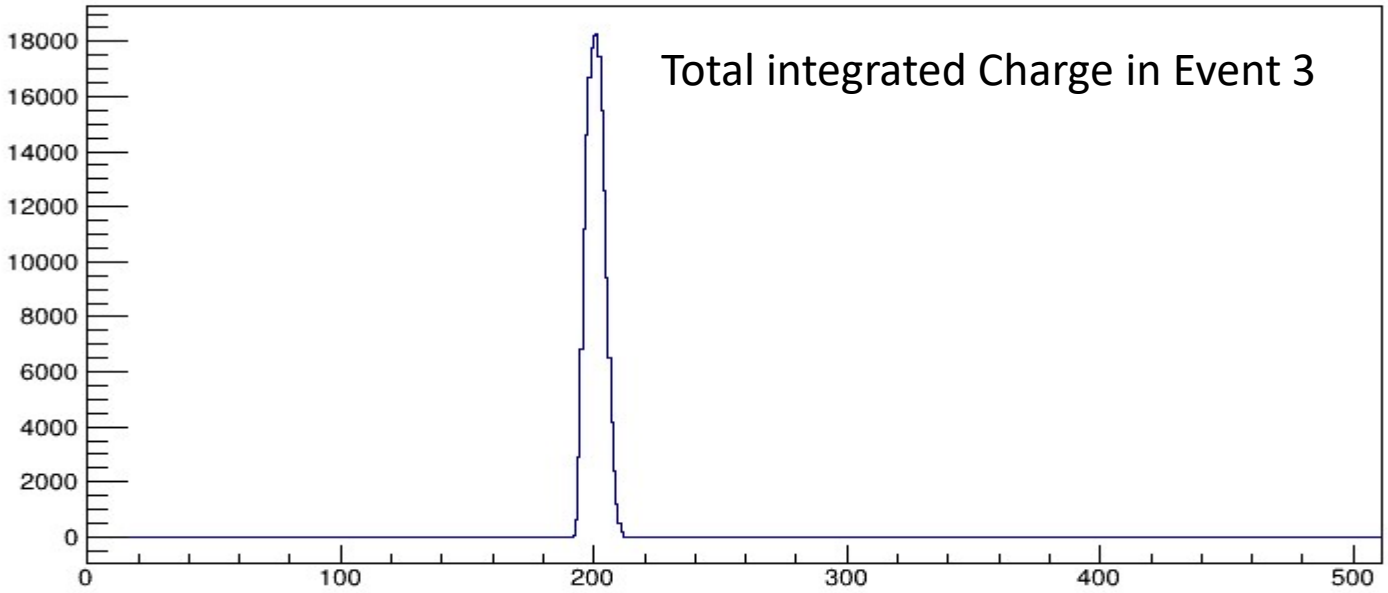
1) Added Simplified decay scheme for 241Am. (For testing purpose)
2) Added protons from 20Na decaying to 19Ne.(30)
3) Added betas from ground state of 20Na to 20Ne (17 different levels are populated)
4) Added gammas from 19Ne excited states to ground state (25 different gammas)
5) Alpha particle emitted from the 4.03 MeV state to 15O.(1)
6) Gamma rays from excited state of 20Ne to ground state.
7) Alpha particles from 20Ne to 16O. (15)
8) 19Ne decaying to 19F by betas
9) Gamma rays from excited 19F

