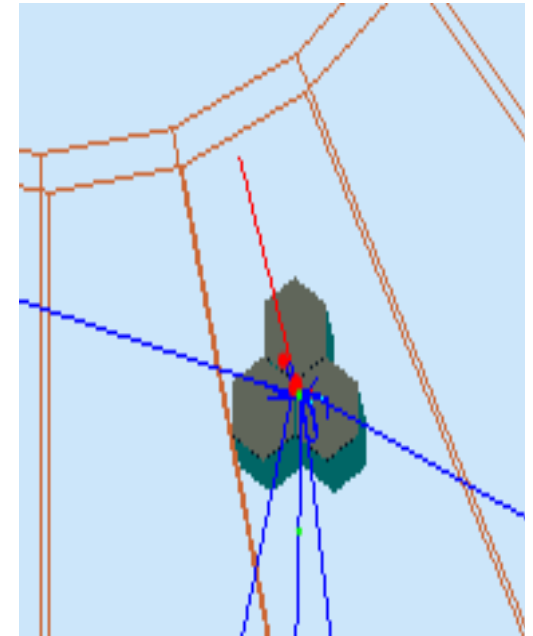
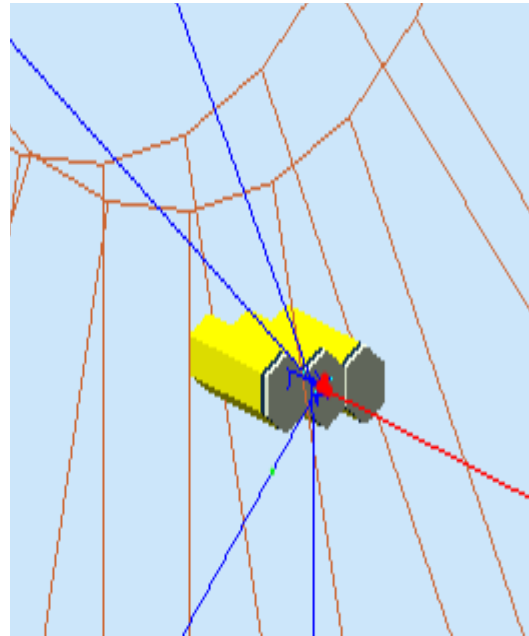
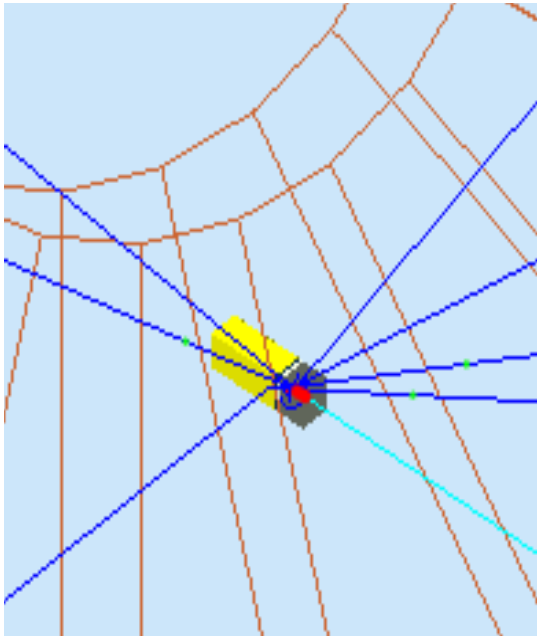


# Beam test module simulation

1. 100 MeV/c,  $e^+$  and  $\pi^+$
2. 200 MeV/c,  $e^+$  and  $\pi^+$

No field, straight hit the center module

No prelead

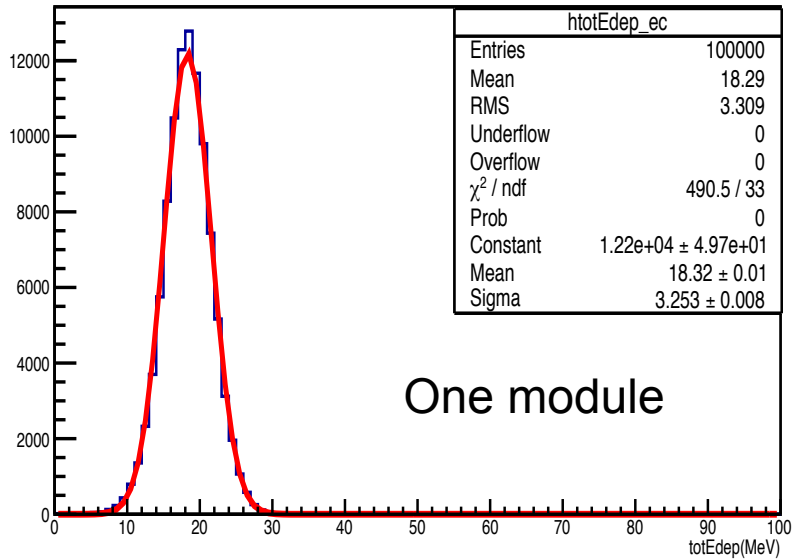


No prelead

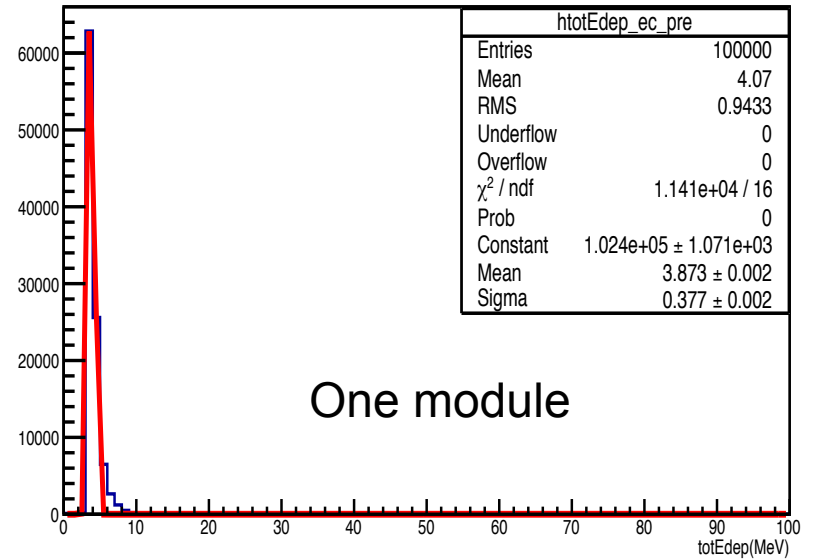
Modules  $Y = -120.984\text{cm}$ ,  $X = -39.116\text{cm}$ ;  $Y = -117.575-1\text{cm}$ ,  $X = -44.704+1\text{cm}$ ;

