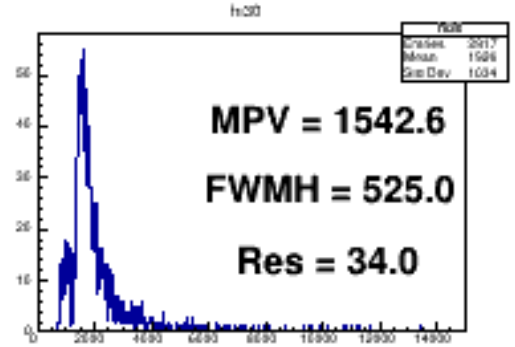
190422

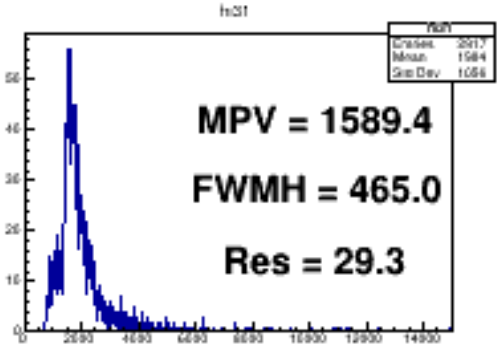
ByungChan lee

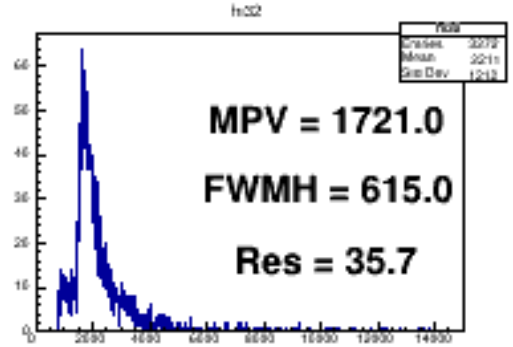
The interval of integration

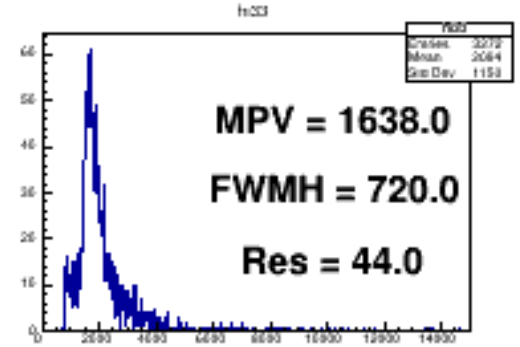
- Comparing FWHM
- FWHM/MPV doesn’t change much as the interval varies
- 100ns will be good enough

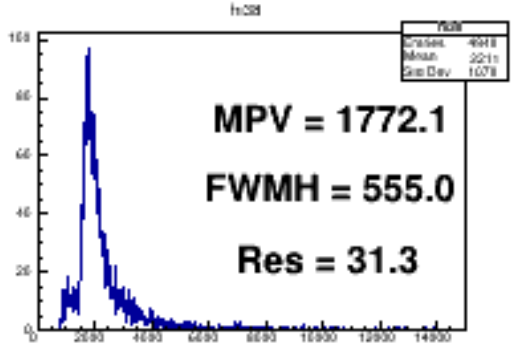
	FWHM/MPV (%)
*height	33.27
*integral The length of interval	
Full range	34.96
150ns	31.90
100ns	31.60
70ns	32.85
50ns	31.19