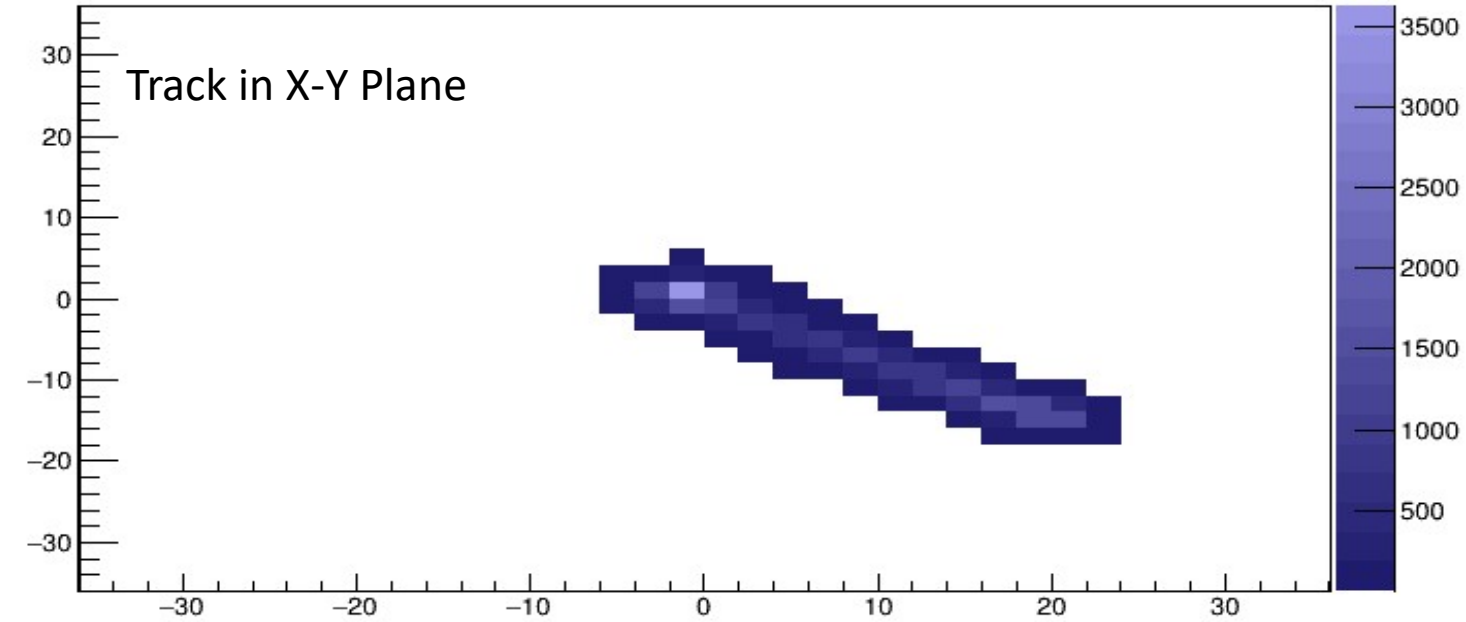
p (1.2 MeV) +α (0.506 MeV) event

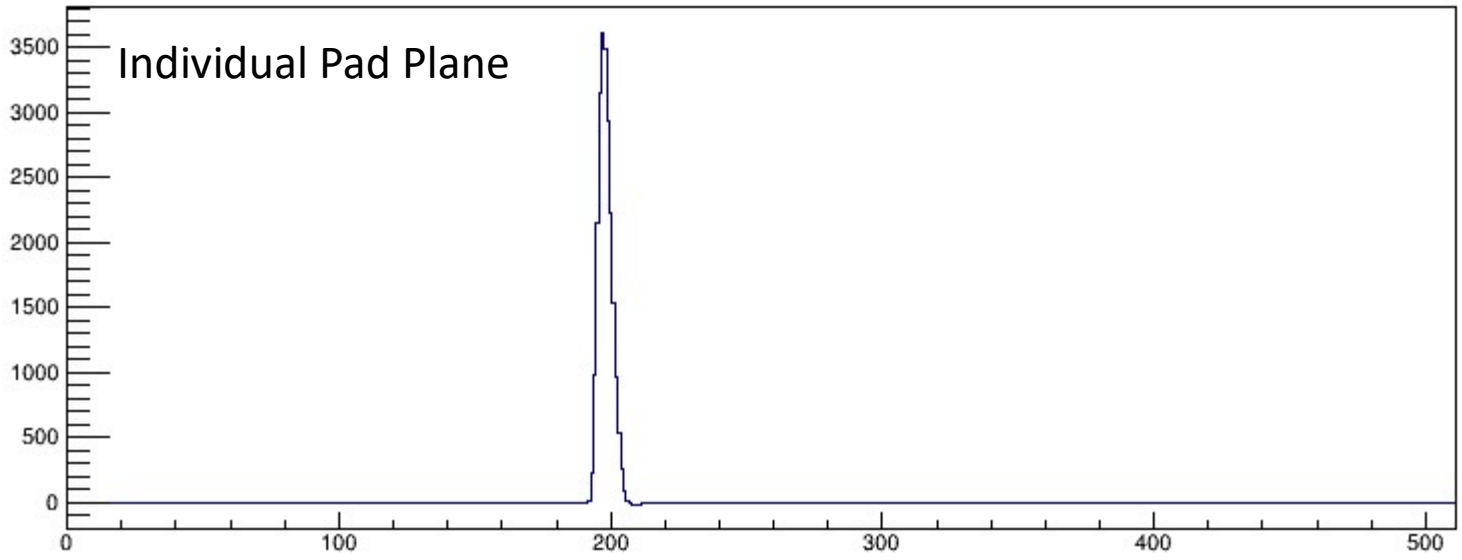
Simulated Event

Event after Digitalization



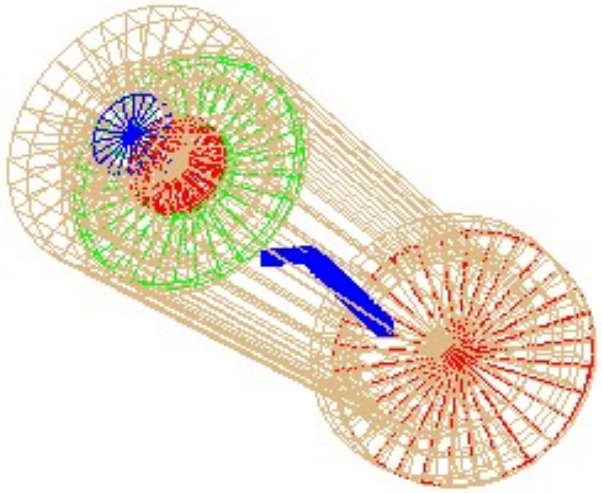



Track in X-Y Plane
30
20
10
0
−10
−20
−30
−30
−20
−10
0
10
20
30
3500
3000
2500
2000
1500
1000
500