# 100 MeV/c, e+

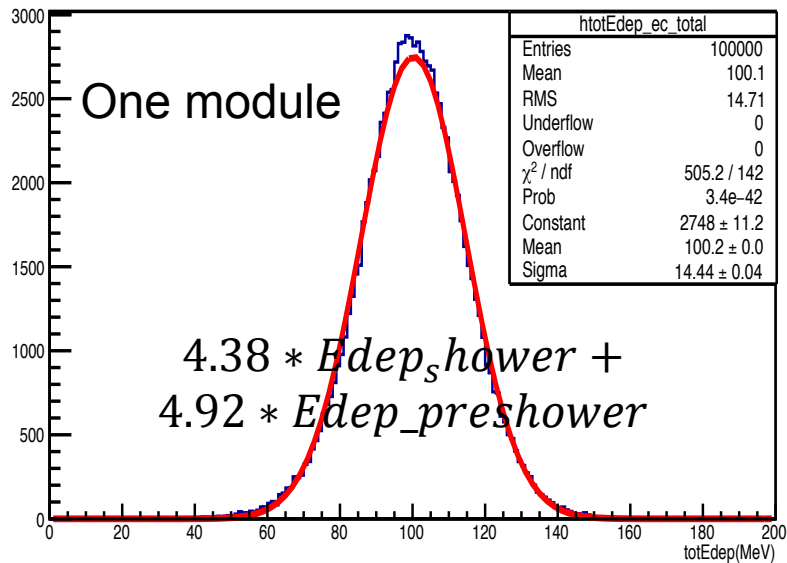
EC shower



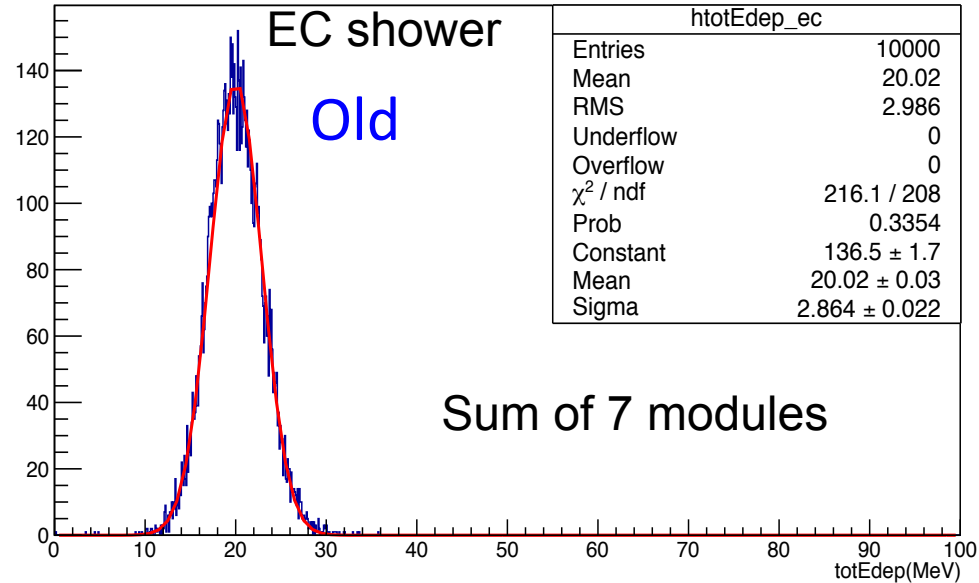
EC preshower



EC preshower



EC shower

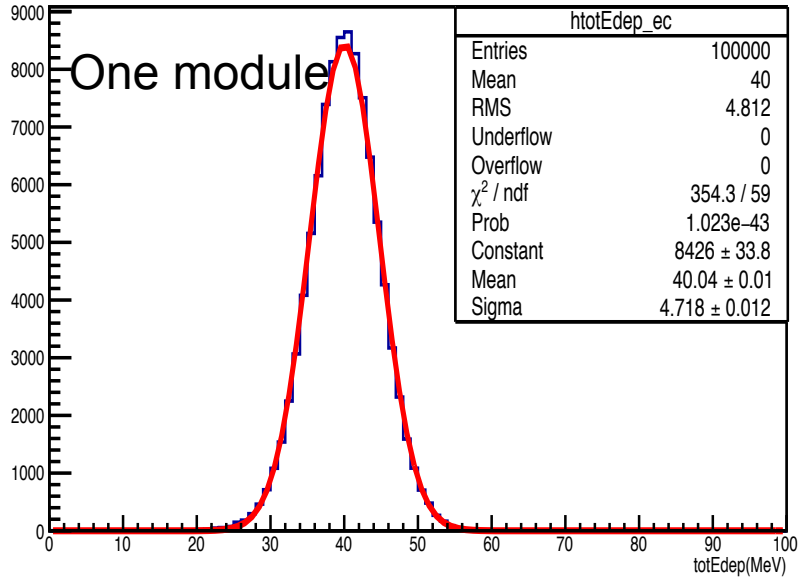


# 100 MeV e<sup>+</sup>

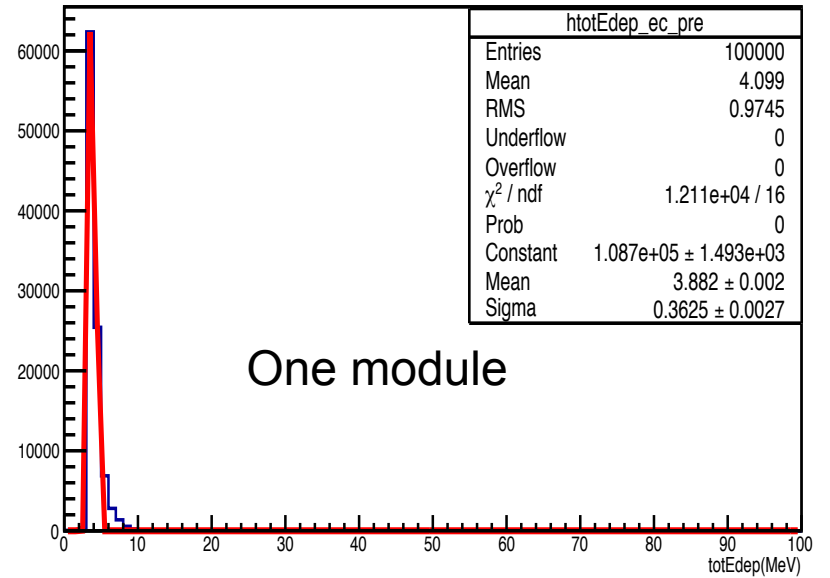
		Shower (MeV)	Preshower (MeV)	Total (MeV)
1 module	$\mu$	18.32±0.01	3.873±0.002	100.2±0.0
	$\sigma$	3.253±0.008	0.377±0.002	14.44±0.04
3 modules	$\mu$	18.87±0.01	3.873±0.002	102.8±0.0
	$\sigma$	3.193±0.008	0.3796±0.0022	14.16±0.04
3 modules (TR)	$\mu$	19.11±0.01	3.869±0.002	103.5±0.0
	$\sigma$	3.253±0.009	0.3922±0.002	14.44±0.04
7 modules	$\mu$	20.01±0.03	3.878±0.005	107.1±0.1
	$\sigma$	2.931±0.022	0.377±0.0073	12.88±0.10
7 modules center only	$\mu$	18.4±0.0	3.869±0.006	100.5±0.1
	$\sigma$	3.206±0.025	0.3741±0.0072	14.15±0.11