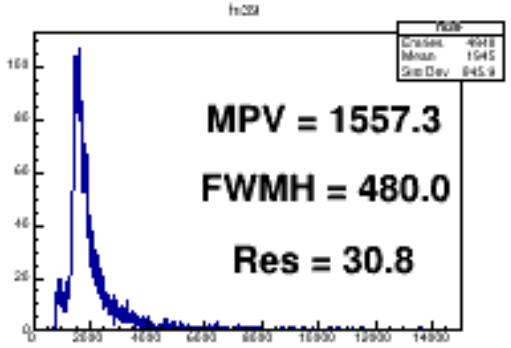

MPV = 1542.6
FWMH = 525.0
Res = 34.0

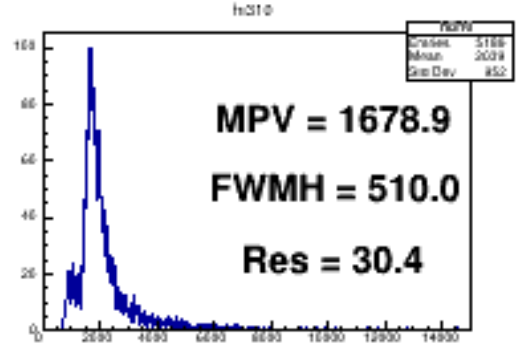

MPV = 1589.4
FWMH = 465.0
Res = 29.3

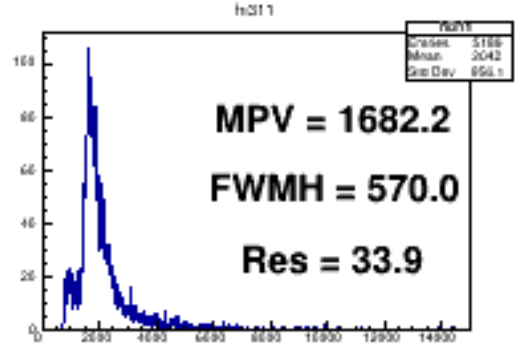

MPV = 1721.0
FWMH = 615.0
Res = 35.7

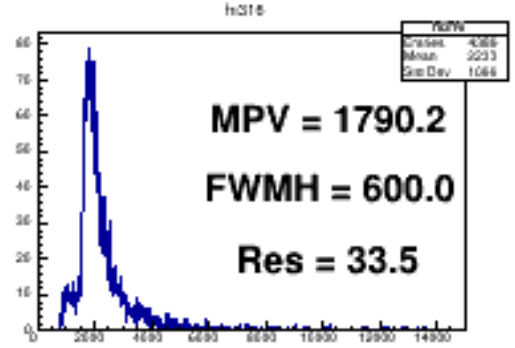

MPV = 1638.0
FWMH = 720.0
Res = 44.0

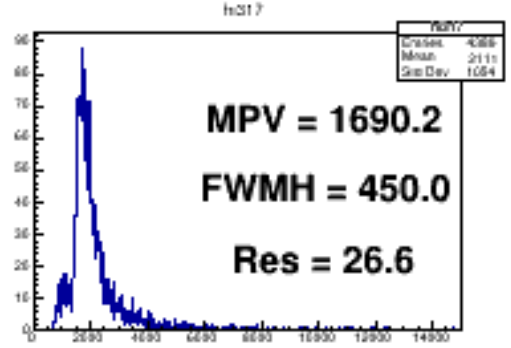

MPV = 1772.1
FWMH = 555.0
Res = 31.3

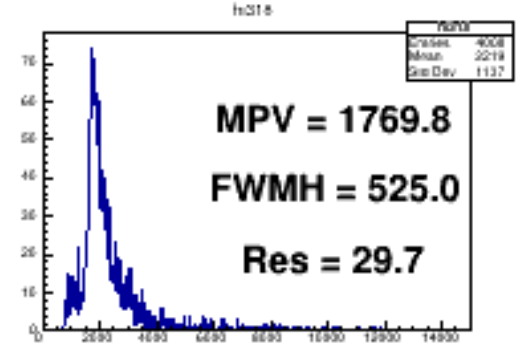

MPV = 1557.3
FWMH = 480.0