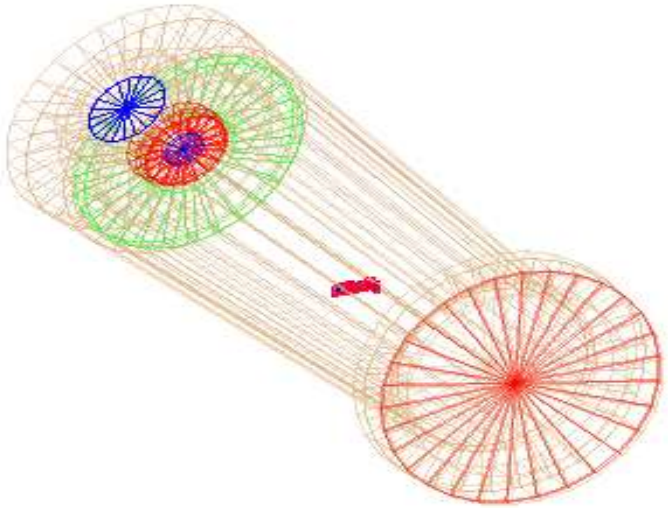

Individual Pad Plane
3500
3000
2500
2000
1500
1000
500
0
0
100
200
300
400
500

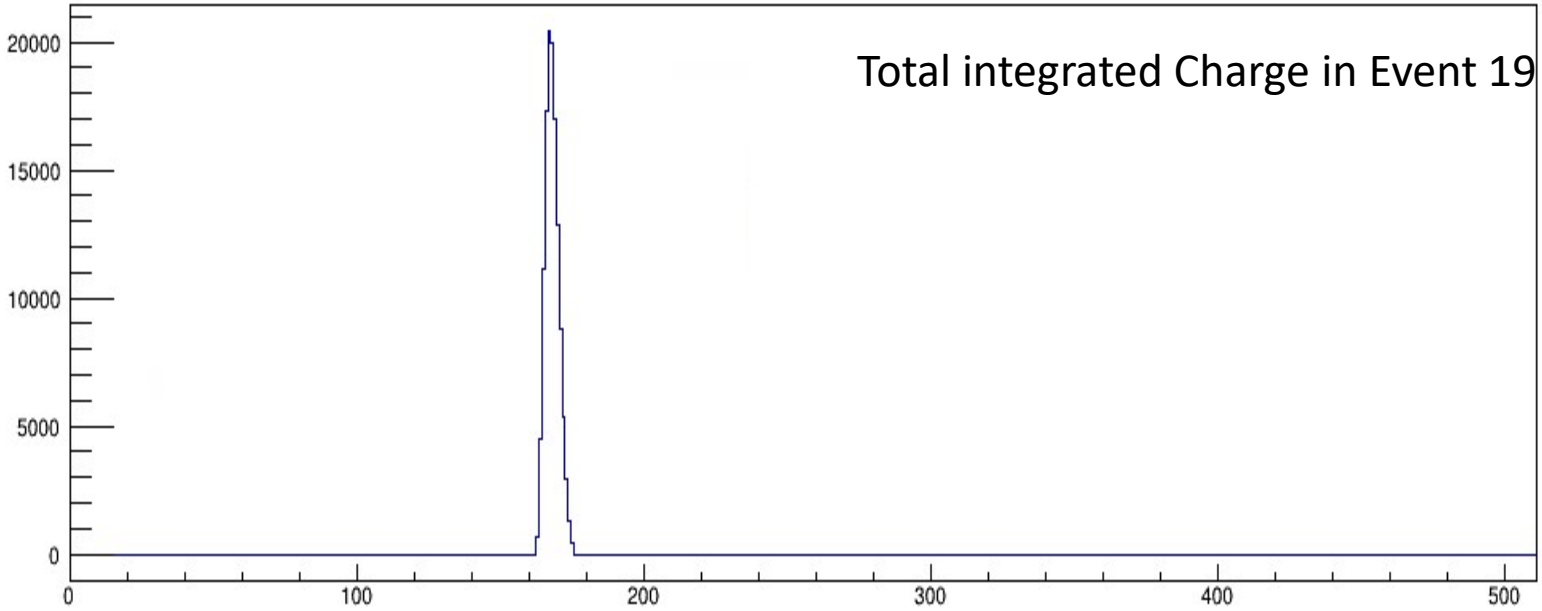
