CALORIMETRO

CRISTALLO MONOBLOCCO

SETUP (1): single crystal cylinder r=22 cm x 11 cm
SETUP (2): single crystal r=22 cm x 14 cm
SETUP (3): single crystal r=22 cm x 22 cm
SETUP (4): single plastic scintillator r=22 cm x 22 cm

Carbon ion energy: 200, 250, 300 MeV/u

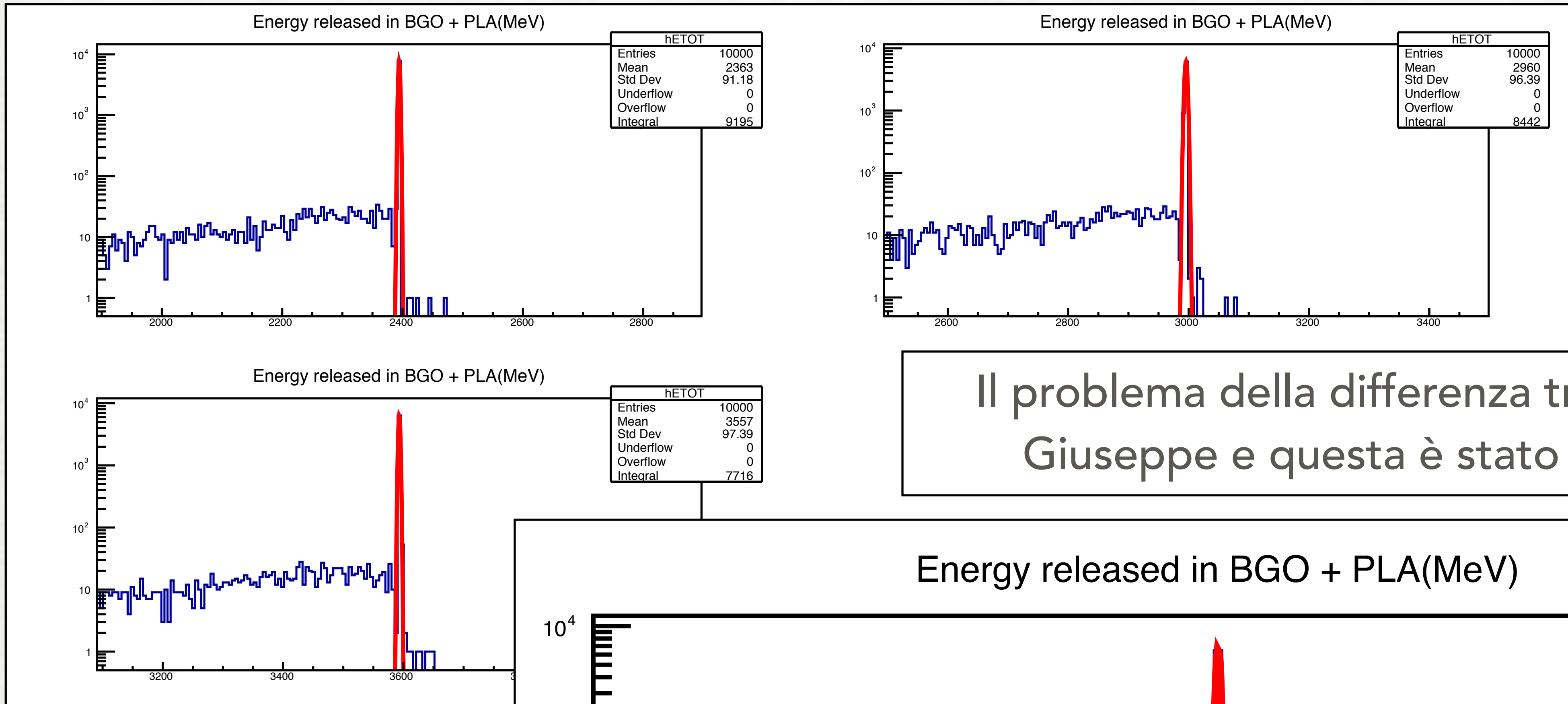
Oxygen ion energy: 200, 250, 300 MeV/u

Litium ion energy: 200, 250, 300 MeV/u

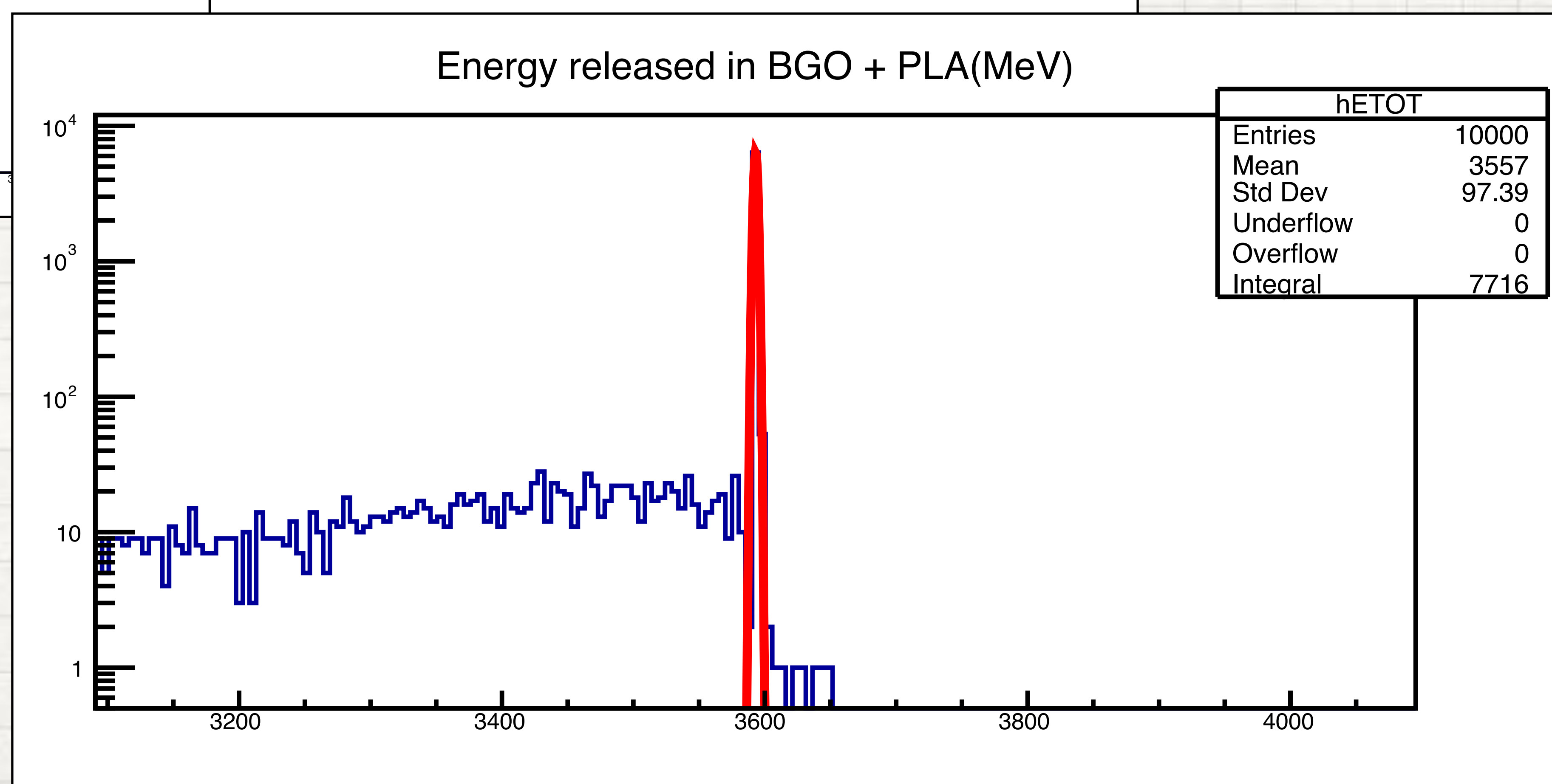
CALORIMETRO@12C

CRISTALLO MONOBLOCCO 11 CM

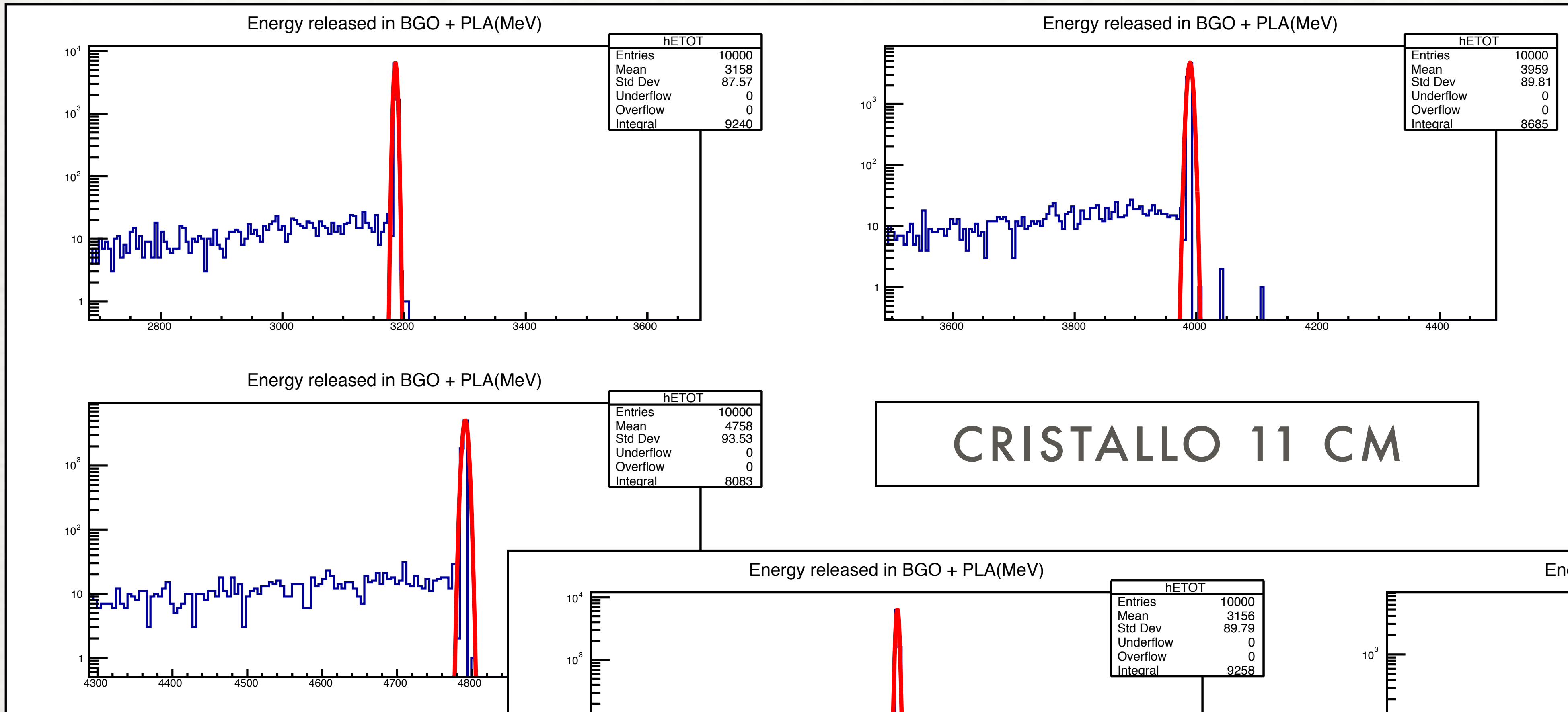
300 MeV/u

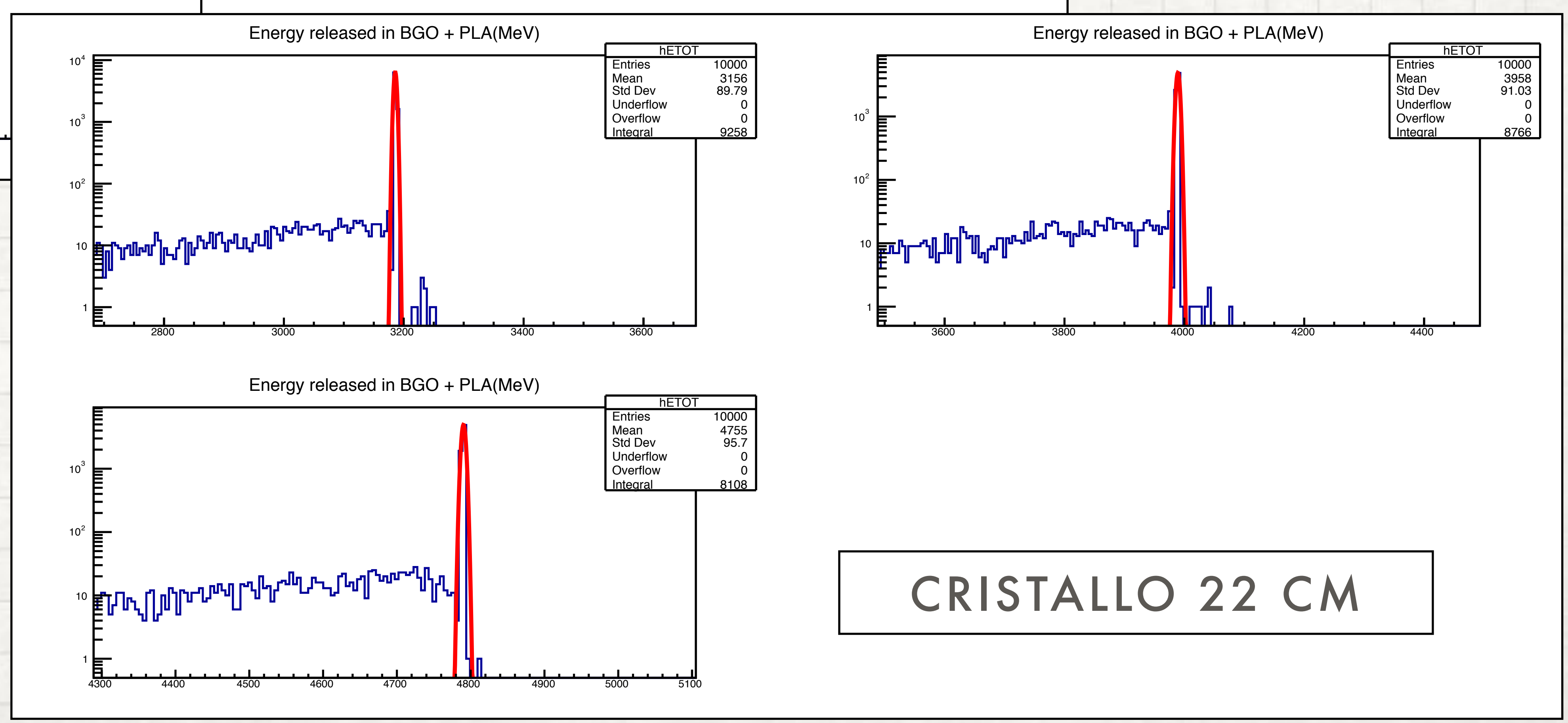


Il problema della differenza tra la simulazione di Giuseppe e questa è stato risolto (baco :))