Res = 30.8

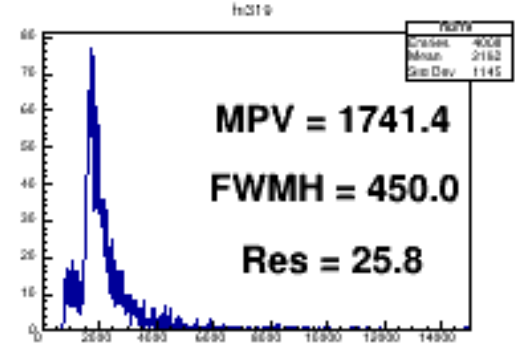

MPV = 1678.9
FWMH = 510.0
Res = 30.4


MPV = 1682.2
FWMH = 570.0
Res = 33.9


MPV = 1790.2
FWMH = 600.0
Res = 33.5


MPV = 1690.2
FWMH = 450.0
Res = 26.6

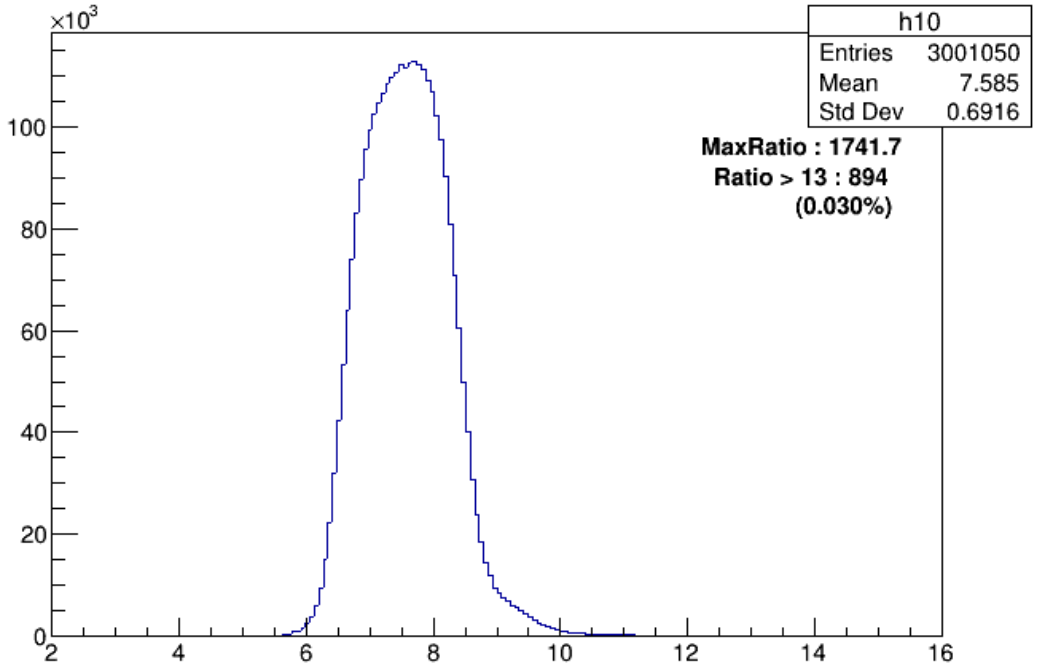

MPV = 1769.8
FWMH = 525.0
Res = 29.7


MPV = 1741.4
FWMH = 450.0
Res = 25.8

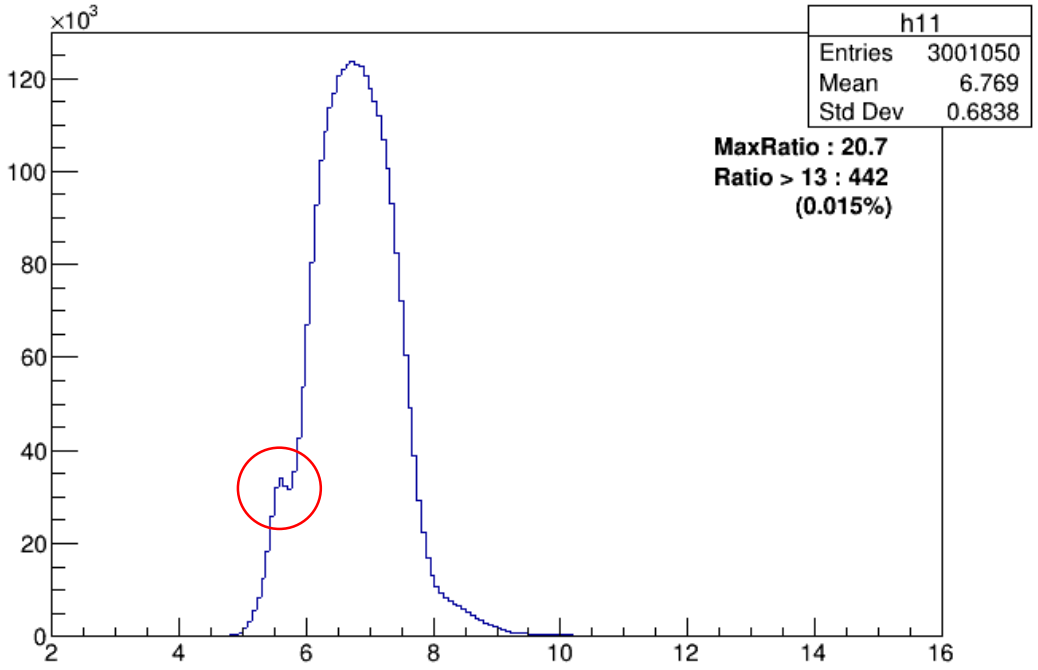
Integ / height

Previous Slide

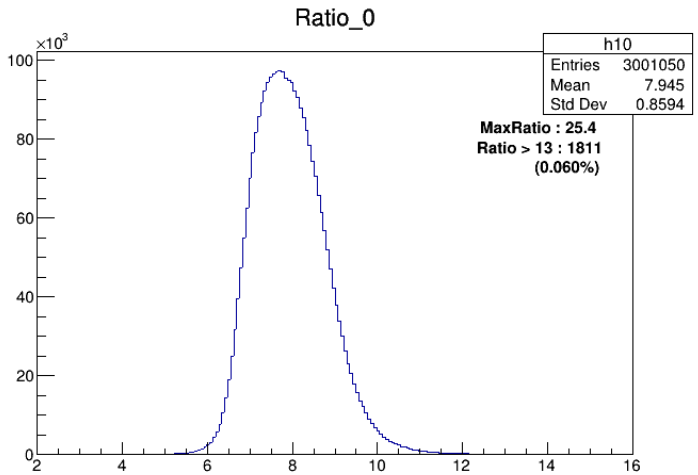
Prev