# 200 MeV/c, e+

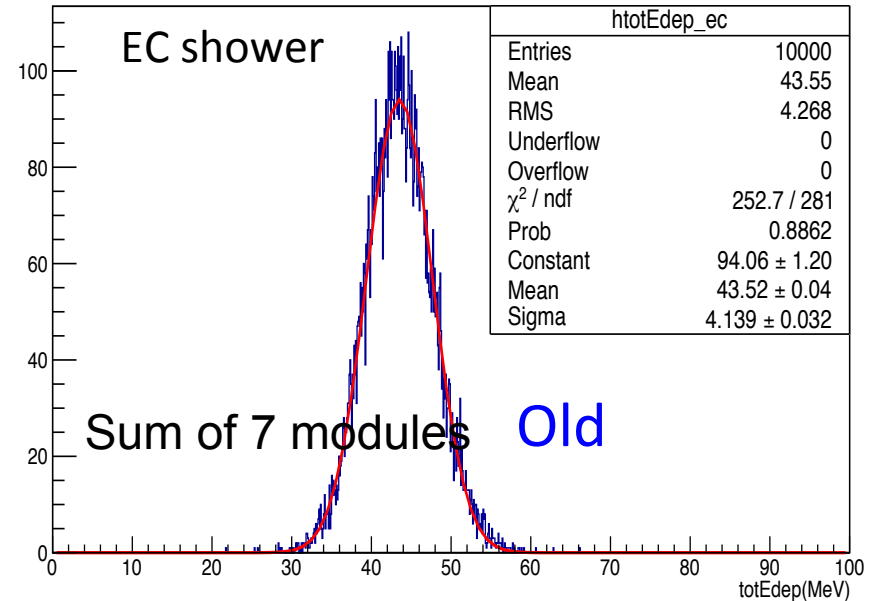
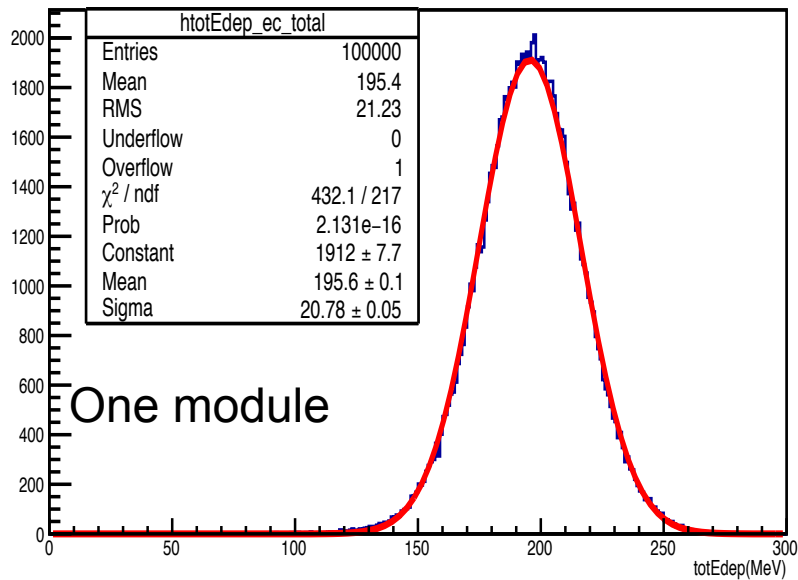
EC shower