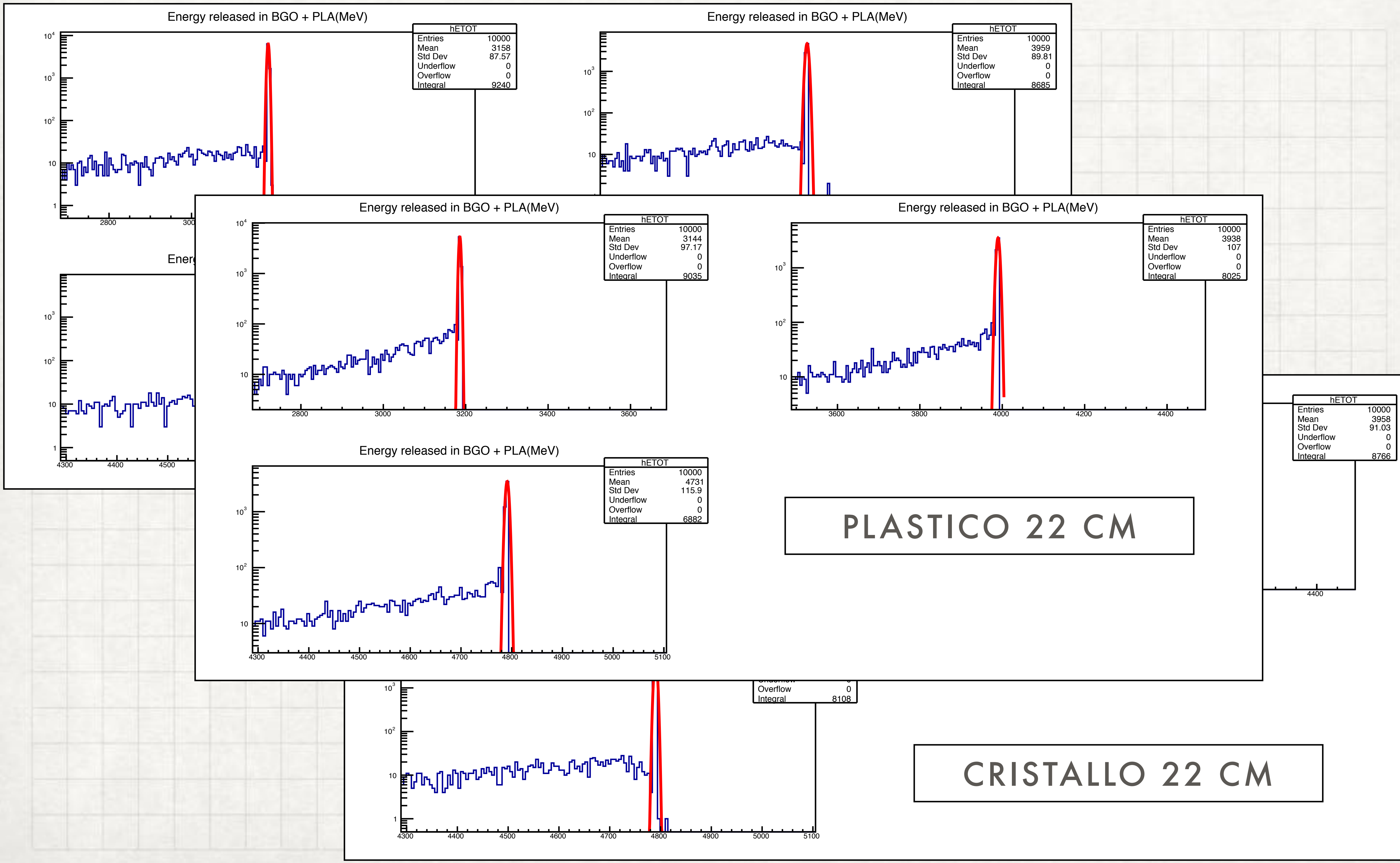


CALORIMETRO@OXY

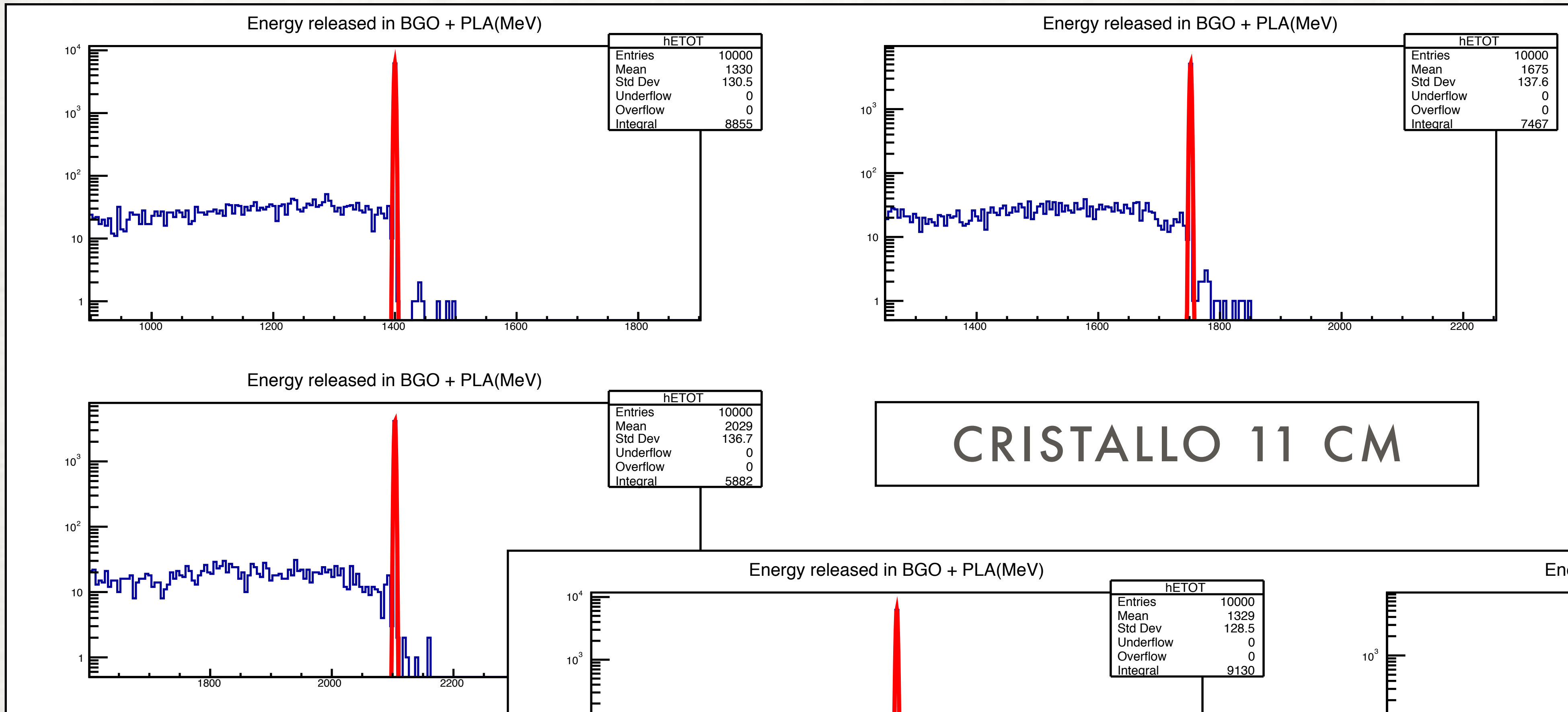


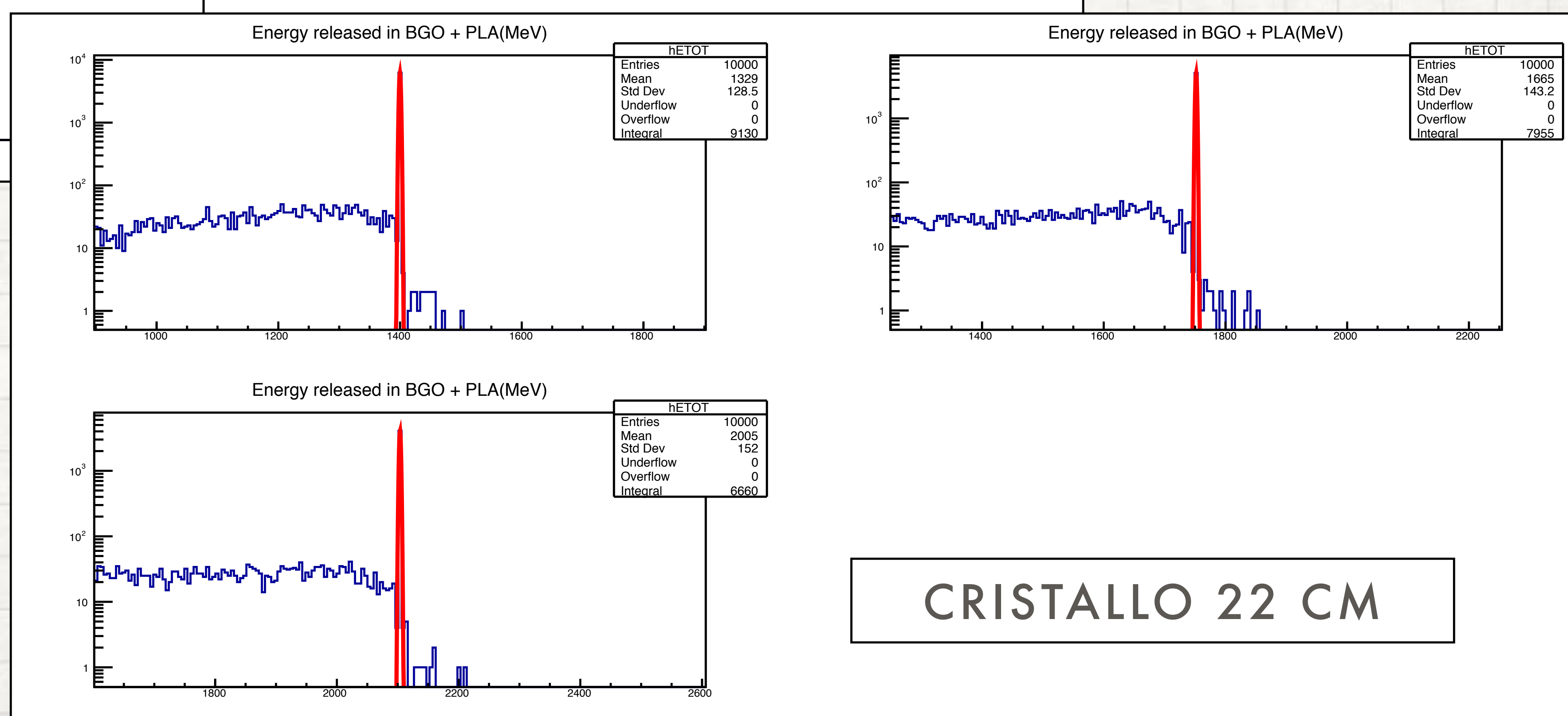


CALORIMETRO@OXY

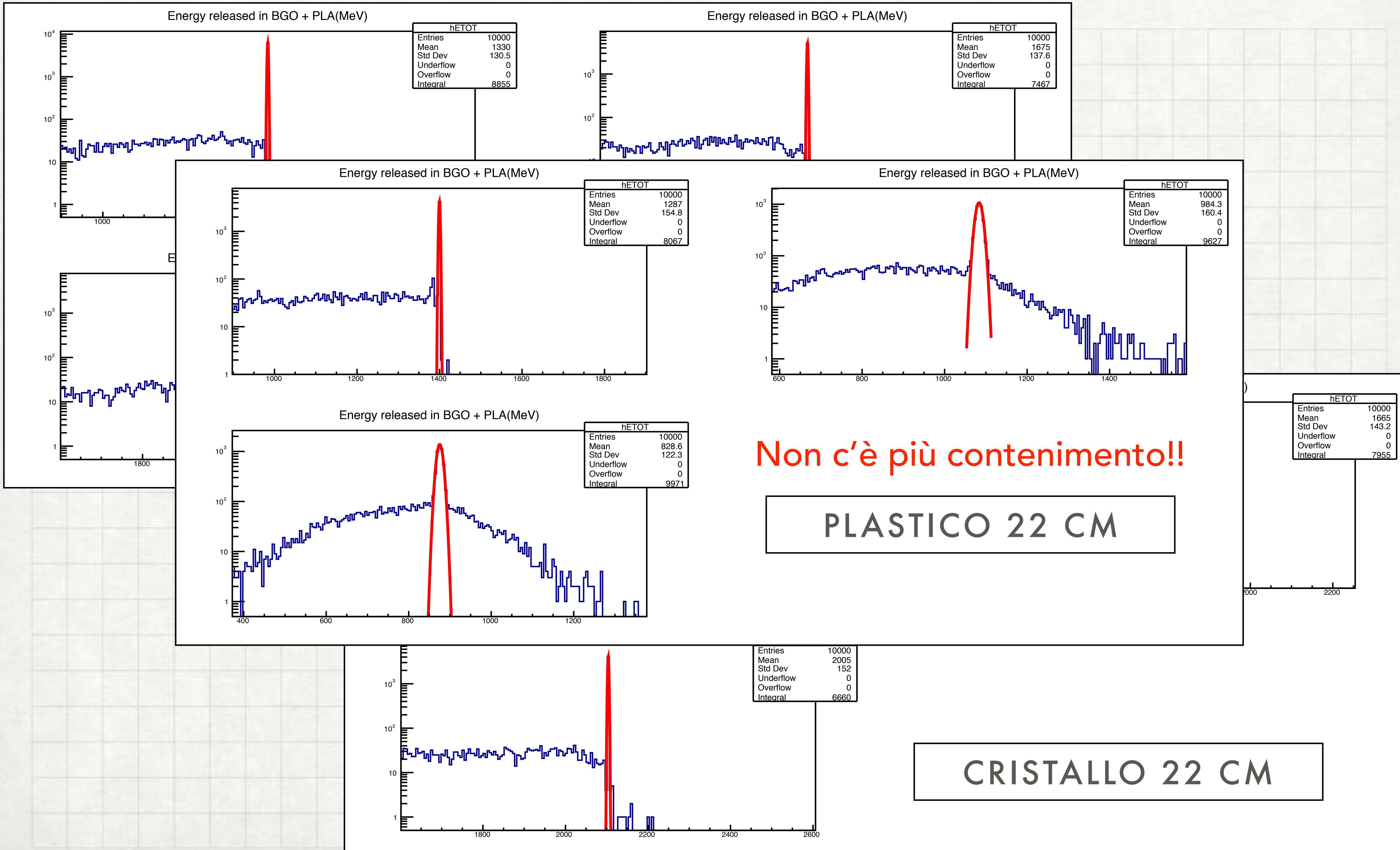


CALORIMETRO@LI





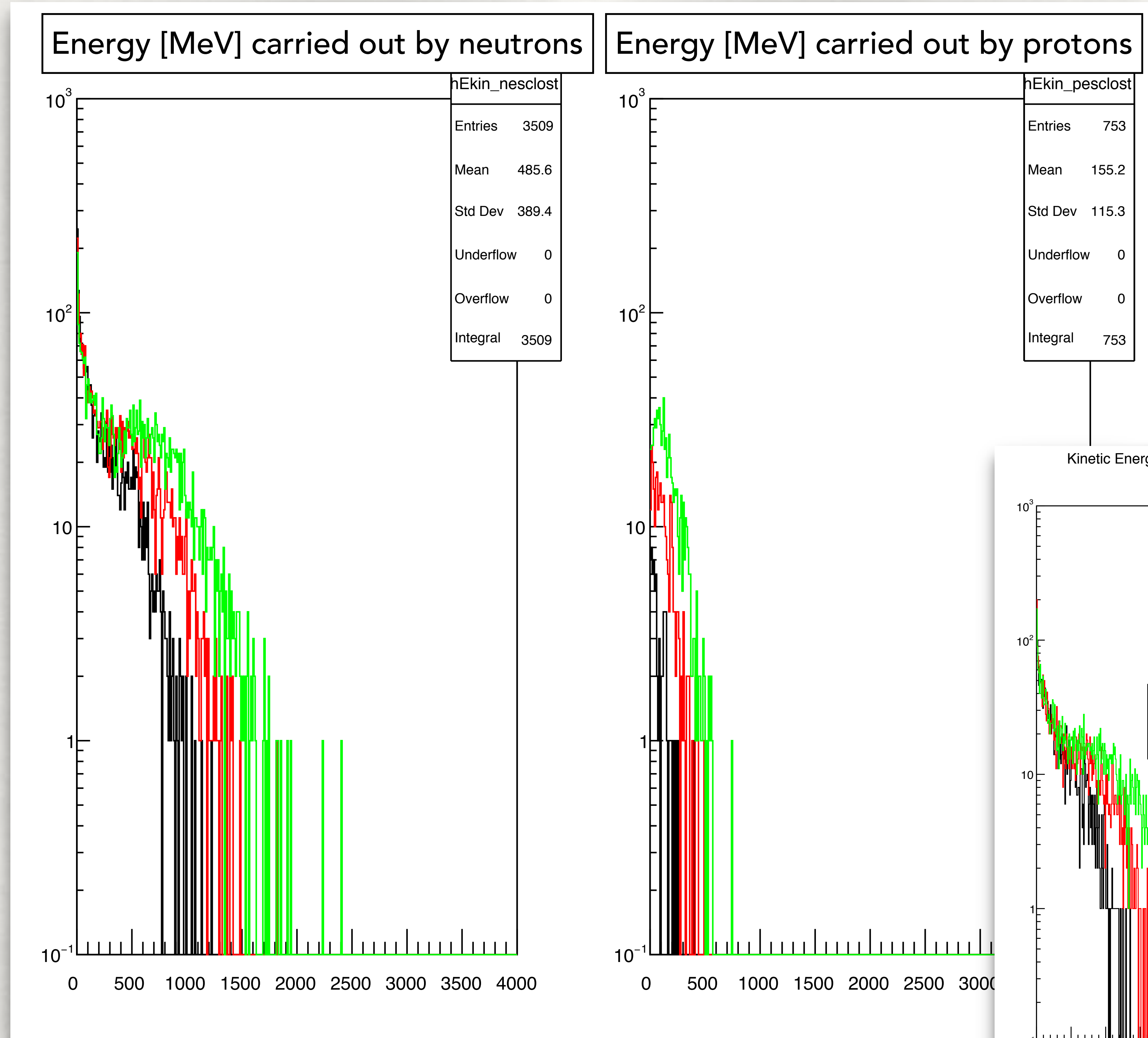
CALORIMETRO@LI

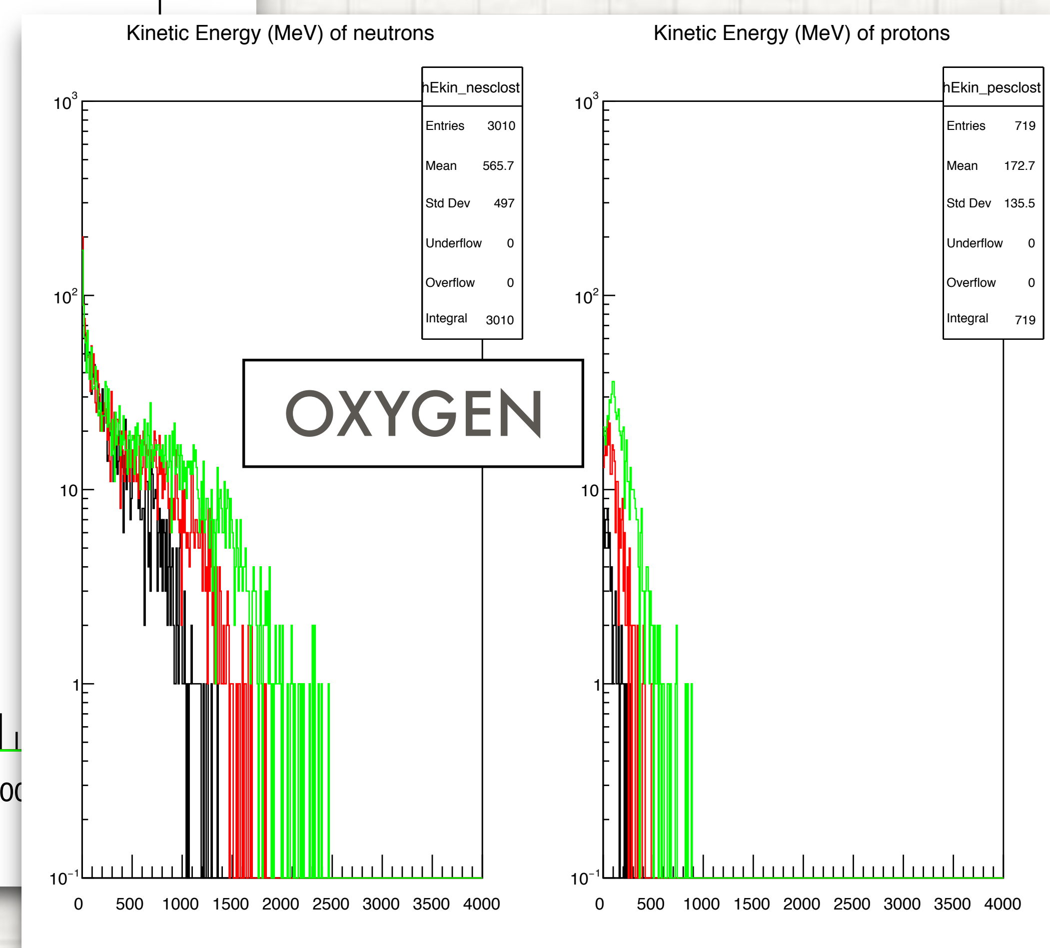


CALORIMETRO@12C

nero = 200 MeV/u