p (1.2 MeV) +γ (4.03 MeV) event

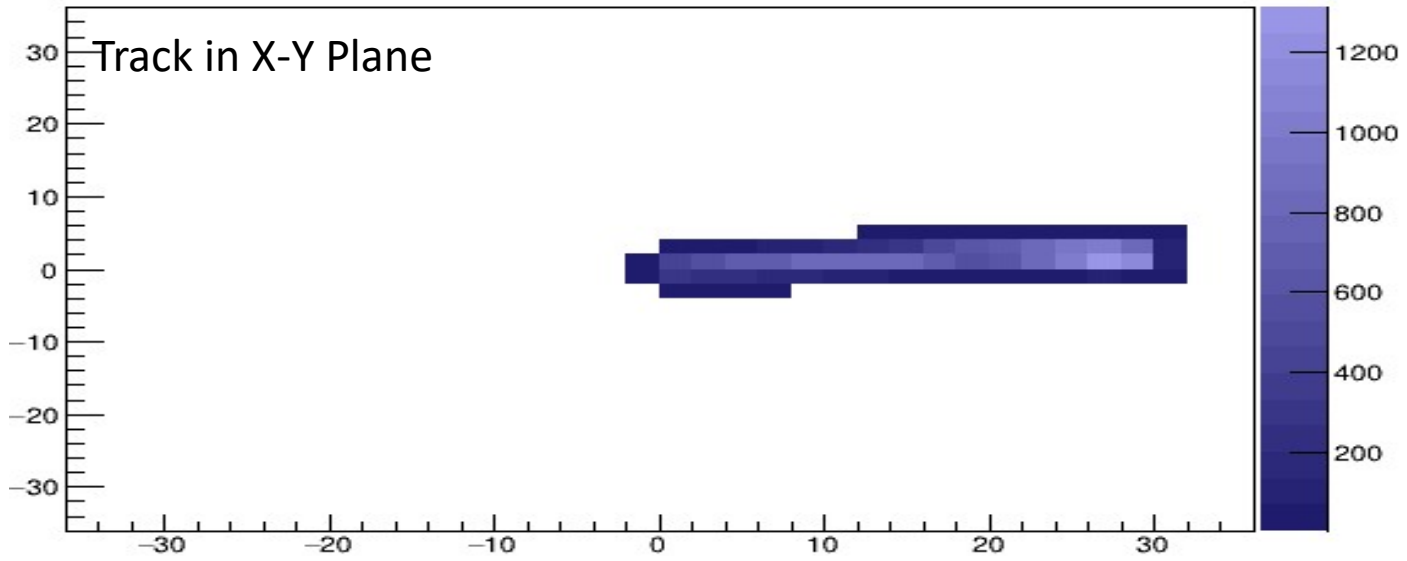
Simulated Event

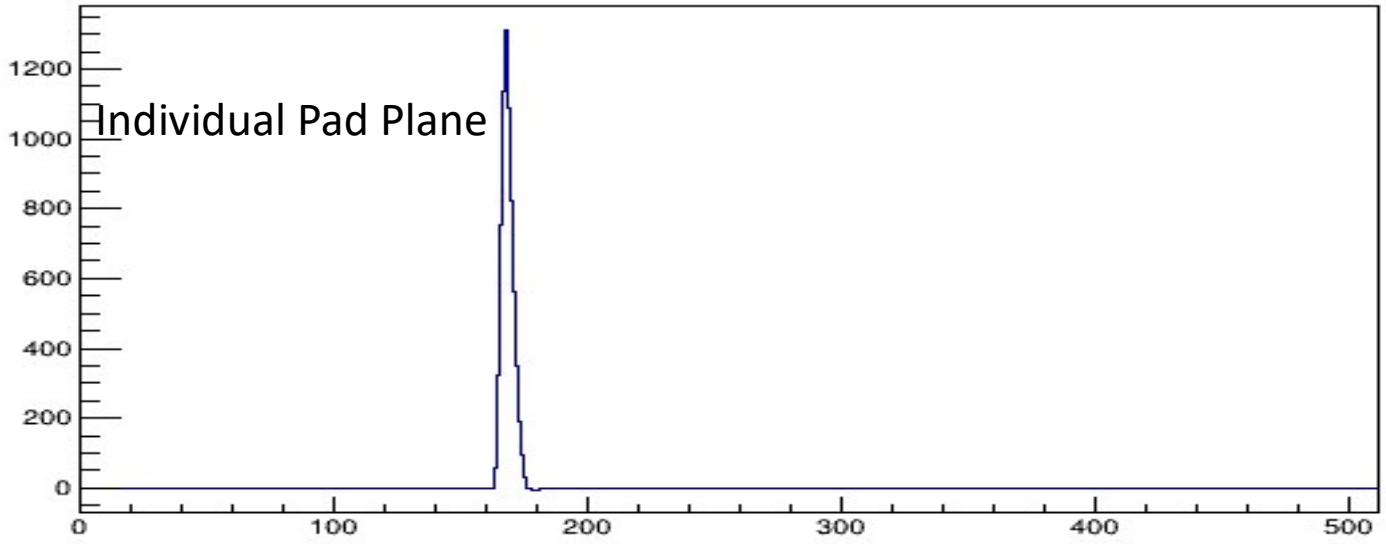