EC preshower



EC total

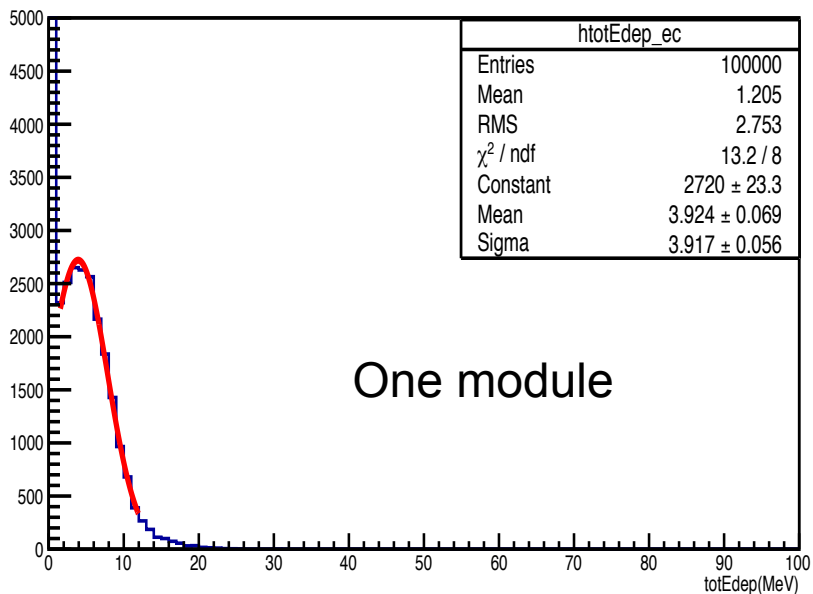


# 200 MeV e<sup>+</sup>

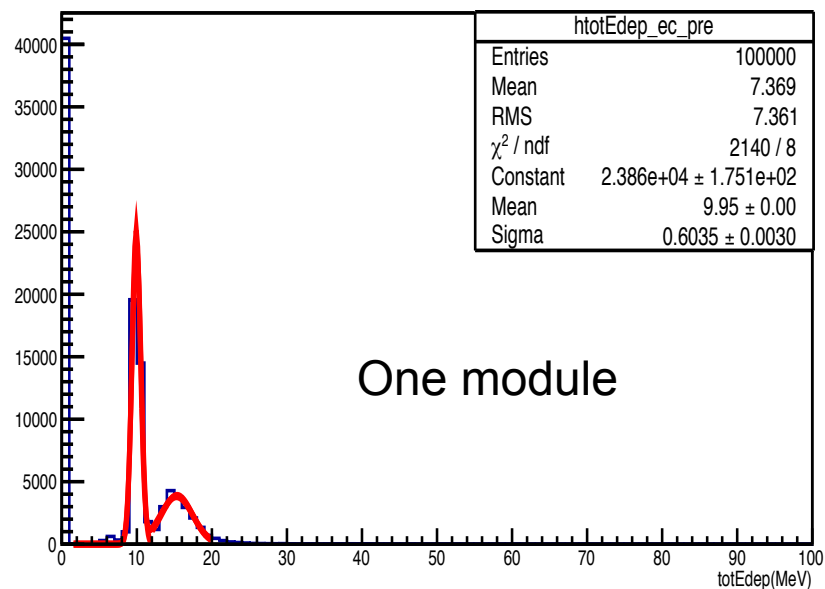
		<b>Shower (MeV)</b>	<b>Preshower (MeV)</b>	<b>Total (MeV)</b>
1 module	$\mu$	40.04±0.01	3.882±0.002	195.6±0.1
	$\sigma$	4.718±0.012	0.3625±0.0027	20.78±0.05
3 modules	$\mu$	41.19±0.01	3.885±0.002	200.7±0.1
	$\sigma$	4.618±0.011	0.3673±0.0026	20.33±0.05
3 modules (TR)	$\mu$	41.1±0.0	3.885±0.002	200.1±0.1
	$\sigma$	4.851±0.013	0.3798±0.0023	21.33±0.06
7 modules	$\mu$	43.54±0.04	3.892±0.006	211.1±0.2
	$\sigma$	4.223±0.032	0.3657±0.0086	18.53±0.14
7 modules center only	$\mu$	40.13±0.05	3.882±0.006	196±0.2
	$\sigma$	4.672±0.035	0.3619±0.0085	20.5±0.2