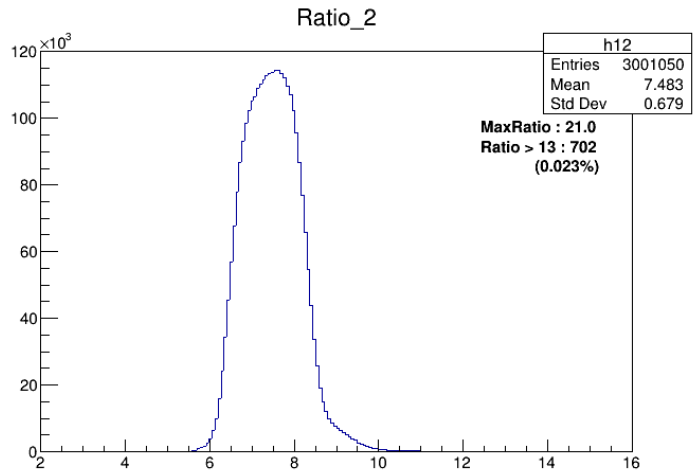
Rev



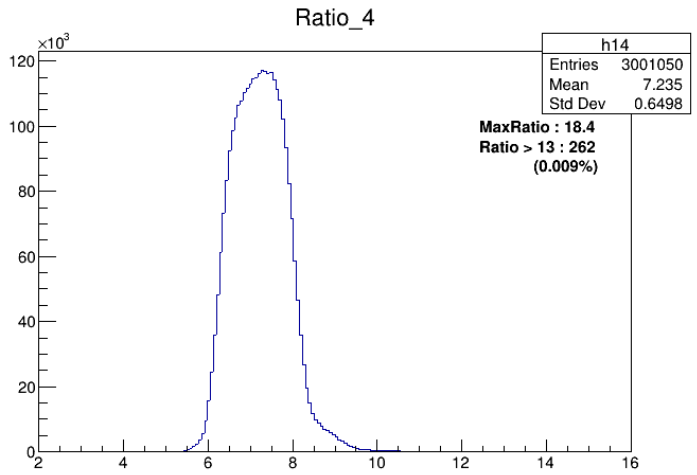
150ns



100ns



50ns



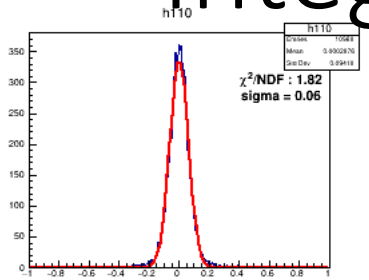
Energy Resolution

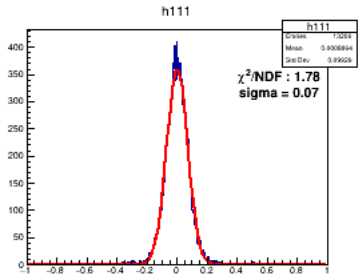
- To remove effects from the gain difference of PMTs, divide each value by its MPV

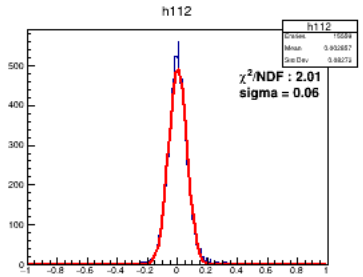
- The energy resolution of integral is better

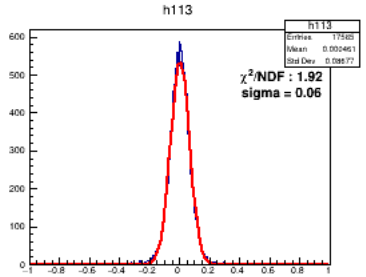
	Prev	100ns
Height Res	15.34	15.38
Integ Res	11.12	11.01