rosso = 250 MeV/u
verde = 300 MeV/u

CRISTALLO 11 CM



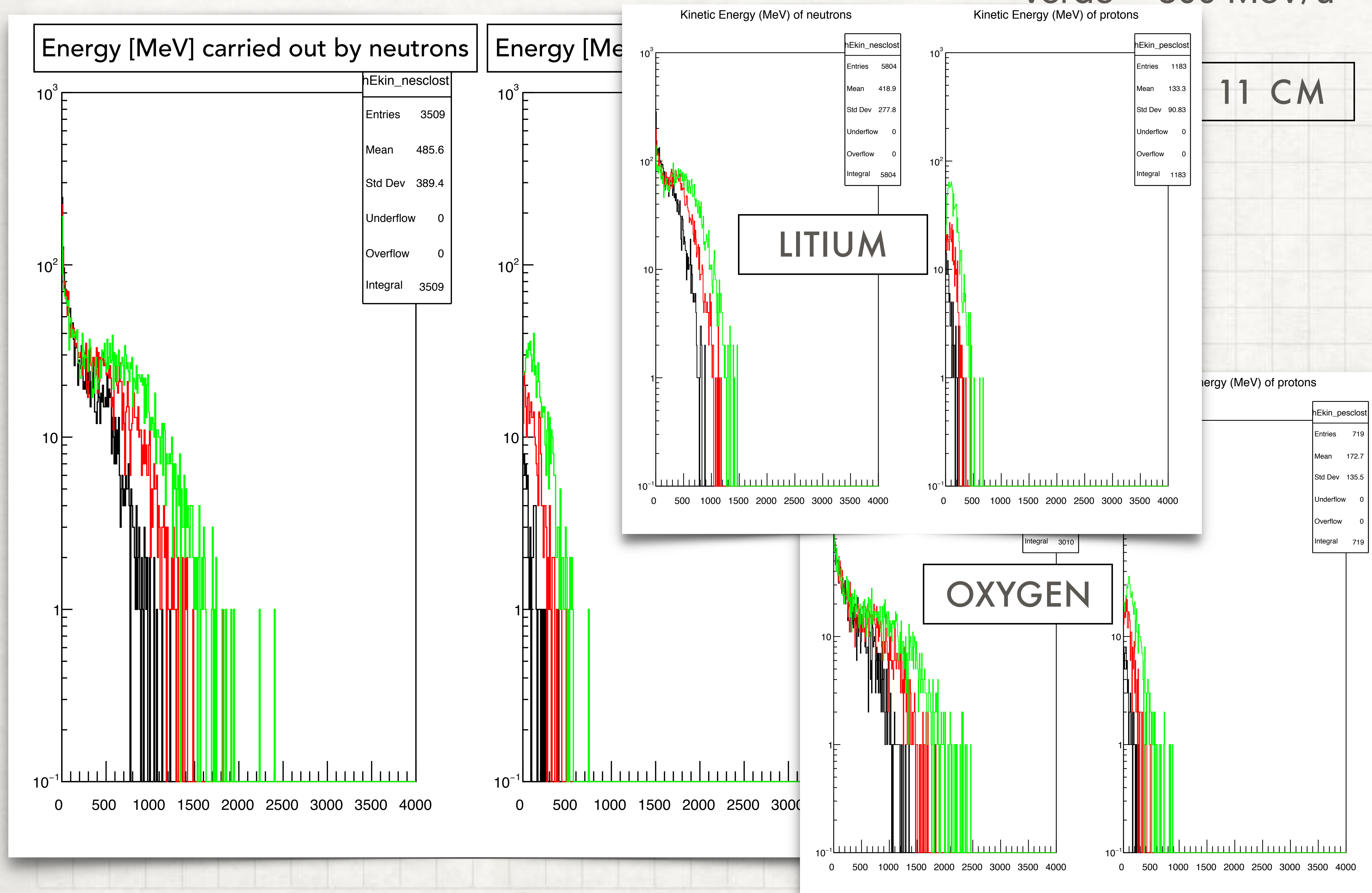


OXYGEN

CALORIMETRO@12C

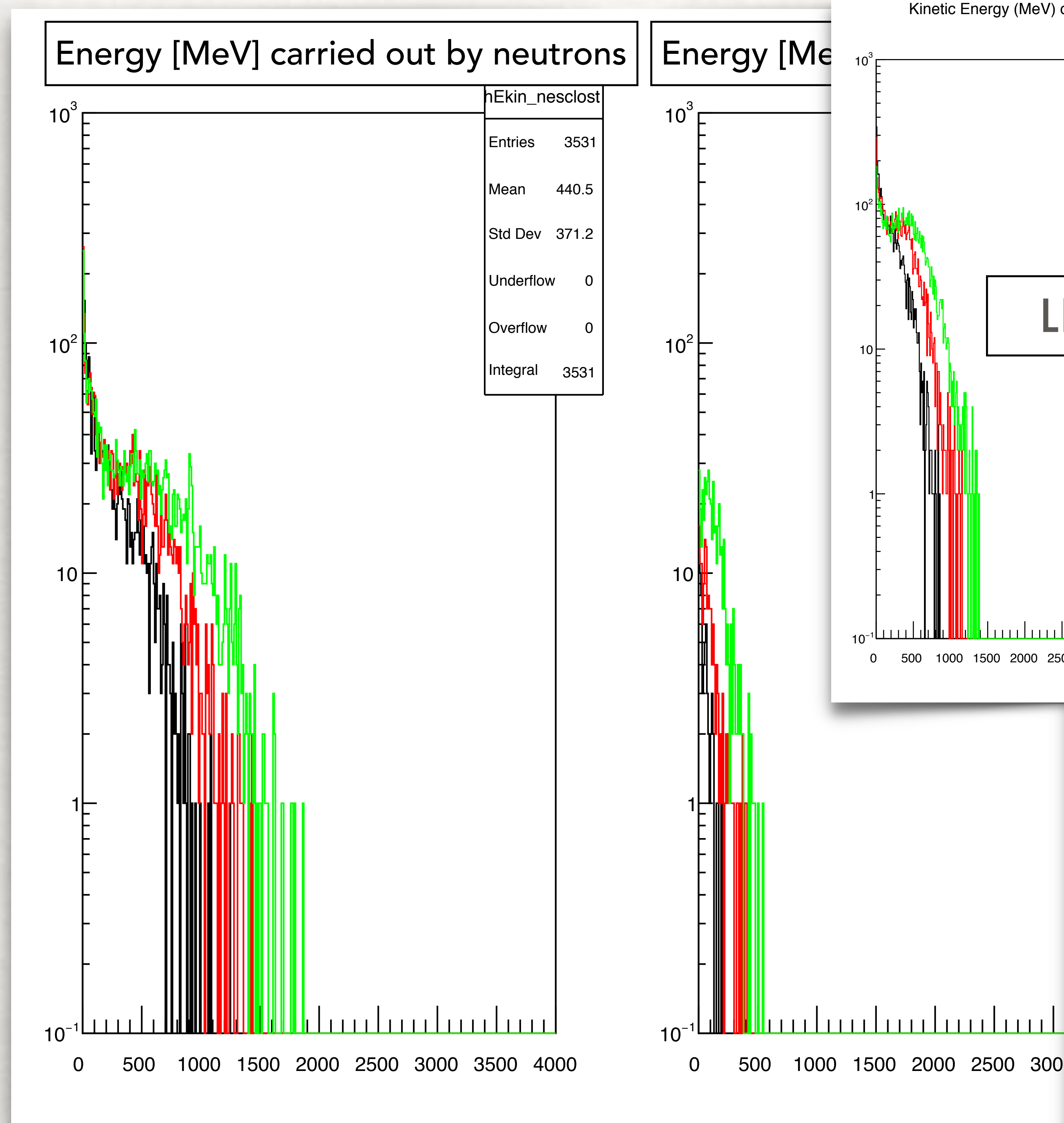
nero = 200 MeV/u
rosso = 250 MeV/u
verde = 300 MeV/u

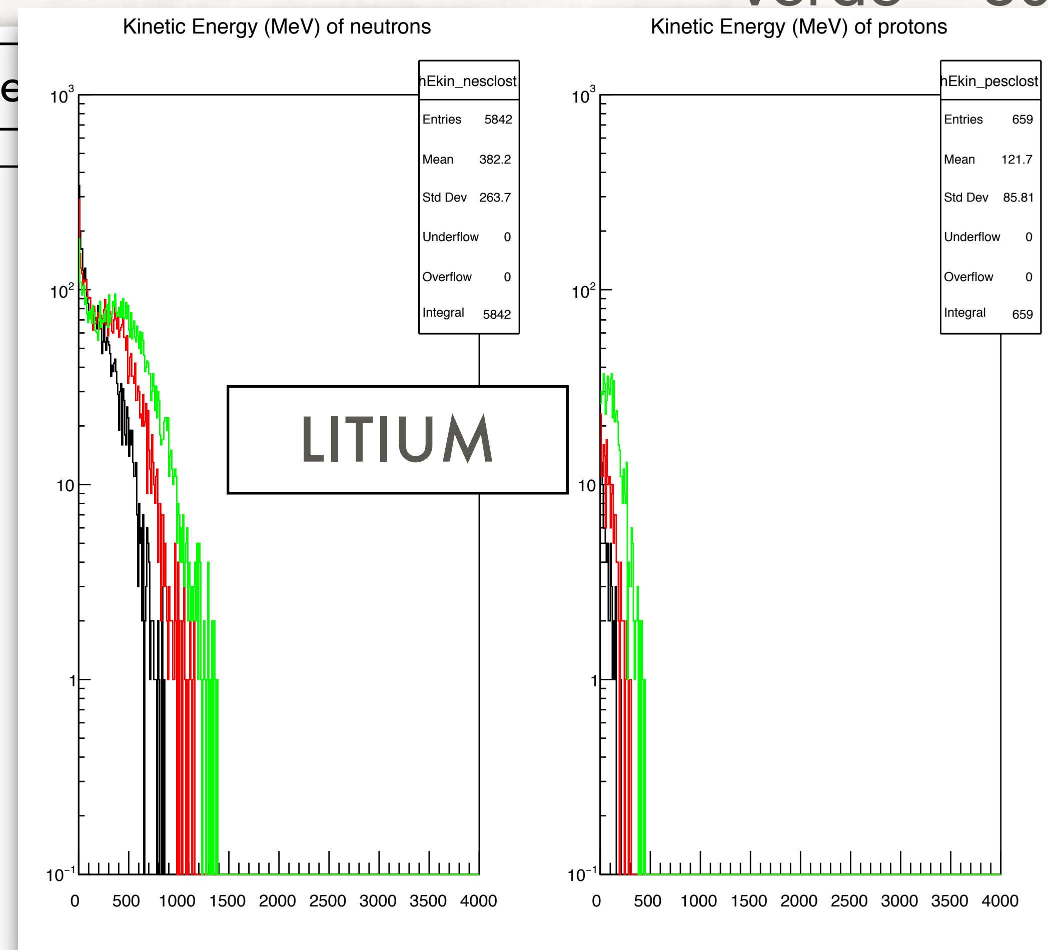
11 CM



CALORIMETRO@12C

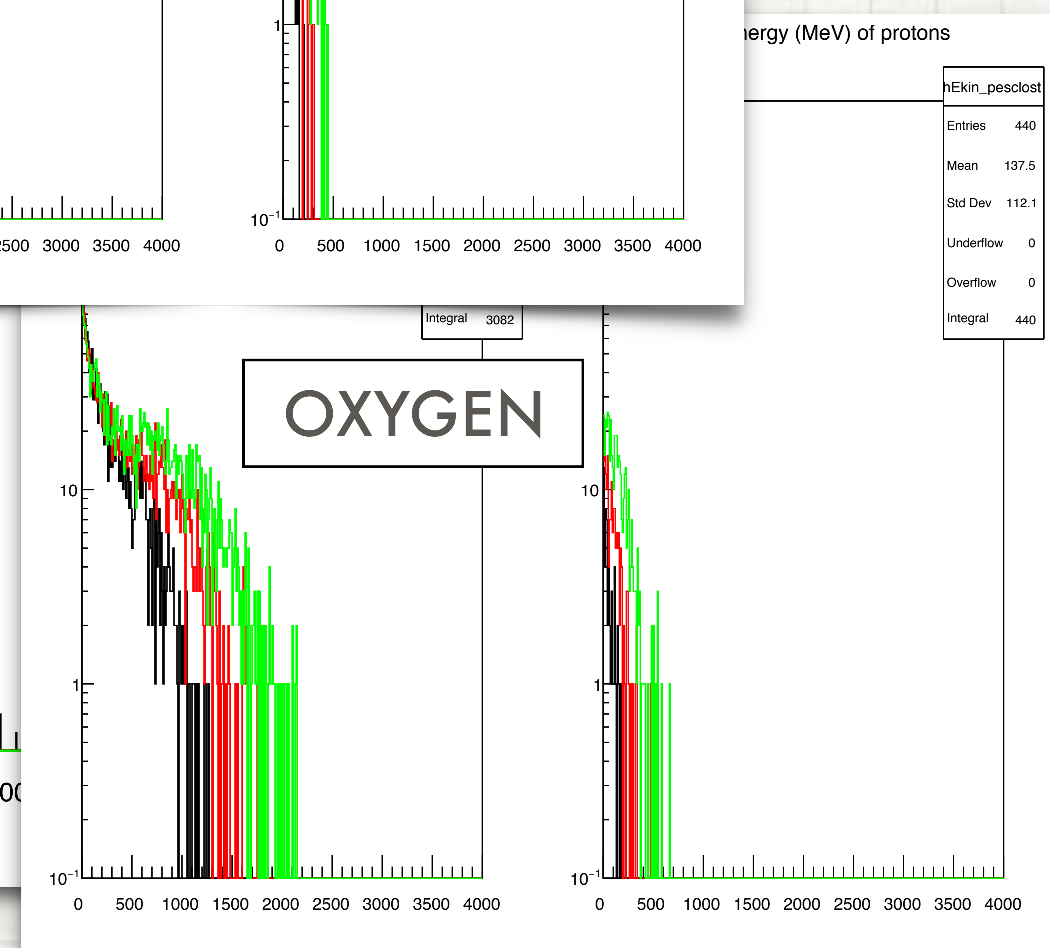
nero = 200 MeV/u
rosso = 250 MeV/u
verde = 300 MeV/u