# 100 MeV/c, $\pi^+$

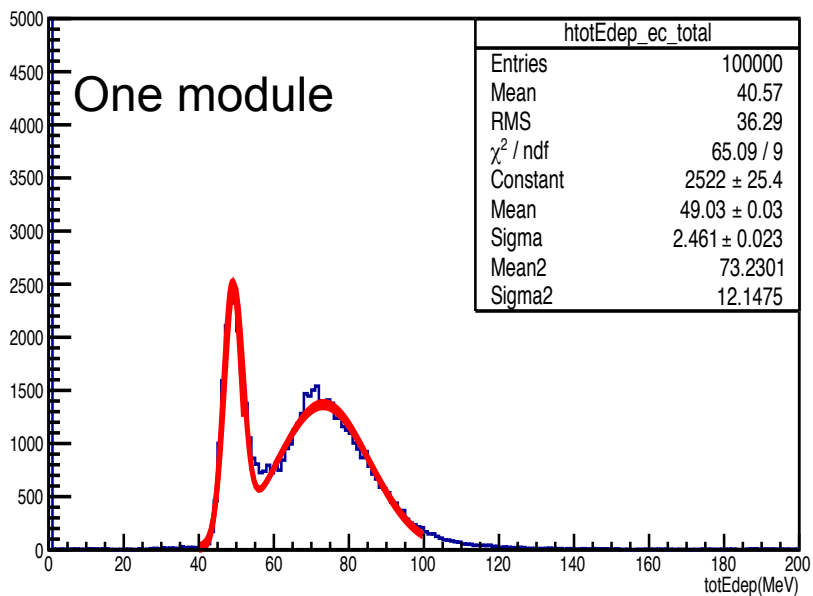
EC shower



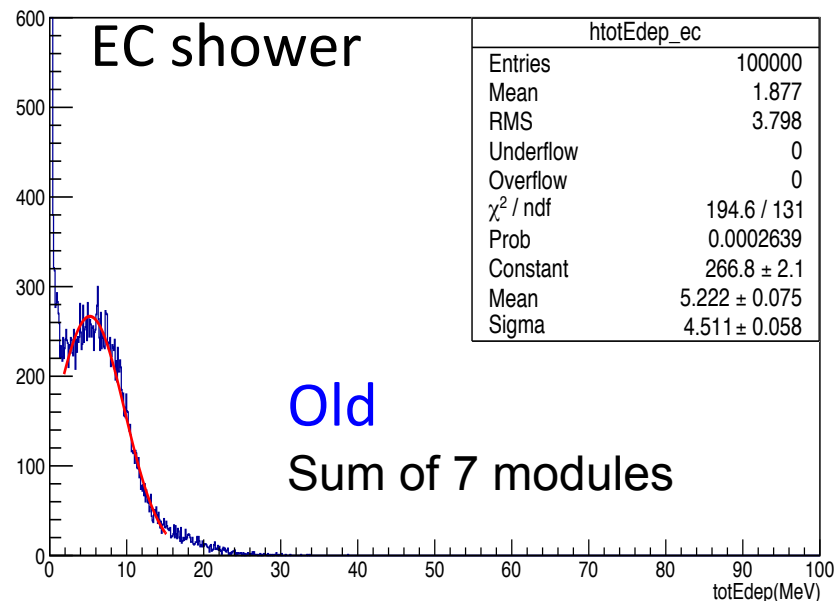
EC preshower



EC total



EC shower

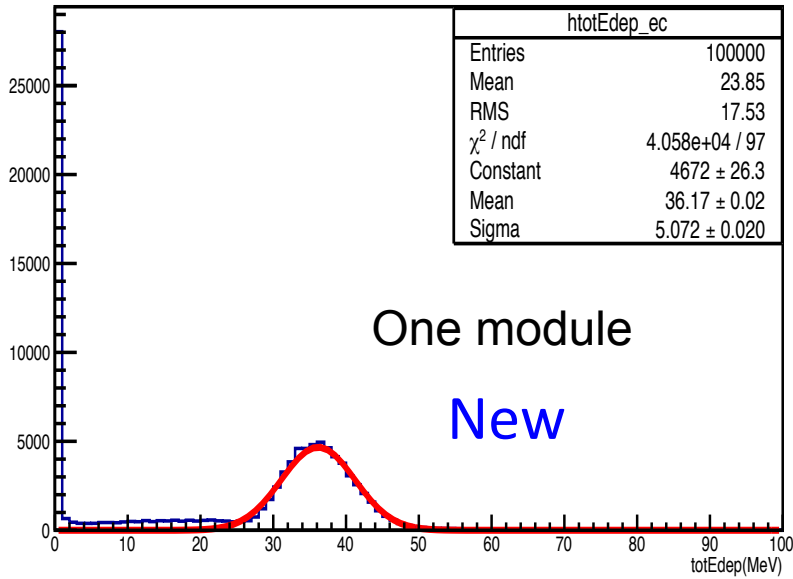


# 100 MeV $\pi^+$

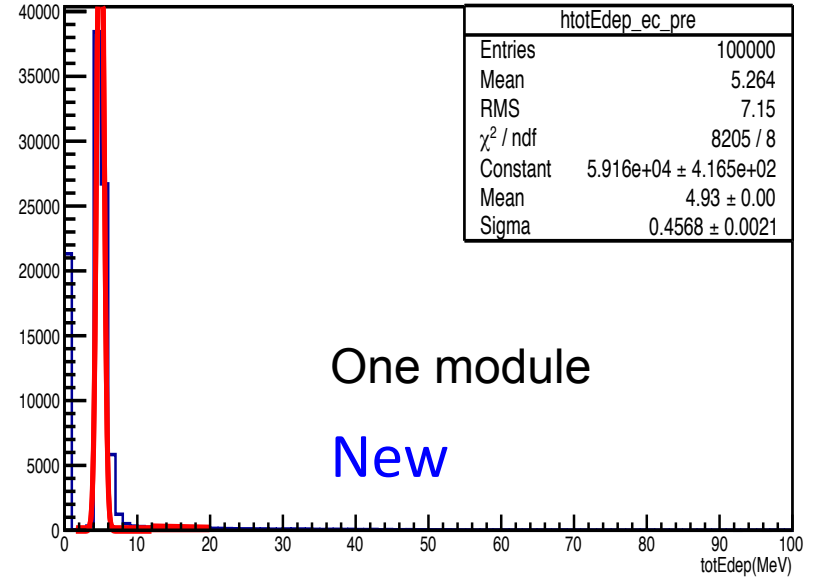
		<b>Shower (MeV)</b>	<b>Preshower (MeV)</b>	<b>Total (MeV)</b>
1 module	$\mu$	3.924±0.069	15.28±0.018	73.23±0.076
	$\sigma$	3.917±0.056	2.17±0.021	12.147±0.06
3 modules	$\mu$	3.942±0.087	15.27±0.02	73.86±0.083
	$\sigma$	4.447±0.075	2.30±0.025	12.98±0.076
3 modules (TR)	$\mu$	5.88±0.085	13.96±0.04	76.58±0.114
	$\sigma$	6.04±0.17	4.05±0.026	15.25±0.1
7 modules	$\mu$	5.222±0.086	15.27±0.03	75.814±0.08
	$\sigma$	4.511±0.101	2.64±0.07	13.725±0.08