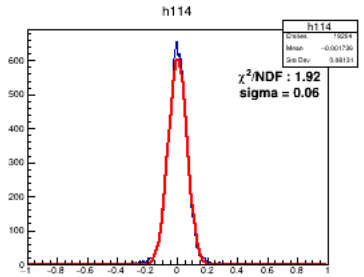
Integ

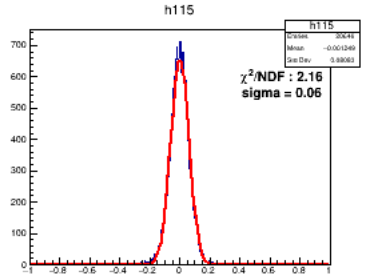

h110
χ²/NDF : 1.82
sigma = 0.06

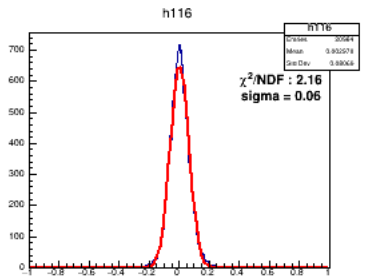

h111
χ²/NDF : 1.78
sigma = 0.07

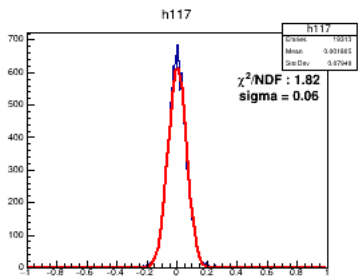

h112
χ²/NDF : 2.01
sigma = 0.06

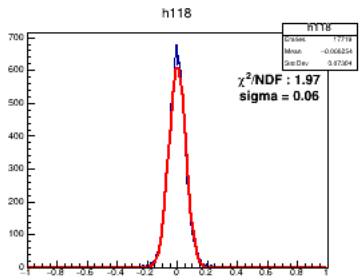

h113
χ²/NDF : 1.92
sigma = 0.06

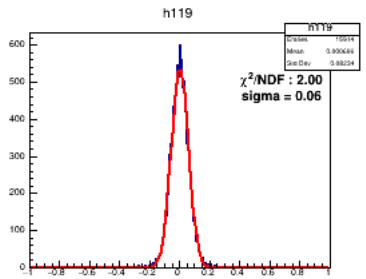

h114
χ²/NDF : 1.92
sigma = 0.06

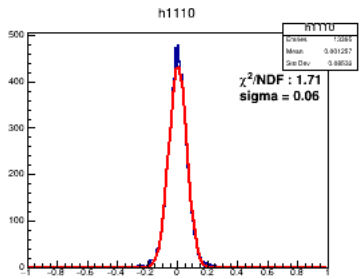

h115
χ²/NDF : 2.16
sigma = 0.06

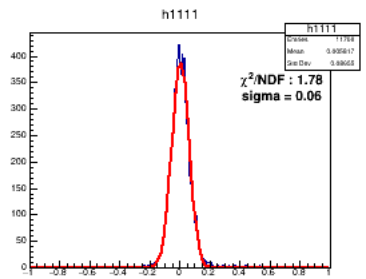

h116
χ²/NDF : 2.16
sigma = 0.06

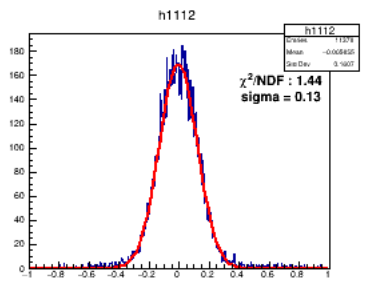

h117
χ²/NDF : 1.82
sigma = 0.06

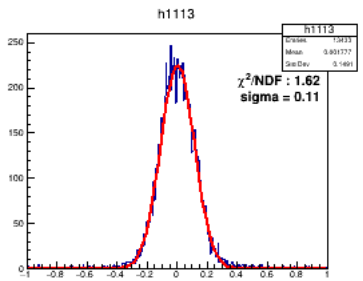

h118
χ²/NDF : 1.97
sigma = 0.06

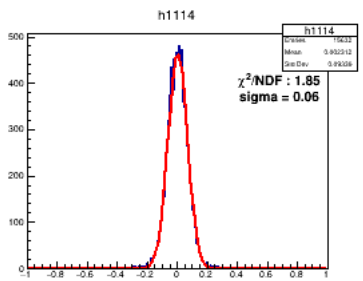

h119
χ²/NDF : 2.00
sigma = 0.06

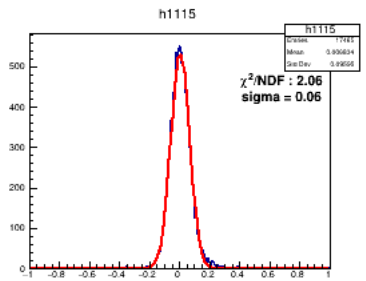

h1110
χ²/NDF : 1.71
sigma = 0.06

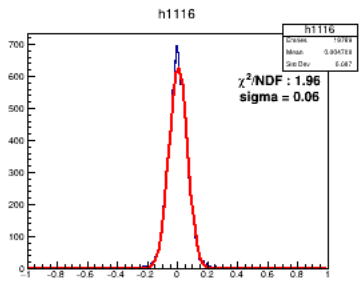

h1111
χ²/NDF : 1.78
sigma = 0.06

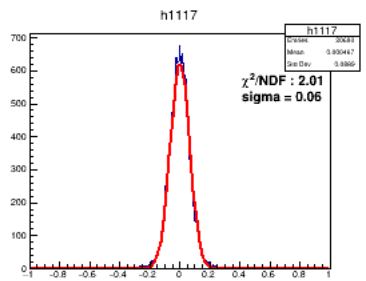

h1112
χ²/NDF : 1.44
sigma = 0.13

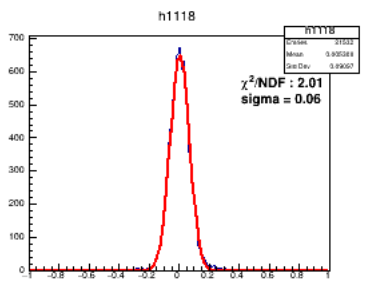

h1113
χ²/NDF : 1.62
sigma = 0.11