LITIUM

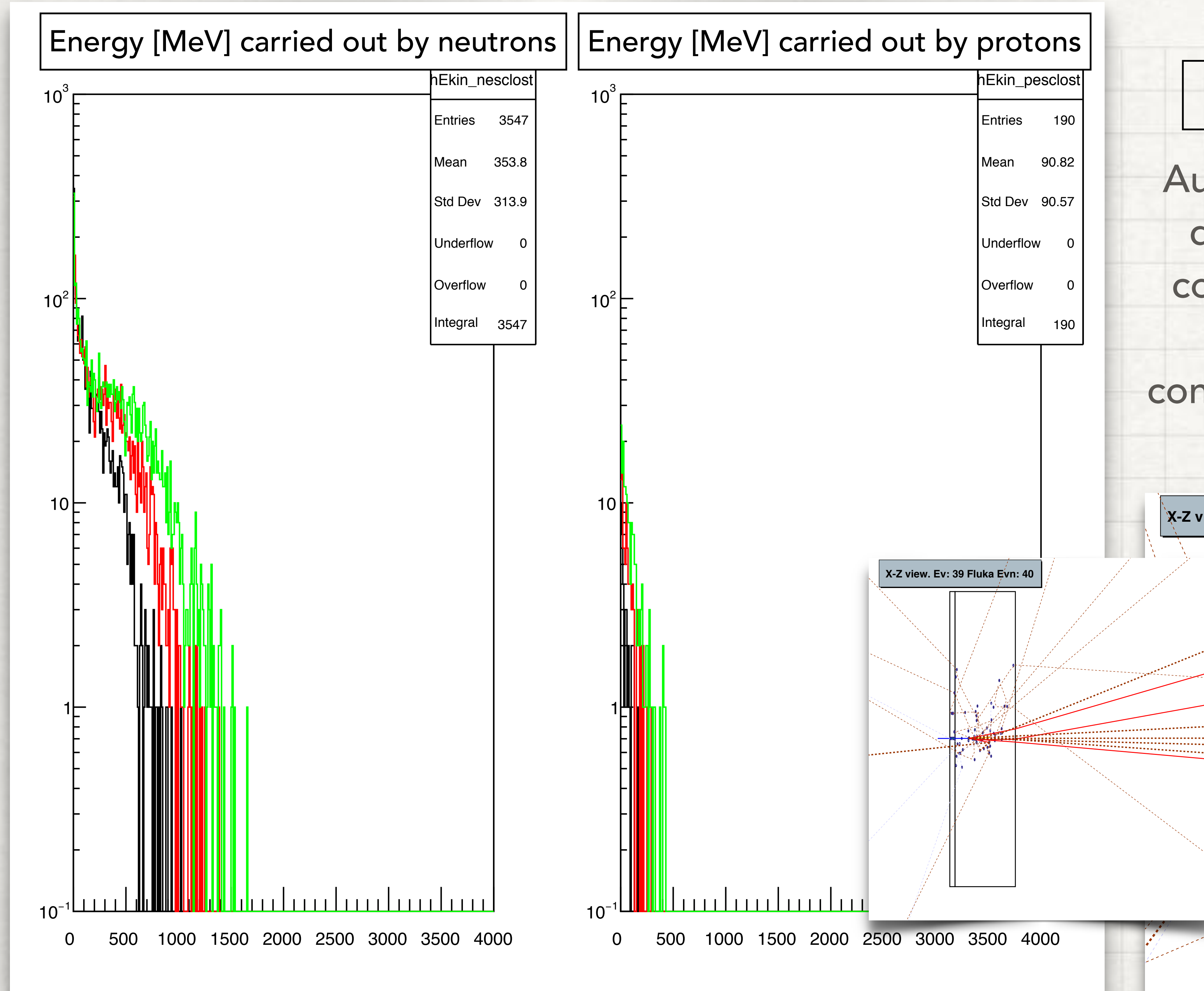
CRY 14 CM



OXYGEN

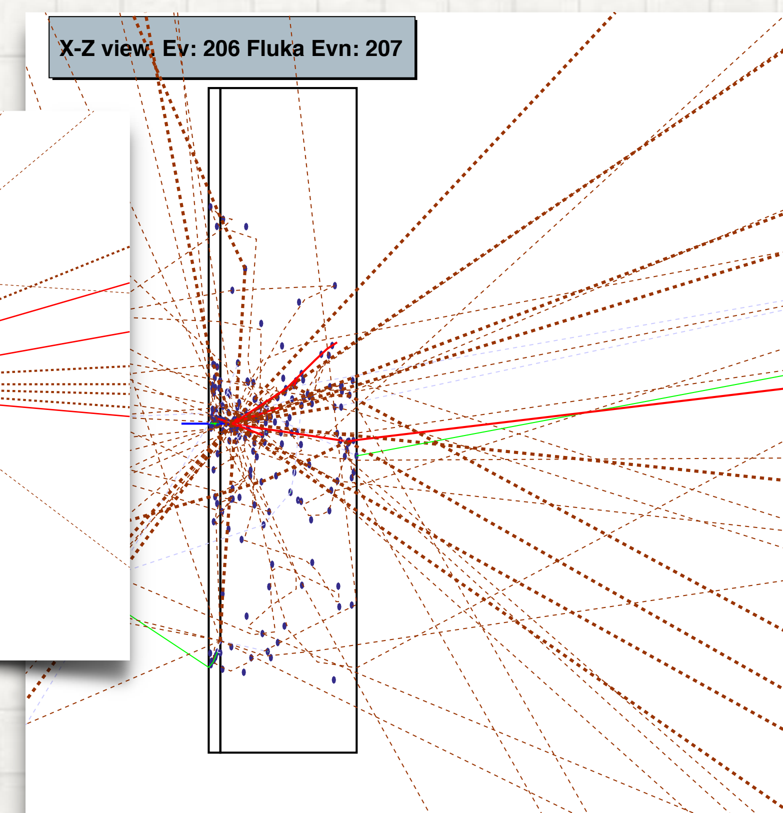
CALORIMETRO@12C

nero = 200 MeV/u
rosso = 250 MeV/u
verde = 300 MeV/u



CRISTALLO 22 CM

Aumentando la dimensione del cristallo si riescono a contenere meglio i carichi, mentre per i neutroni il contributo al contenimento è meno significativo