# 200 MeV/c, $\pi^+$

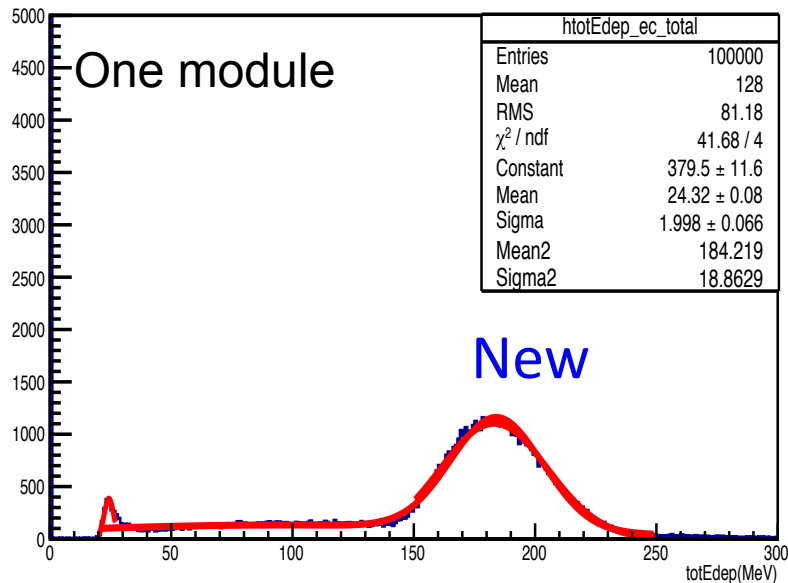
EC shower



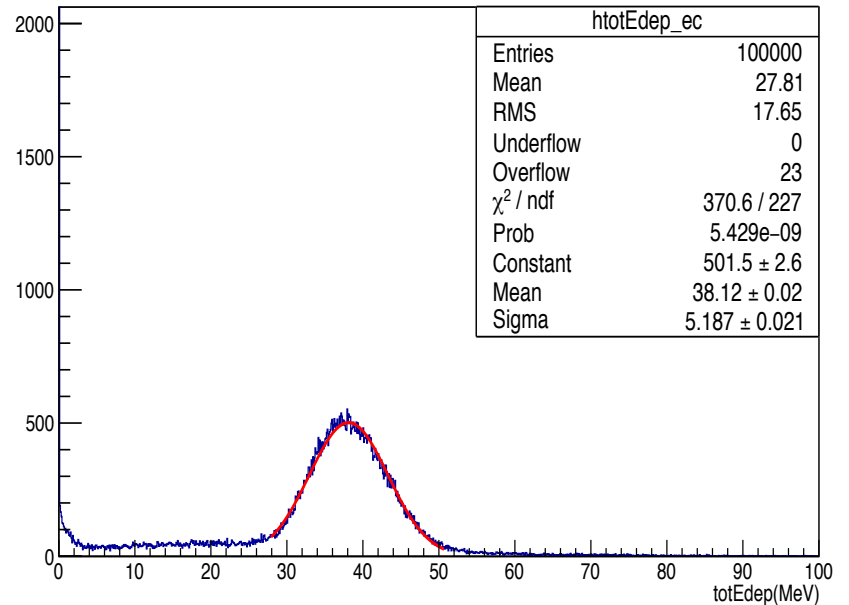
EC preshower



EC total



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# 200 MeV $\pi^+$

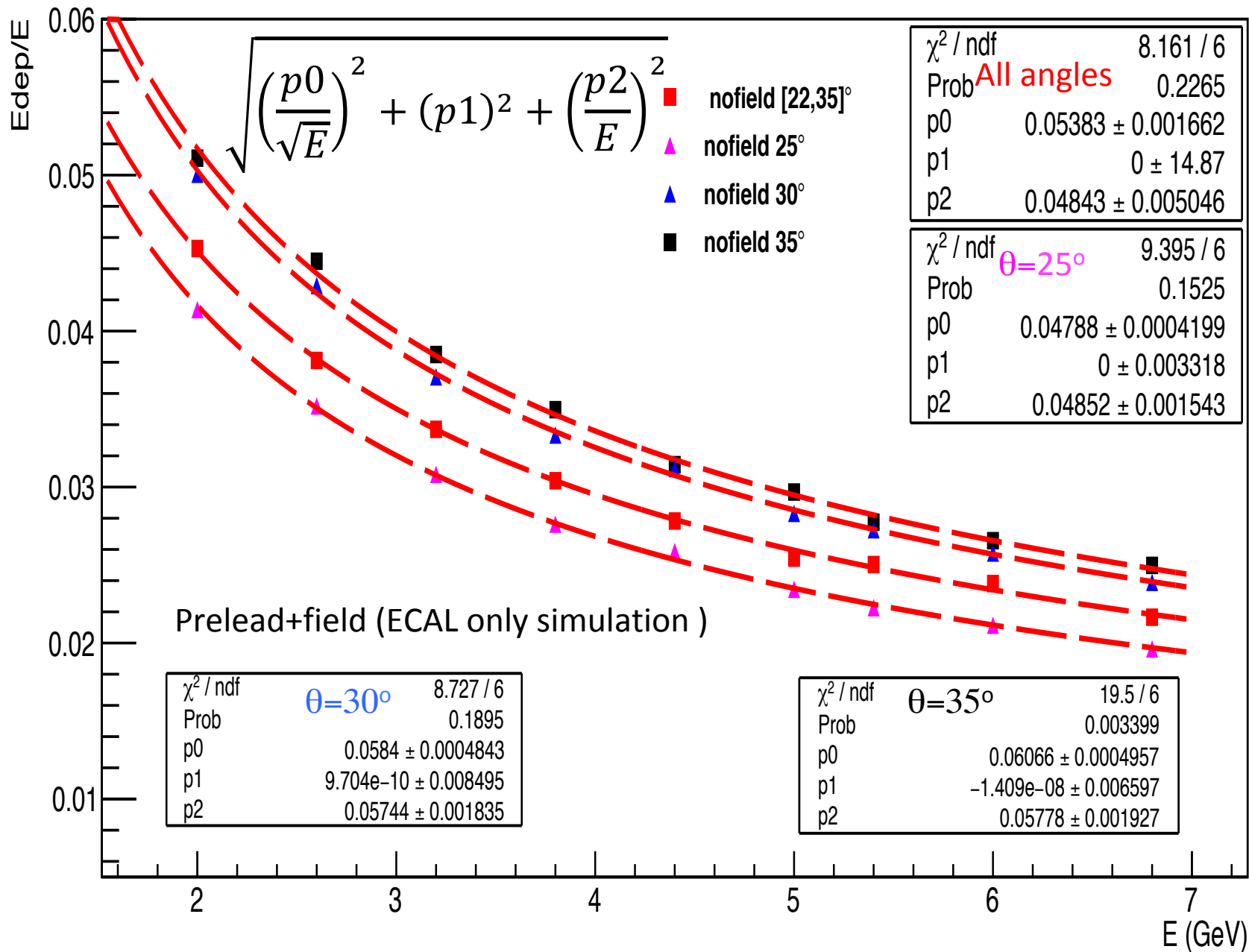
		Shower (MeV)	Preshower (MeV)	Total (MeV)
1 module	$\mu$	36.17 $\pm$ 0.02	4.93 $\pm$ 0.0	184.21 $\pm$ 0.11
	$\sigma$	5.072 $\pm$ 0.020	0.457 $\pm$ 0.0021	18.86 $\pm$ 0.1
3 modules	$\mu$	36.73 $\pm$ 0.02	4.932 $\pm$ 0.002	186.72 $\pm$ 0.12
	$\sigma$	5.393 $\pm$ 0.02	0.479 $\pm$ 0.0021	19.75 $\pm$ 0.11
3 modules (TR)	$\mu$	37.18 $\pm$ 0.02	4.97 $\pm$ 0.002	188.64 $\pm$ 0.12
	$\sigma$	5.53 $\pm$ 0.022	0.497 $\pm$ 0.0021	20.04 $\pm$ 0.12
7 modules	$\mu$	38.12 $\pm$ 0.02	4.937 $\pm$ 0.002	192.36 $\pm$ 0.12
	$\sigma$	5.18 $\pm$ 0.022	0.377 $\pm$ 0.0073	20.39 $\pm$ 0.13

# Summary

- Based on the above simulation results, the difference on  $E$ ,  $\sigma E$ , and  $\sigma E/E$  between the 1-module and the 3-module configurations are negligible.
- $\sigma E/E$  from 7-module configuration is 20% less than that from 1-module or 3-module configuration for both 100MeV/c and 200 MeV/c  $e^+$  beam, and it is about 3% for 200MeV/c  $\pi^+$  beam (15% for 100MeV/c  $\pi^+$ ).