Event after Digitalization





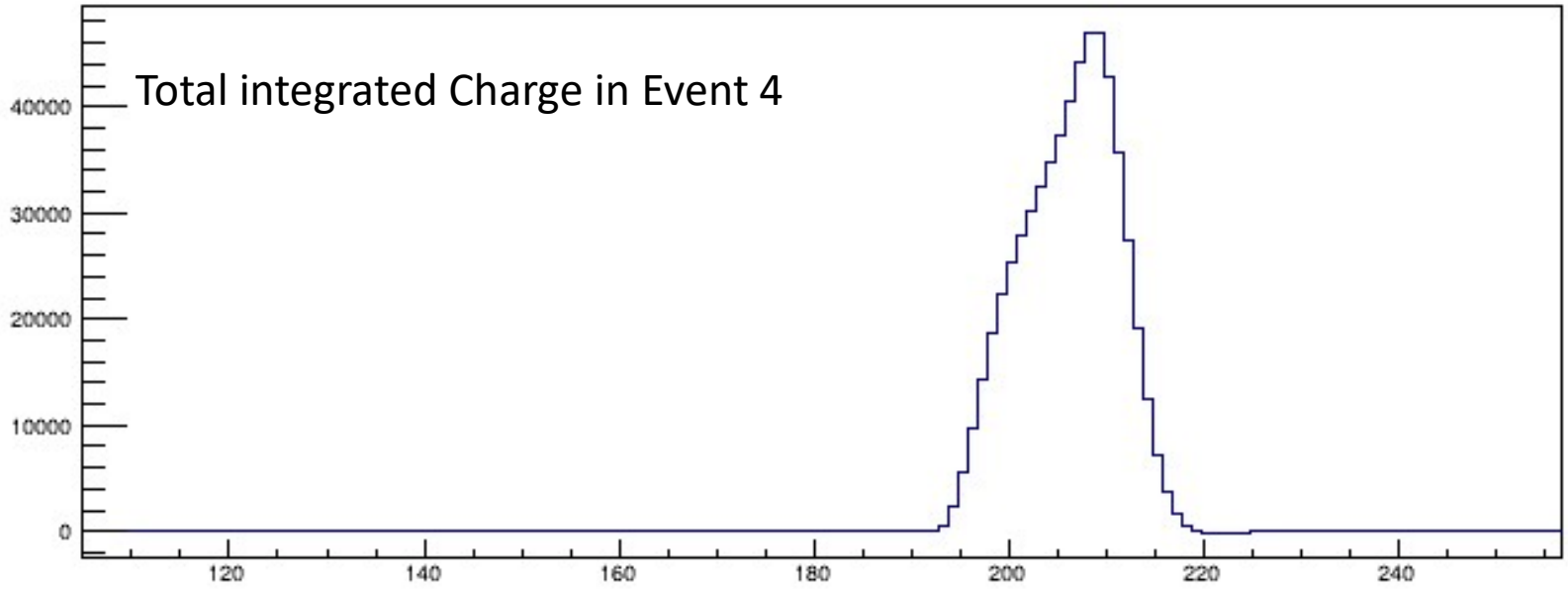

Track in X-Y Plane
30
20
10
0
−10
−20
−30
−30
−20
−10
0
10
20
30
1200
1000
800
600
400
200