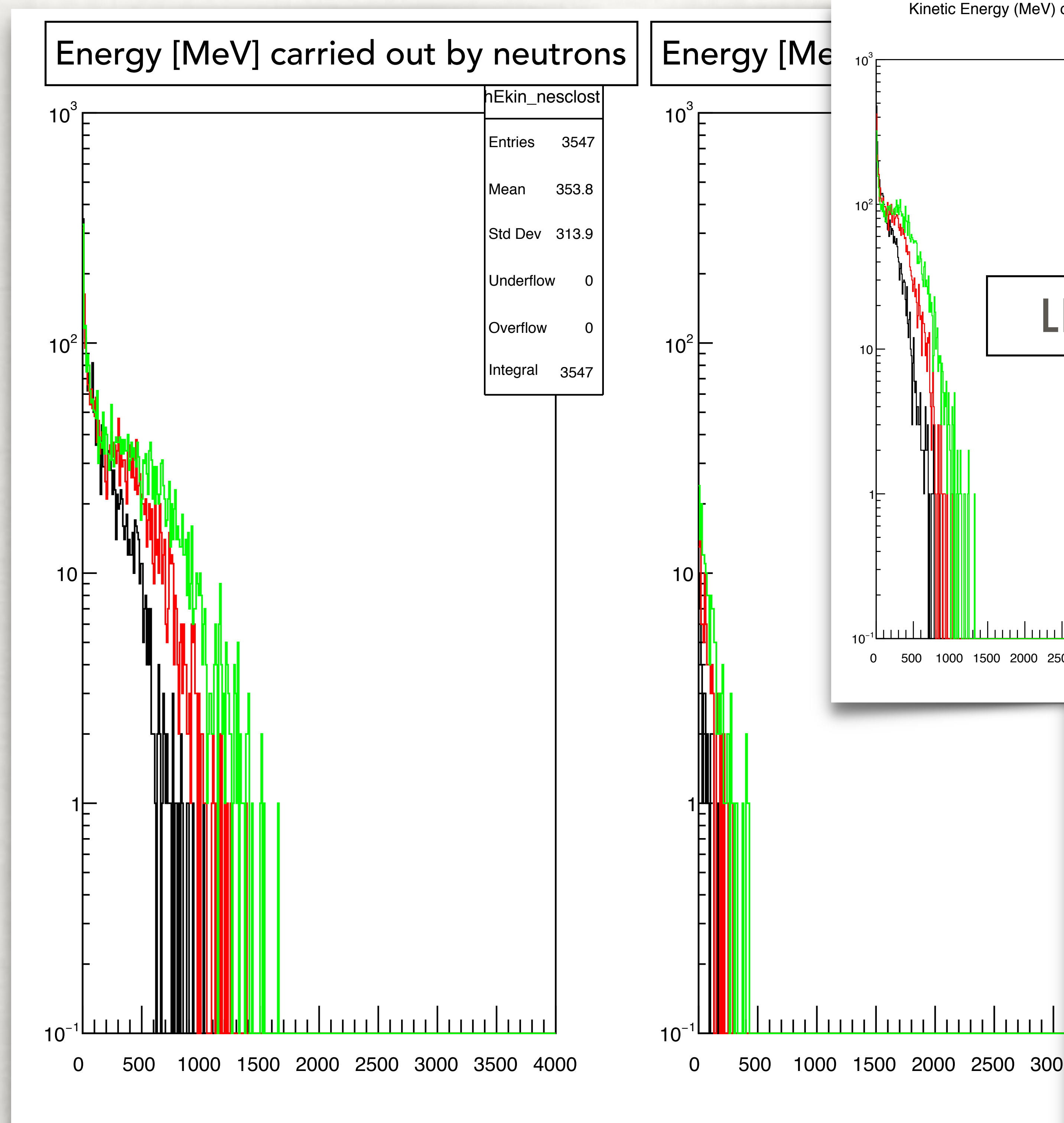


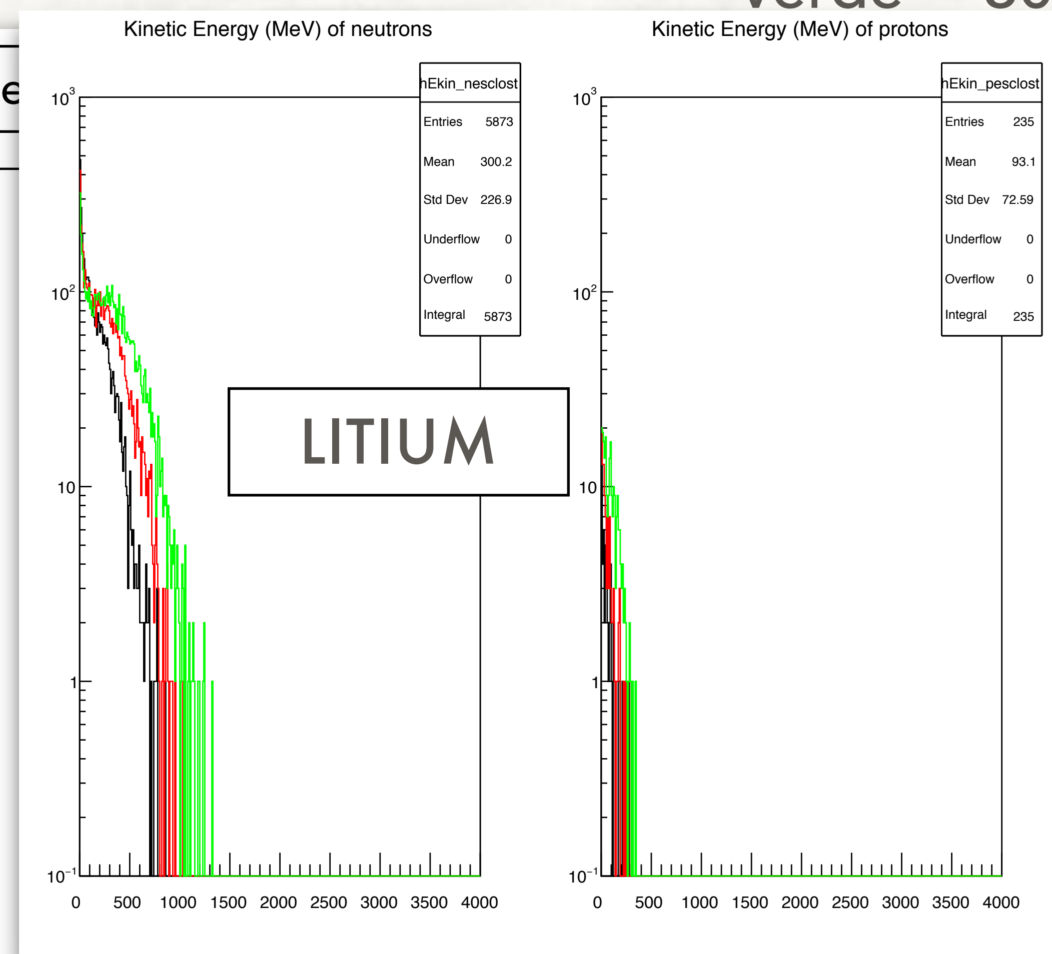
CALORIMETRO@12C

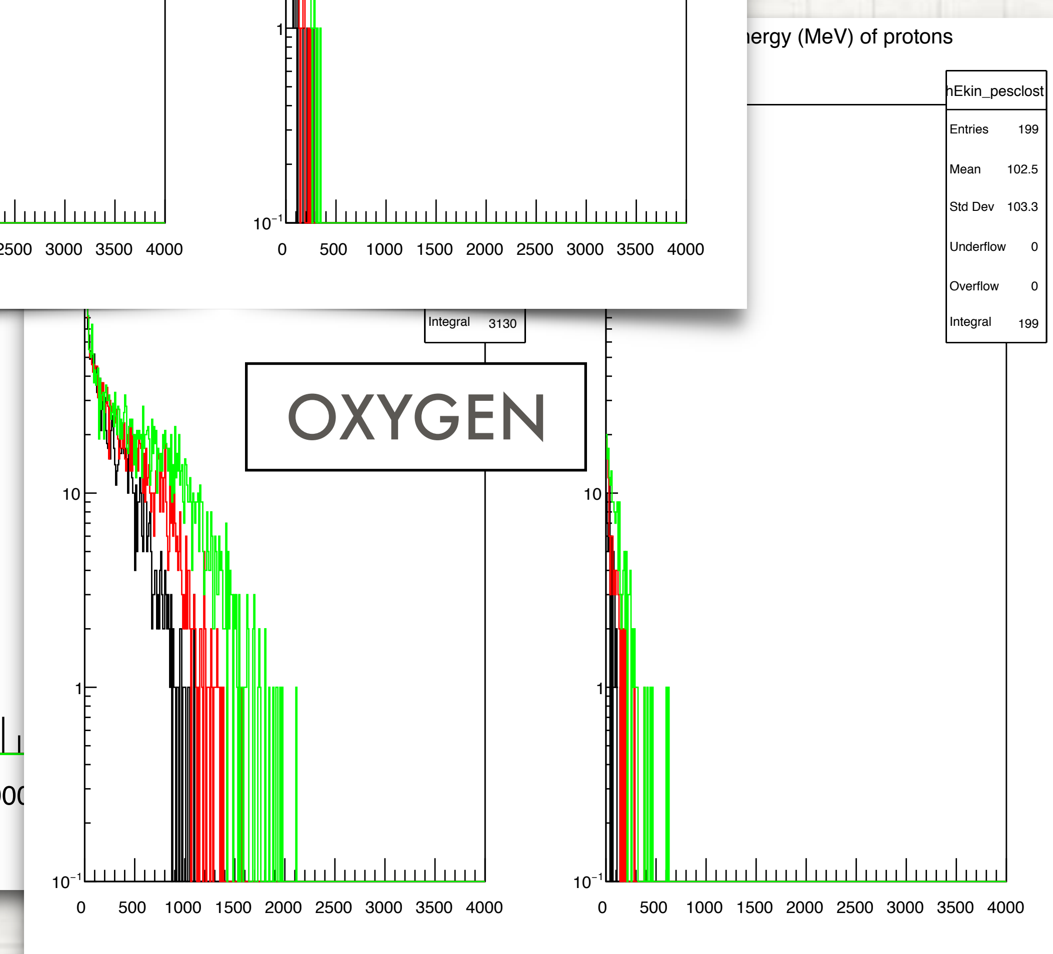
nero = 200 MeV/u
rosso = 250 MeV/u
verde = 300 MeV/u