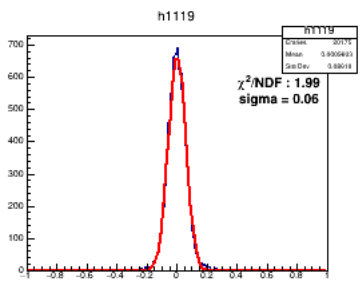

h1114
χ²/NDF : 1.85
sigma = 0.06

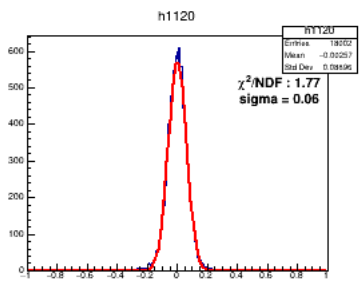

h1115
χ²/NDF : 2.06
sigma = 0.06

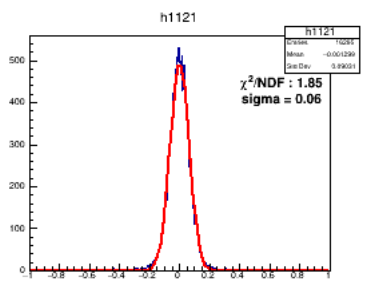

h1116
χ²/NDF : 1.96
sigma = 0.06

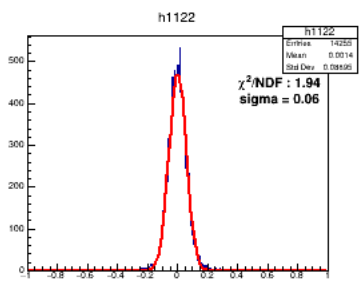

h1117
χ²/NDF : 2.01
sigma = 0.06

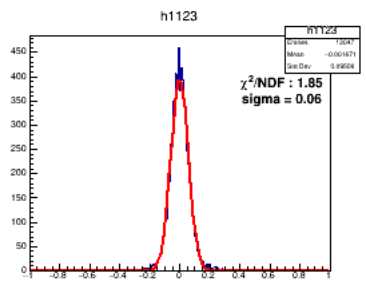

h1118
χ²/NDF : 2.01
sigma = 0.06


h1119
χ²/NDF : 1.99
sigma = 0.06


h1120
χ²/NDF : 1.77
sigma = 0.06

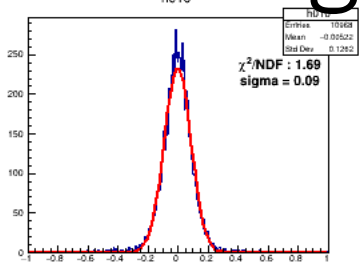

h1121
χ²/NDF : 1.85
sigma = 0.06


h1122
χ²/NDF : 1.94
sigma = 0.06

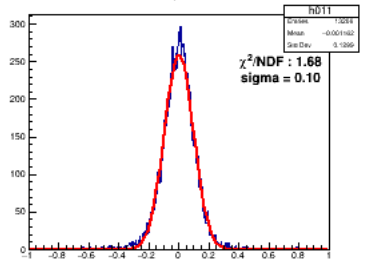

h1123
χ²/NDF : 1.85
sigma = 0.06

height

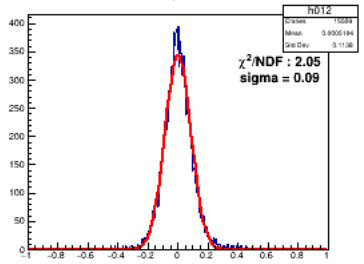
h010



h011



h012



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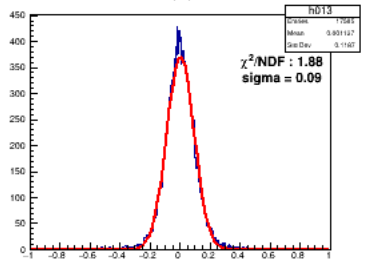

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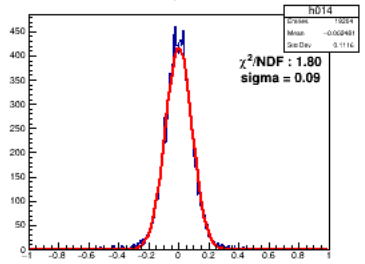
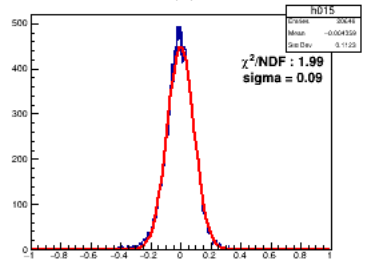


h015



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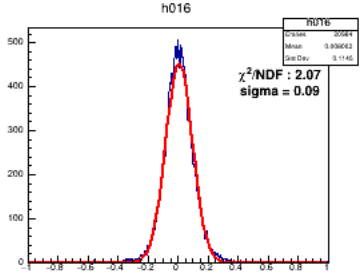

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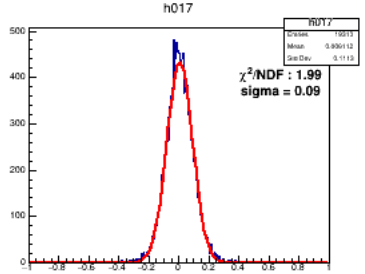