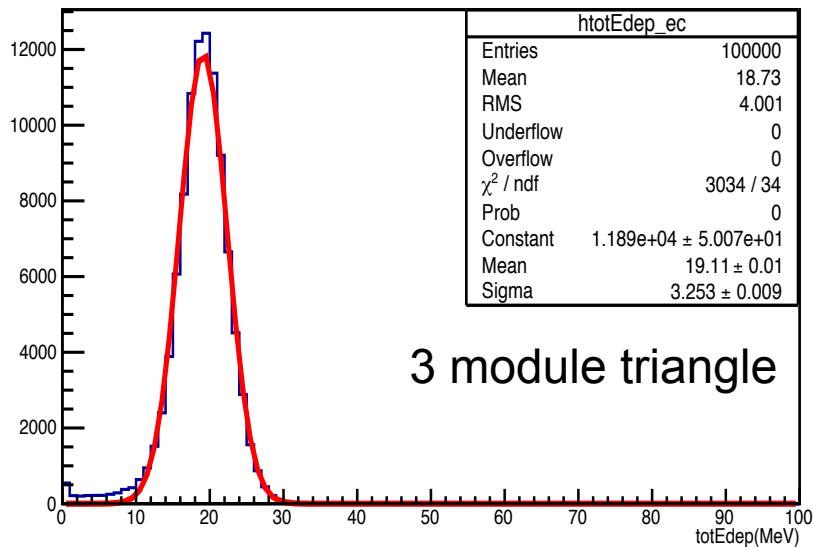
Backup

# EC Shower calibrated energy / E\_toal

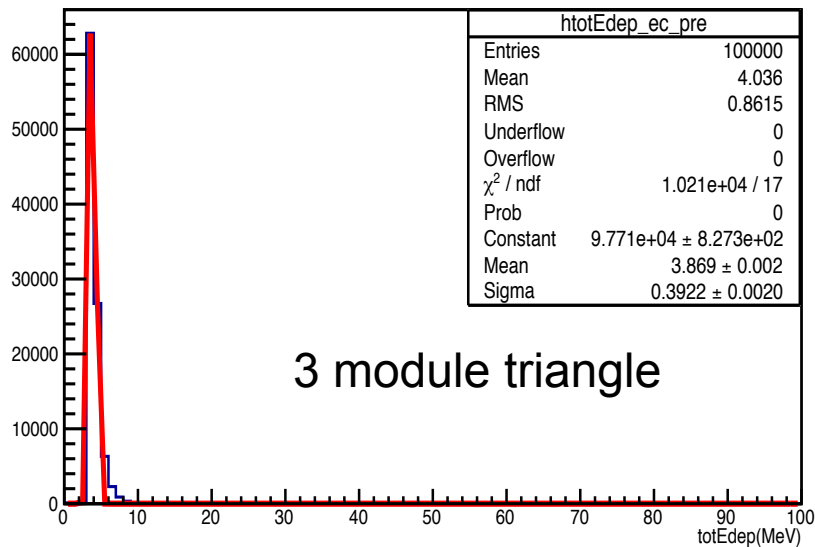


# 100 MeV/c, e+

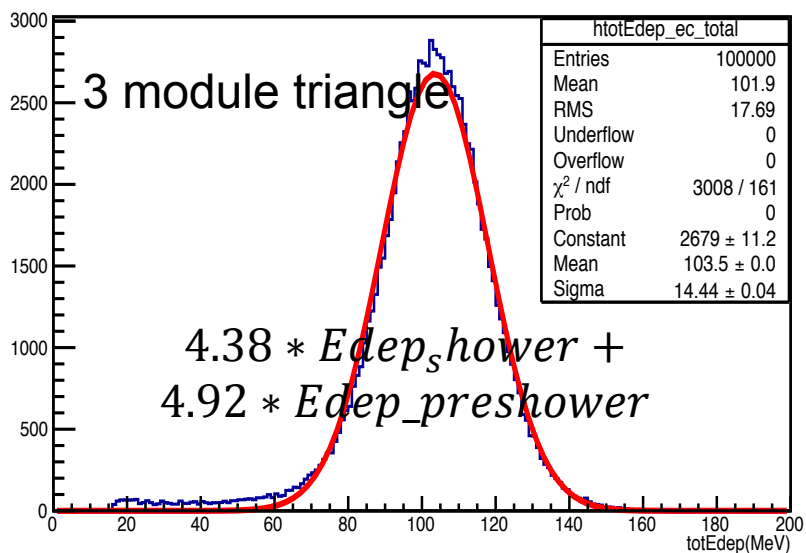
EC shower



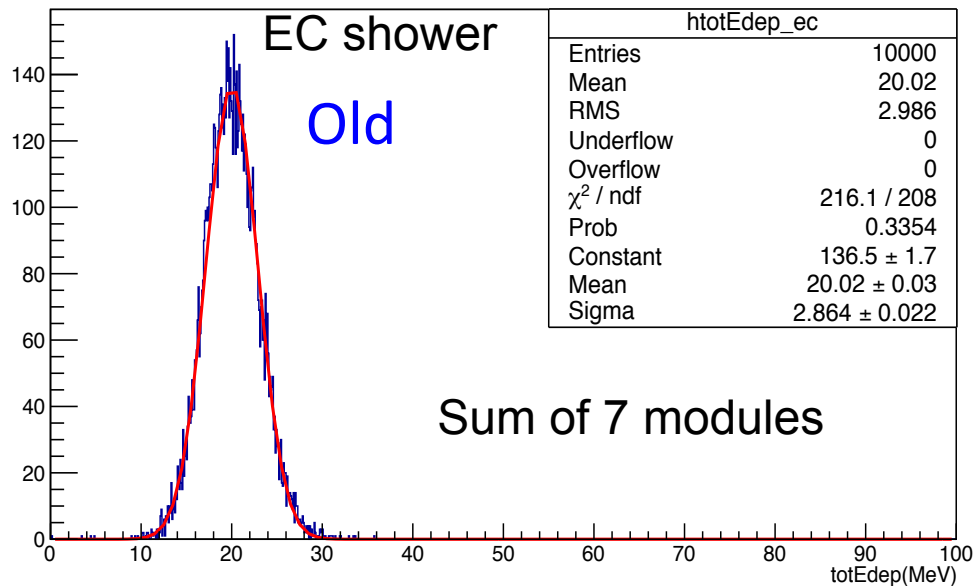
EC preshower



EC preshower

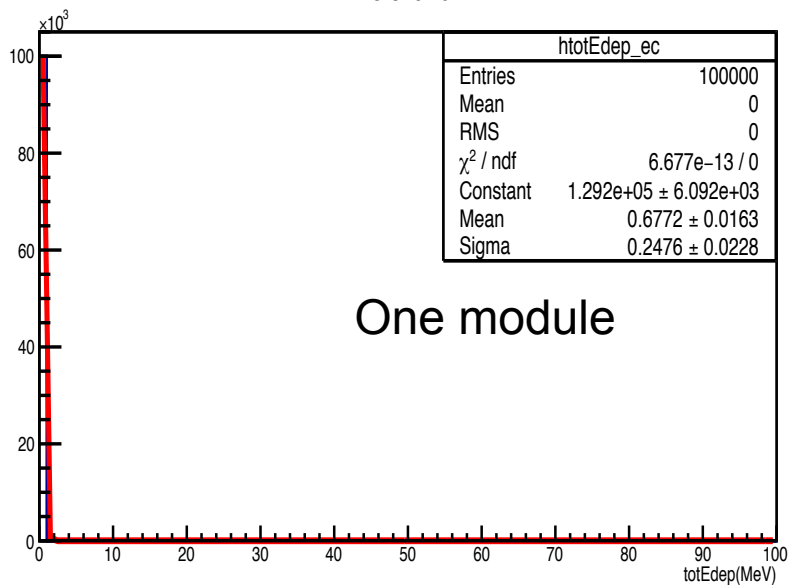