CRY 22 CM

dimensione
riescono a
glio i carichi,
neutroni il
ntenimento è

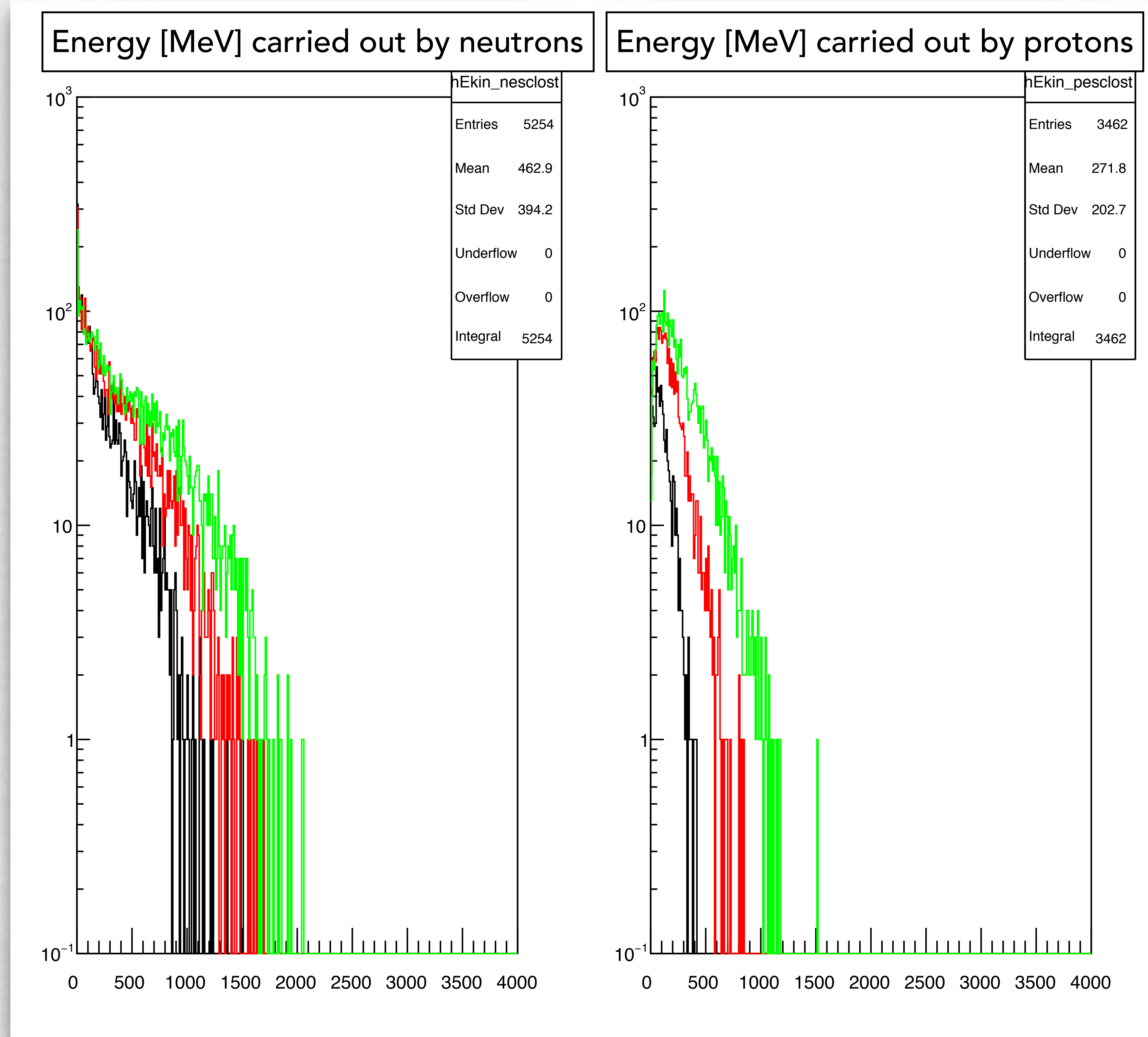






CALORIMETRO@12C

nero = 200 MeV/u
rosso = 250 MeV/u
verde = 300 MeV/u

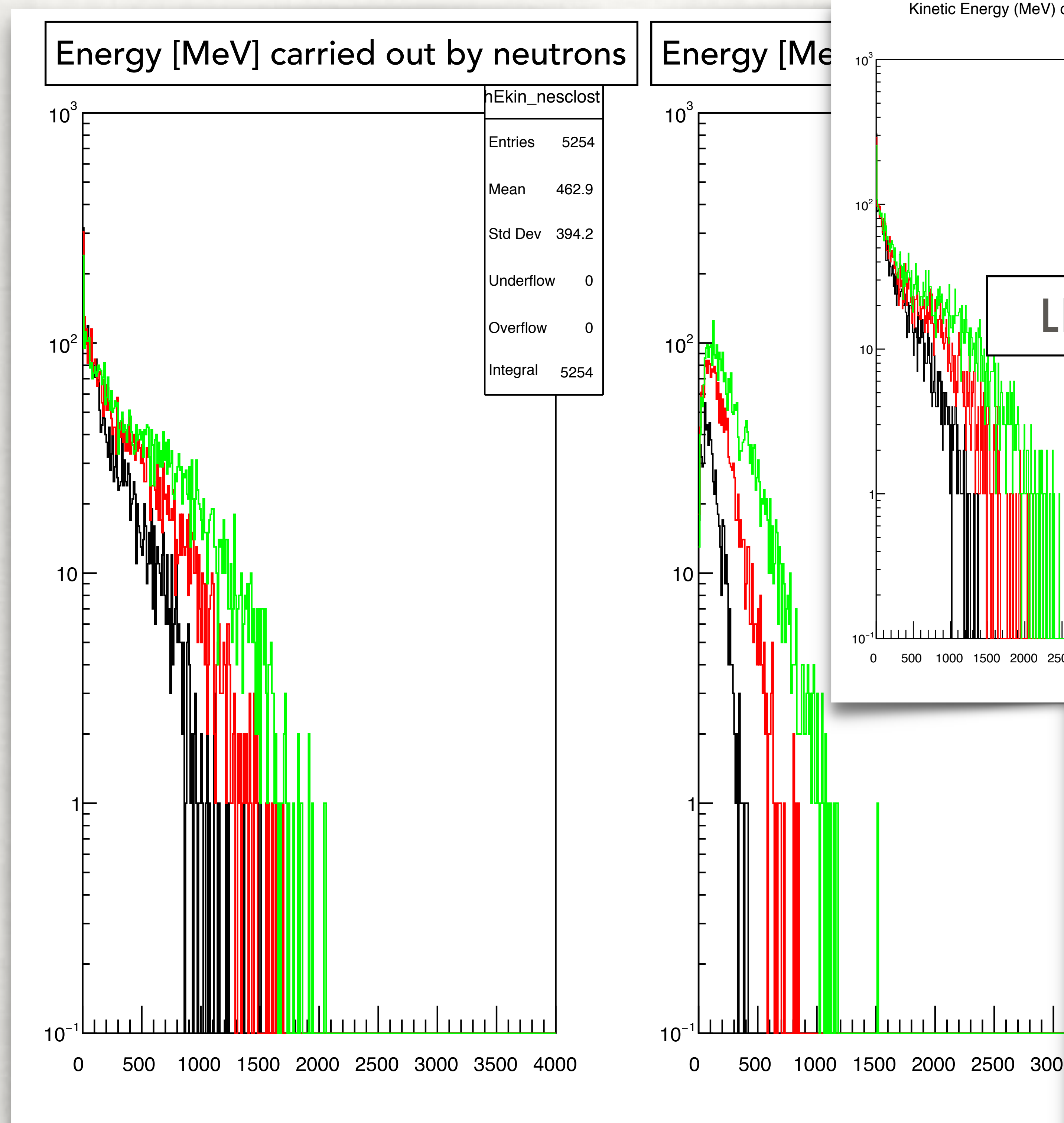


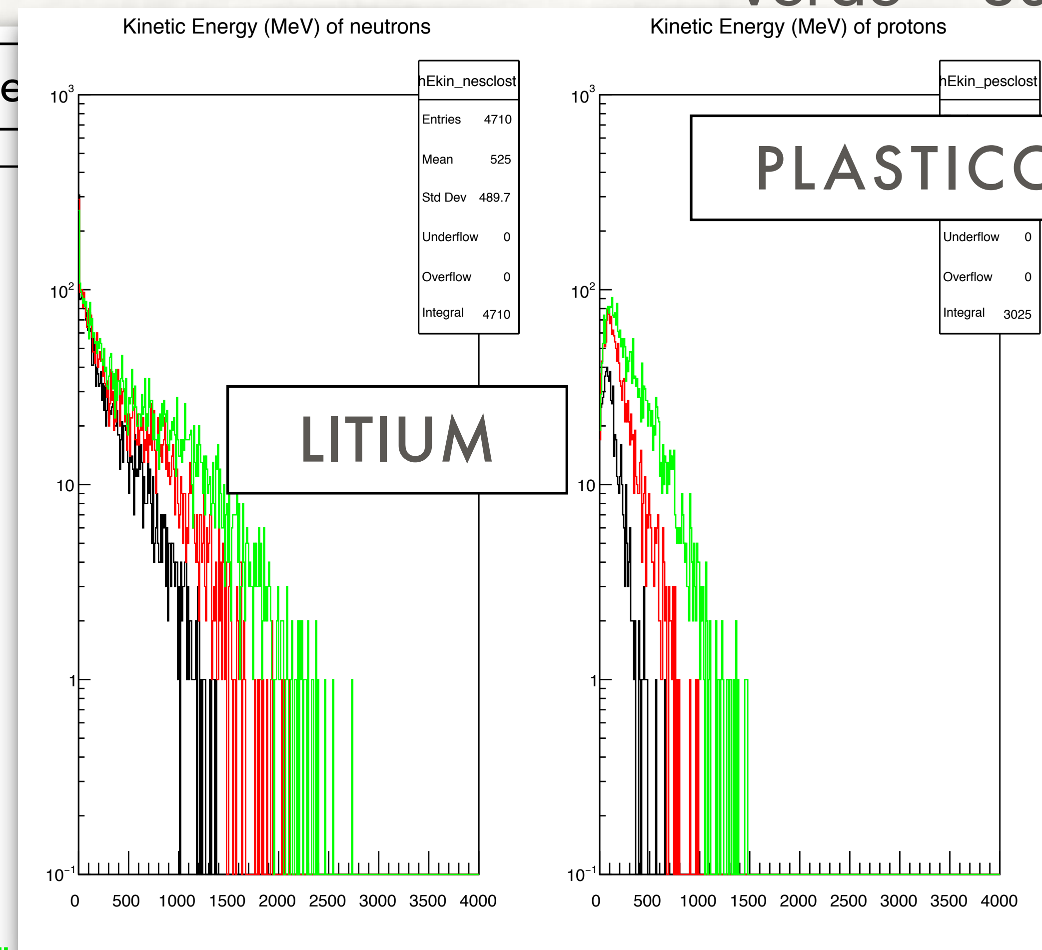
PLASTICO 22 CM

Per i neutroni 22 cm di scintillatore plastico sono "equivalenti" a ~10 cm di BGO, mentre per i protoni il contenimento è notevolmente compromesso.