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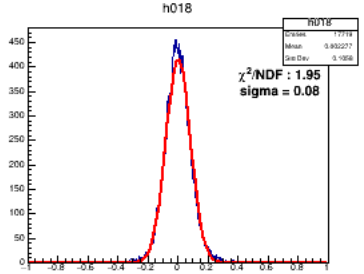
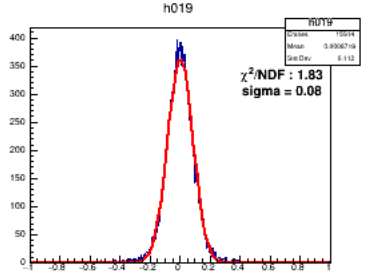


h019



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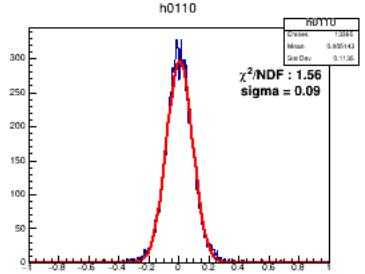

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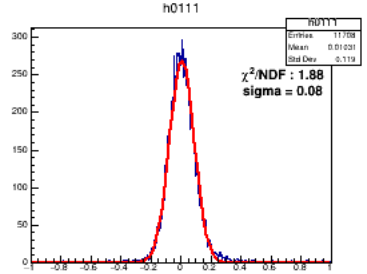

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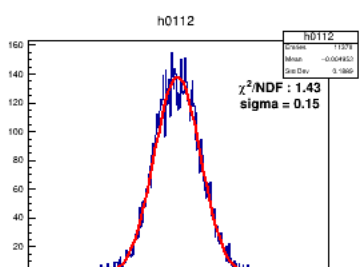

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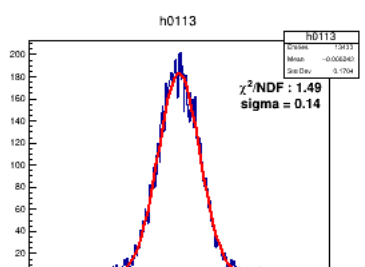

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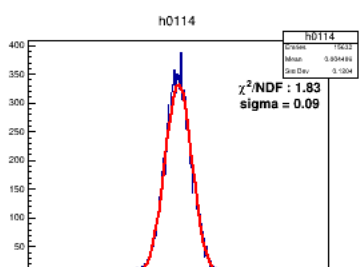

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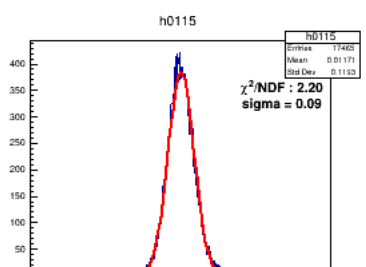

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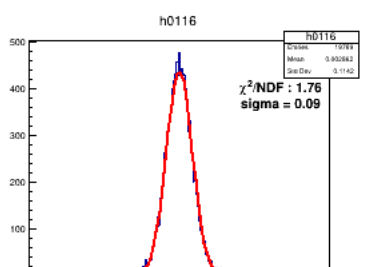

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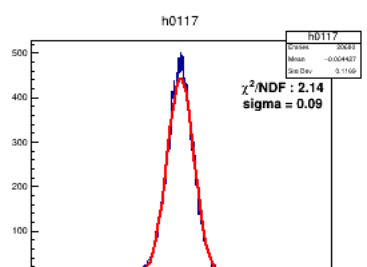

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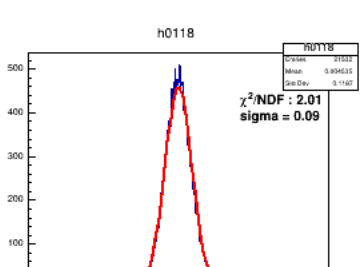

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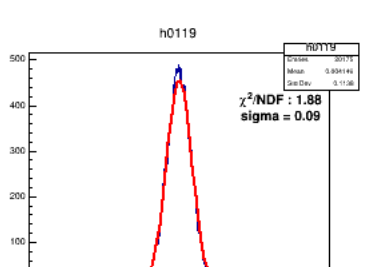

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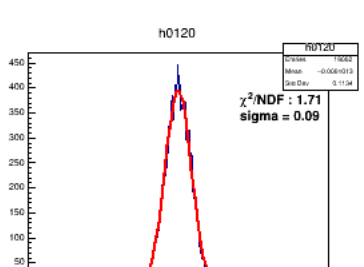

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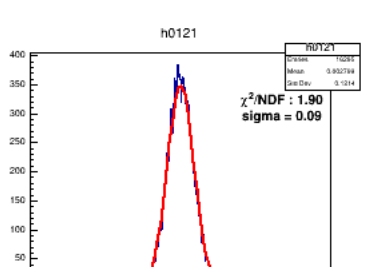

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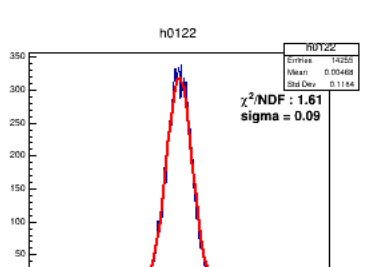