EC shower

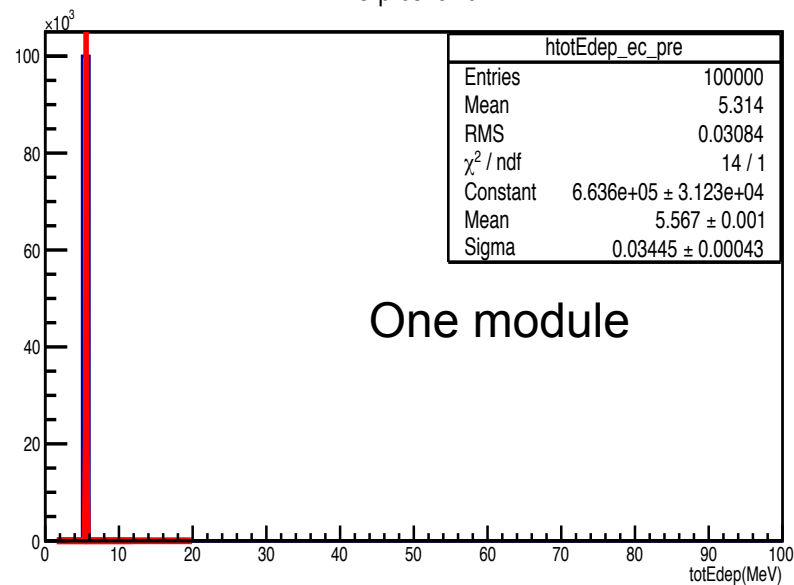


# 100 MeV/c, proton

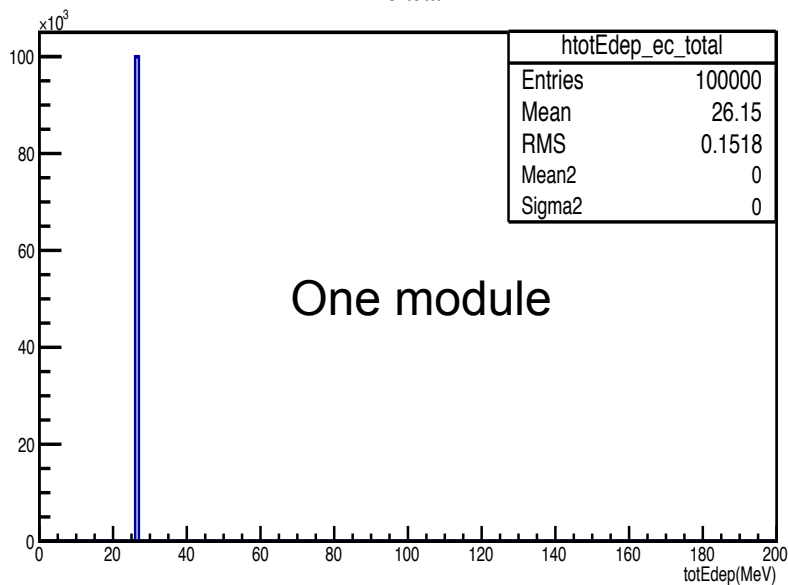
EC shower



EC preshower

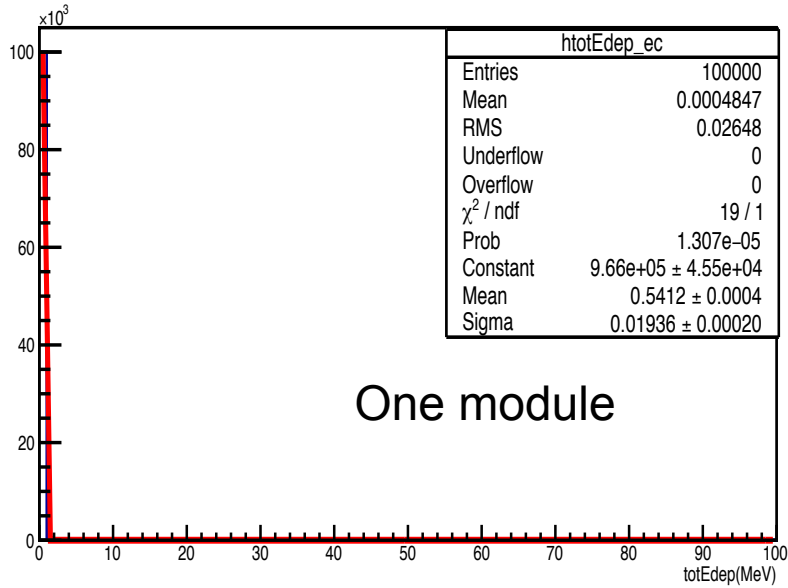


EC total

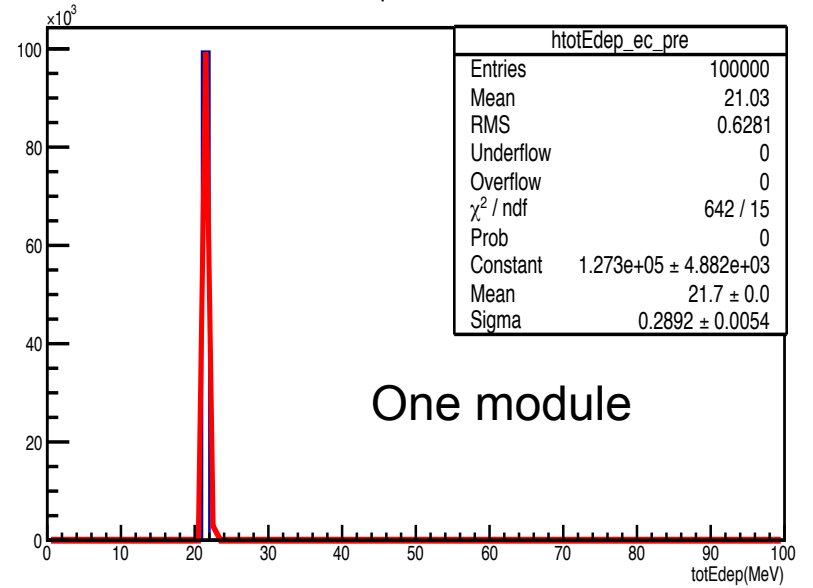


# 200 MeV/c, proton

EC shower



EC preshower



EC total