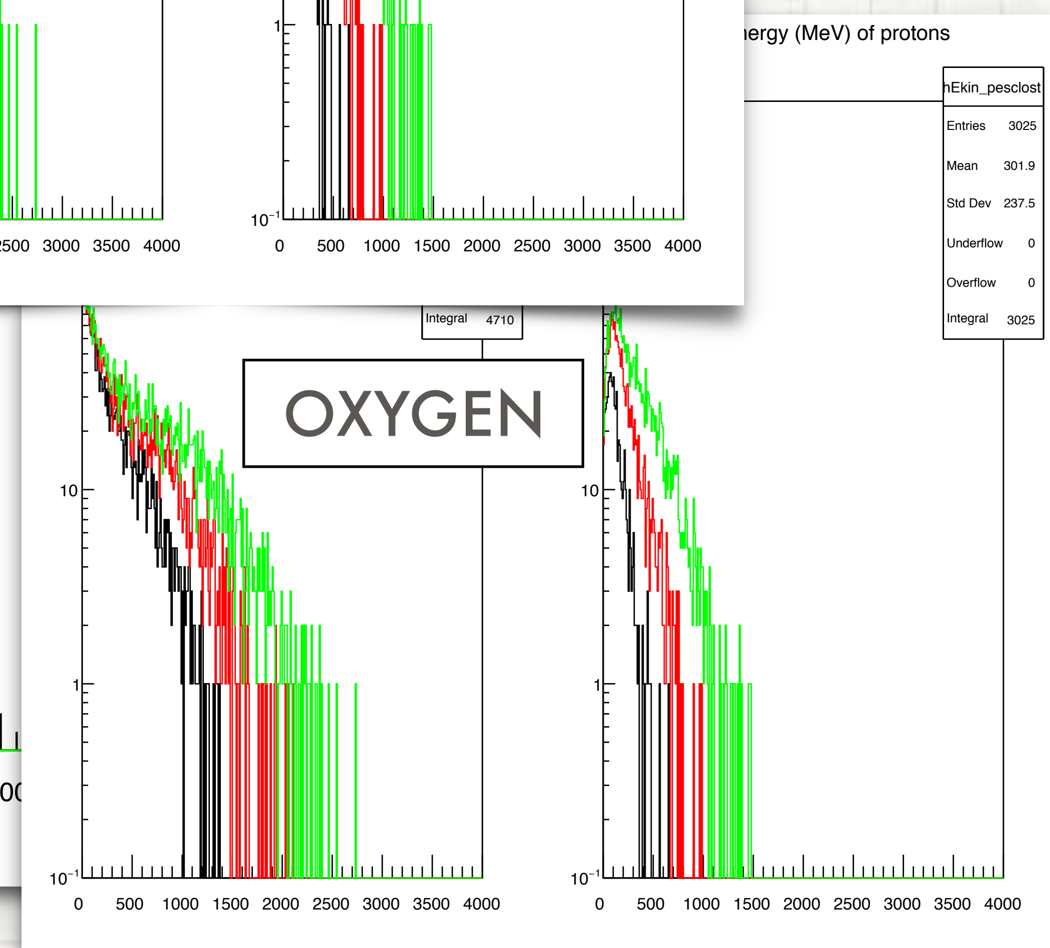
CALORIMETRO@12C

nero = 200 MeV/u
rosso = 250 MeV/u
verde = 300 MeV/u





i 22 cm di
astico sono
a ~10 cm di
er i protoni il
notevolmente

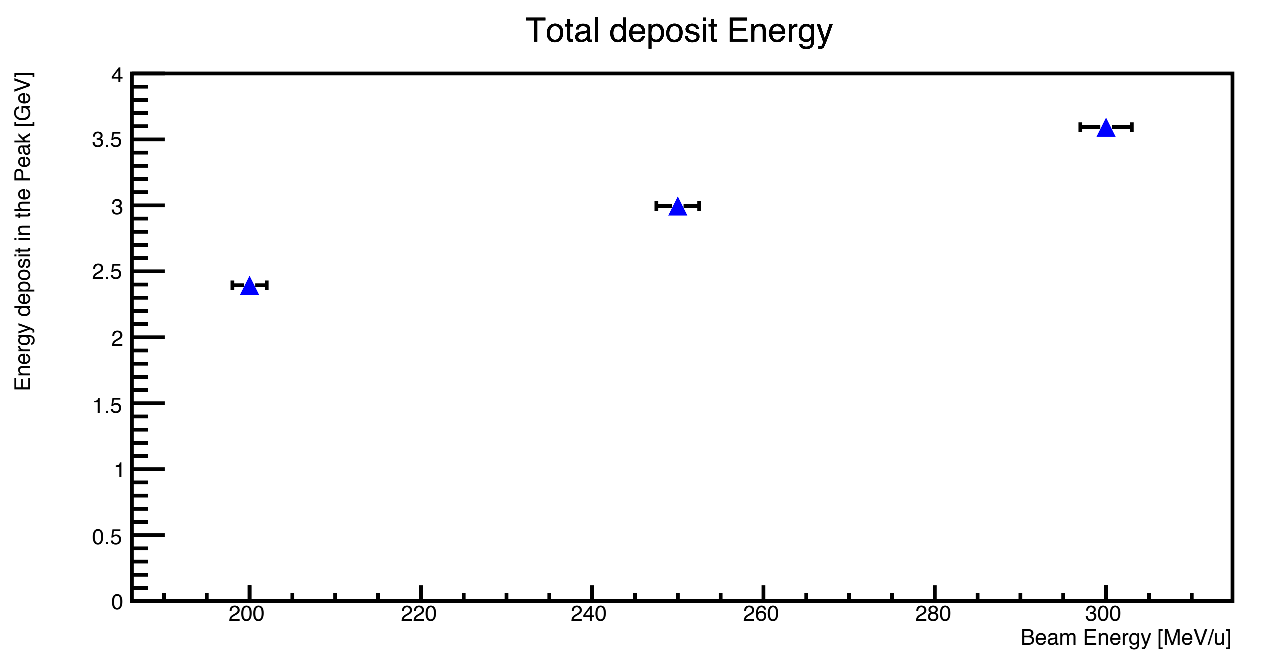


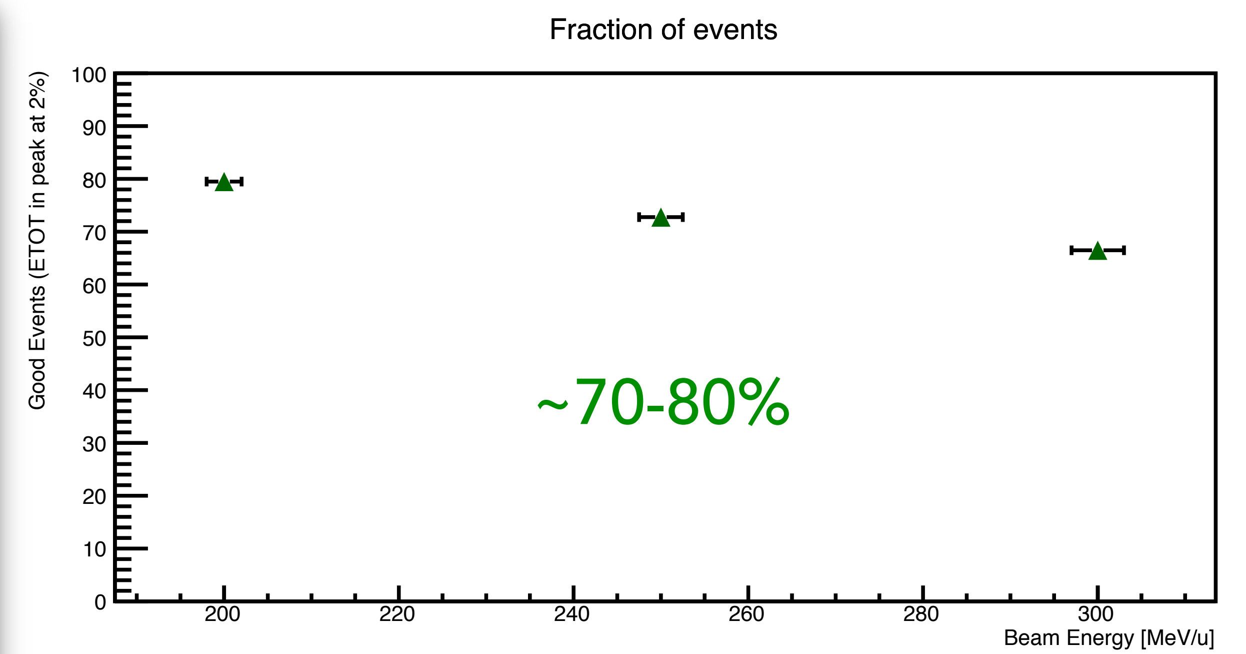
CALORIMETRO@12C

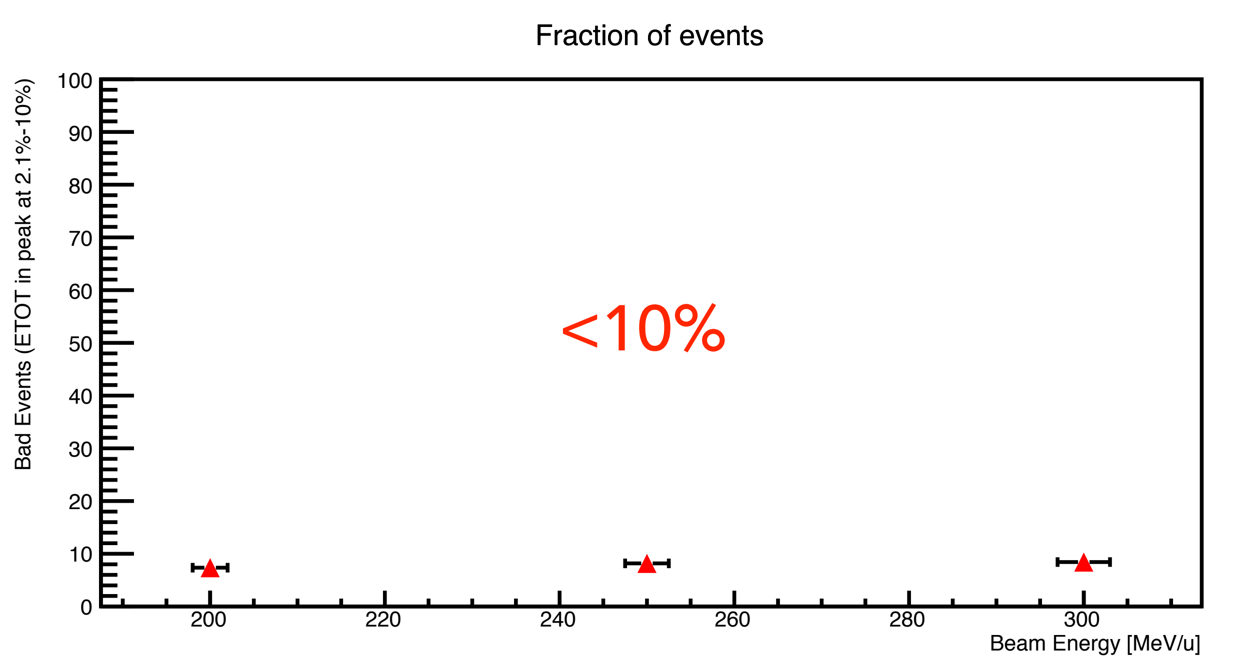
Golden = in 2% dal picco

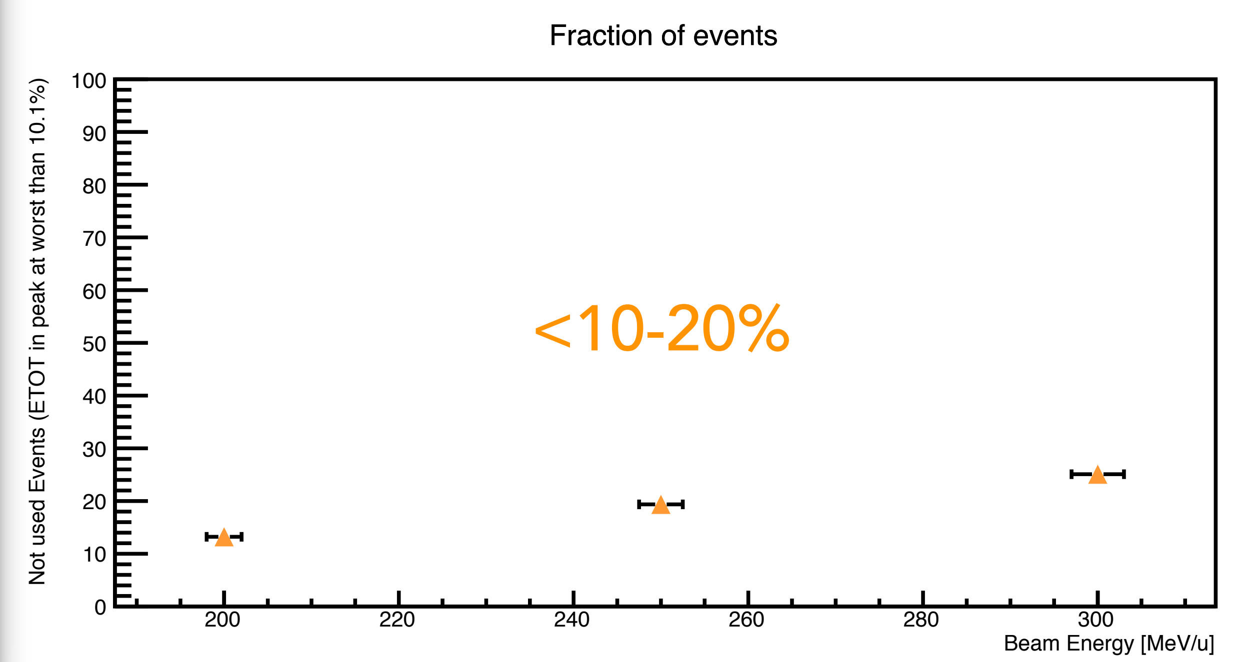
Bad = tra il 2.1 e il 10 % dal picco

NotRelevant = <10.1% dal picco









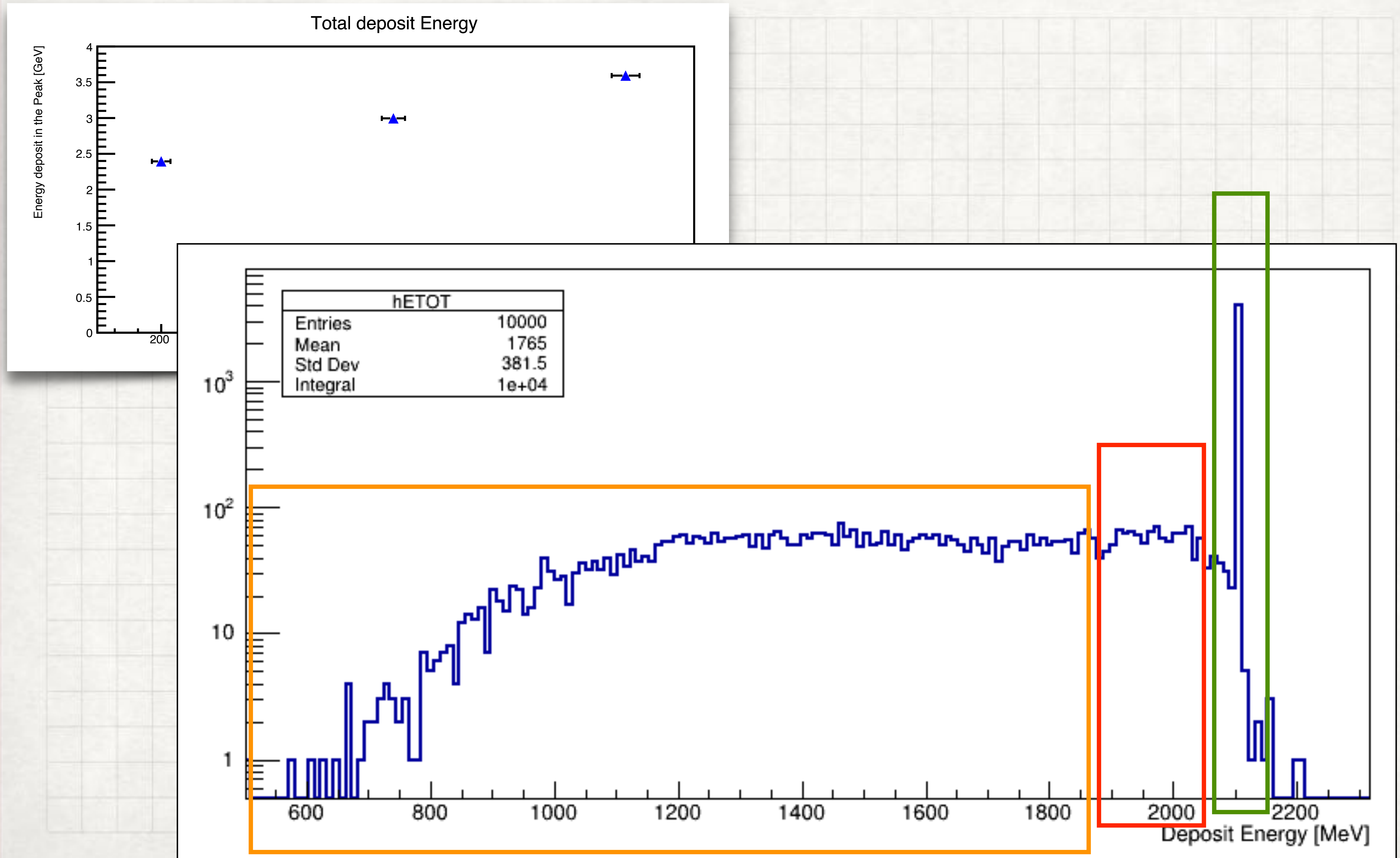
CRISTALLO 11 CM

CALORIMETRO@12C

Golden = in 2% dal picco

Bad = tra il 2.1 e il 10 % dal picco

NotRelevant = <10.1% dal picco

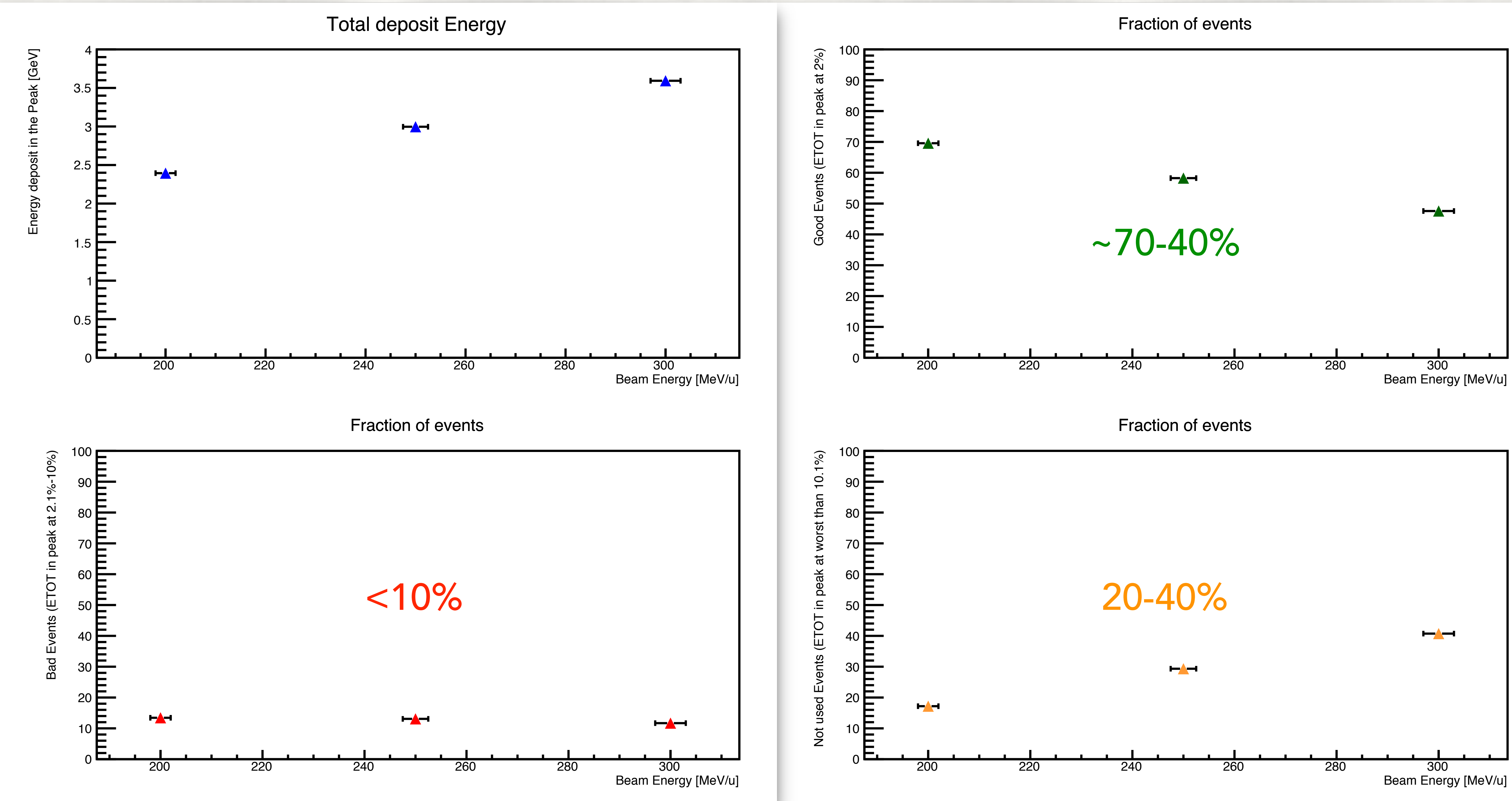


CALORIMETRO@12C

Golden = in 2% dal picco

Bad = tra il 2.1 e il 10 % dal picco

NotRelevant = <10.1% dal picco



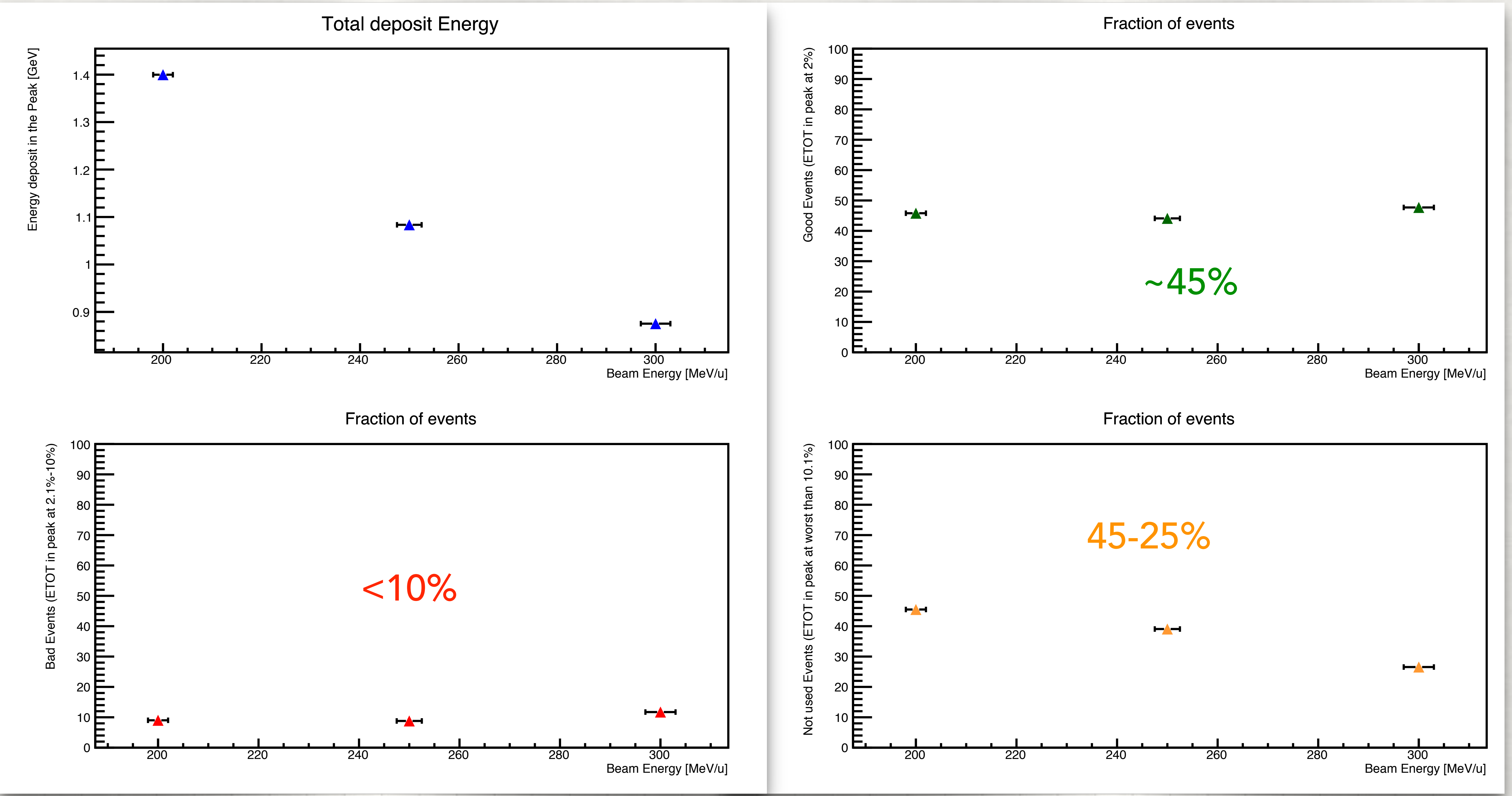
PLASTICO 22 CM

CALORIMETRO@LI