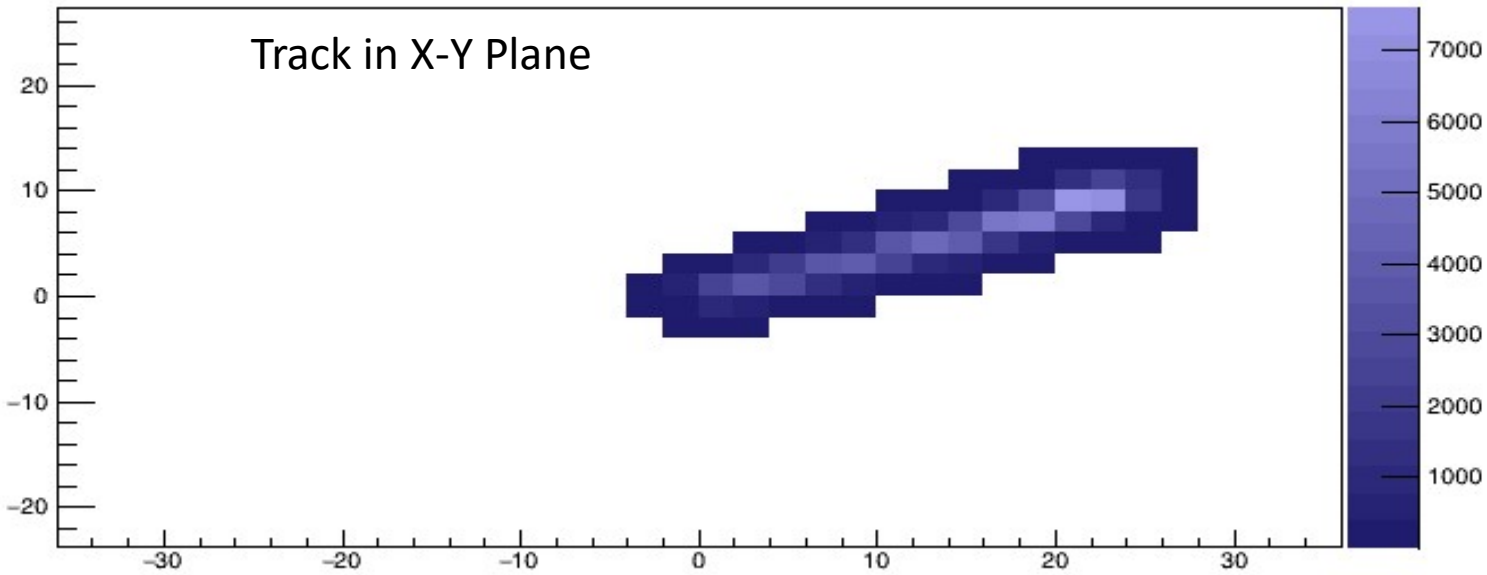

Individual Pad Plane
1200
1000
800
600
400
200
0
0
100
200
300
400
500

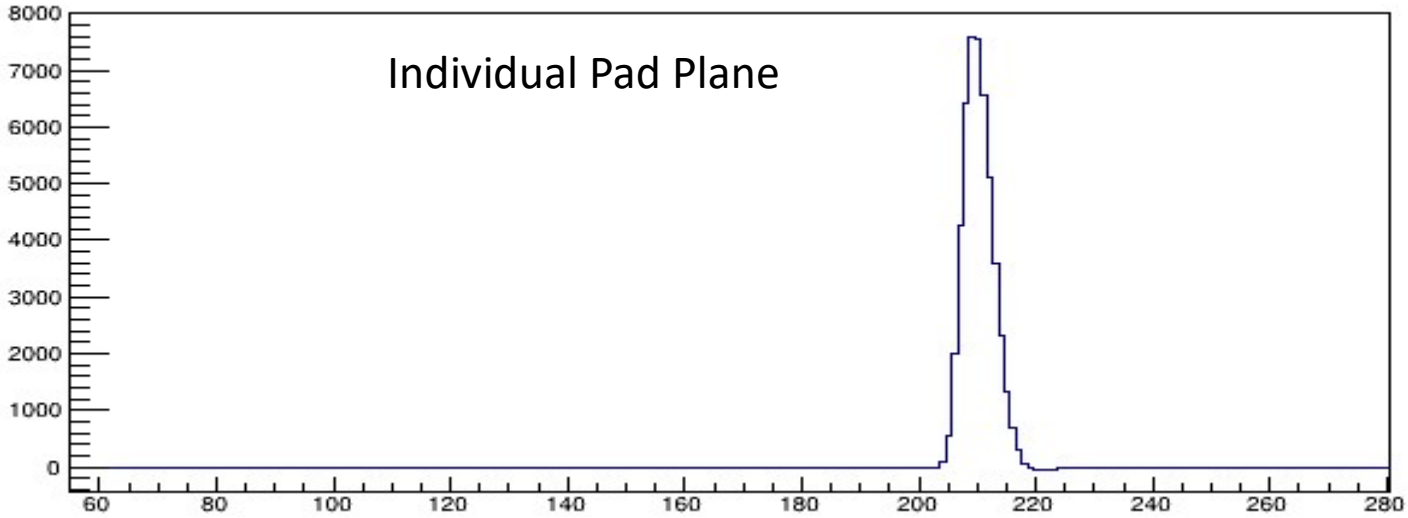
α(5.443 MeV) +γ-ray (43.4 keV) event

Simulated Event

Event after Digitalization




Track in X-Y Plane
20
10
0
−10
−20
−30
−20
−10
0
10
20
30
7000
6000
5000
4000
3000
2000
1000


Individual Pad Plane
8000
7000
6000
5000
4000
3000
2000
1000
0
60
80
100
120
140
160
180
200
220
240
260
280