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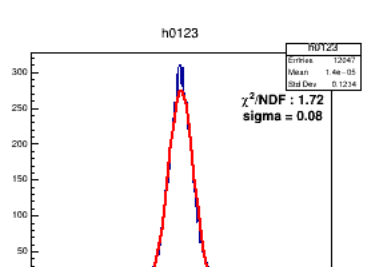
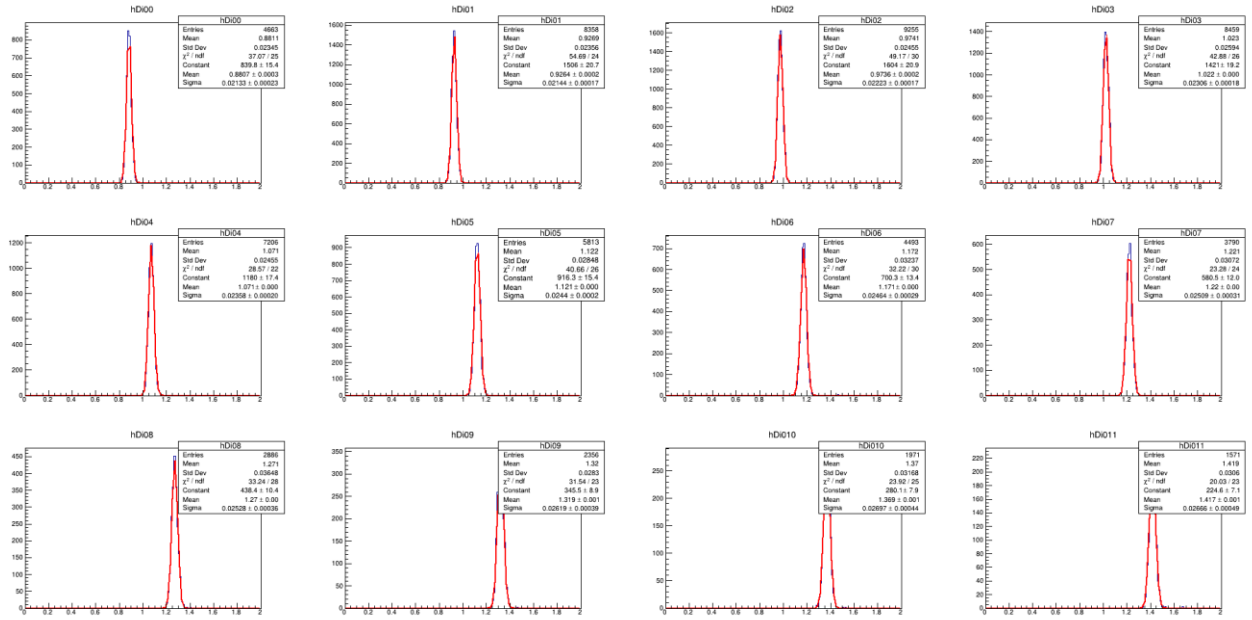
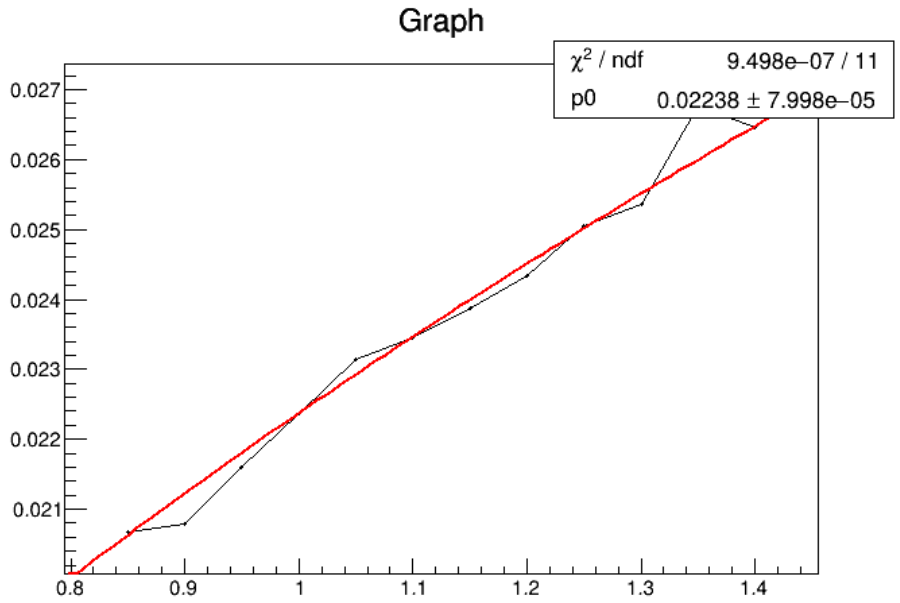


Comparing FWHM

- Comparing FWHM/MPV of the geometric mean of height and that of Integral

	Prev	100ns
height	32.74	31.84
integ	32.73	32.43

Energy Resolution

- Check $\sigma \sim \sqrt{E}$