Golden = in 2% dal picco

Bad = tra il 2.1 e il 10 % dal picco

NotRelevant = <10.1% dal picco



PLASTICO 22 CM

CALORIMETRO@

Golden = in 2% dal picco
Bad = tra il 2.1 e il 10 % dal picco
NotRelevant = <10.1% dal picco

Fragment	Car	Oxy	Li
11 cm	70-80 % <10 % 10-20 %	70-80 % <10 % 10-20 %	70-50 % <10 % 30-50 %
14 cm	70-80 % <10 % 10-20 %	70-80 % <10 % 10-20 %	65-45 % <10 % 30-50 %
22 cm	70-80 % <10 % 10-20 %	70-80 % <10 % 10-20 %	70-40 % <10 % 25-50 %
22 Pla	70-40 % ~10 % 20-40 %	75-50 % ~10 % 10-40 %	40-50 % ~10 % 50-30 %

Gli eventi "bad" sono sempre inferiori al 10% del totale (a parte in pla. ~10%)

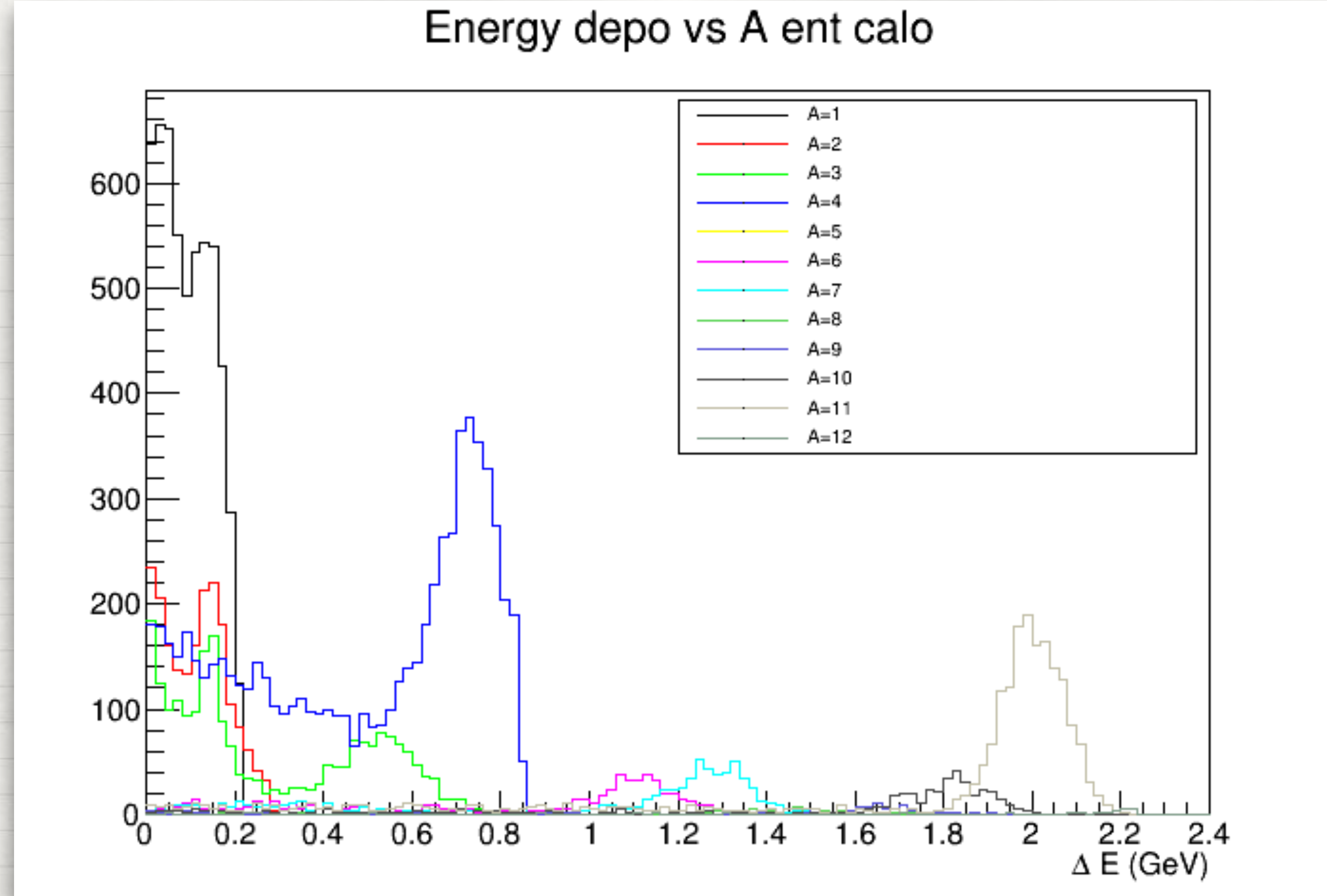
CALORIMETRO

SIMULAZIONE COMPLETA

Studio di 12C su C_2H_4
Magnete acceso

MARIO: SIMULAZIONE COMPLETA

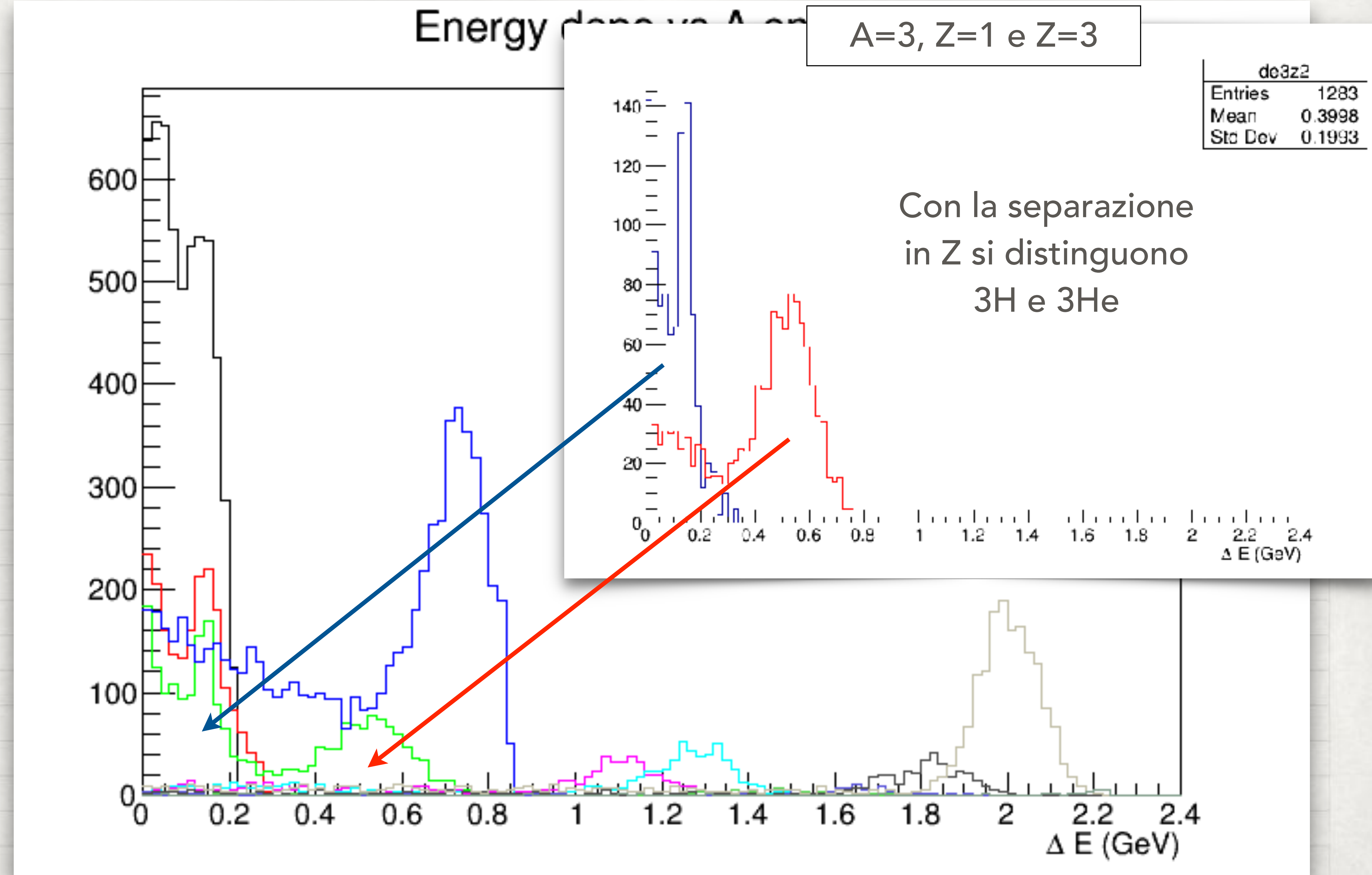
12C_C2H4_Mag



MARIO: SIMULAZIONE COMPLETA

12C_C2H4_Mag

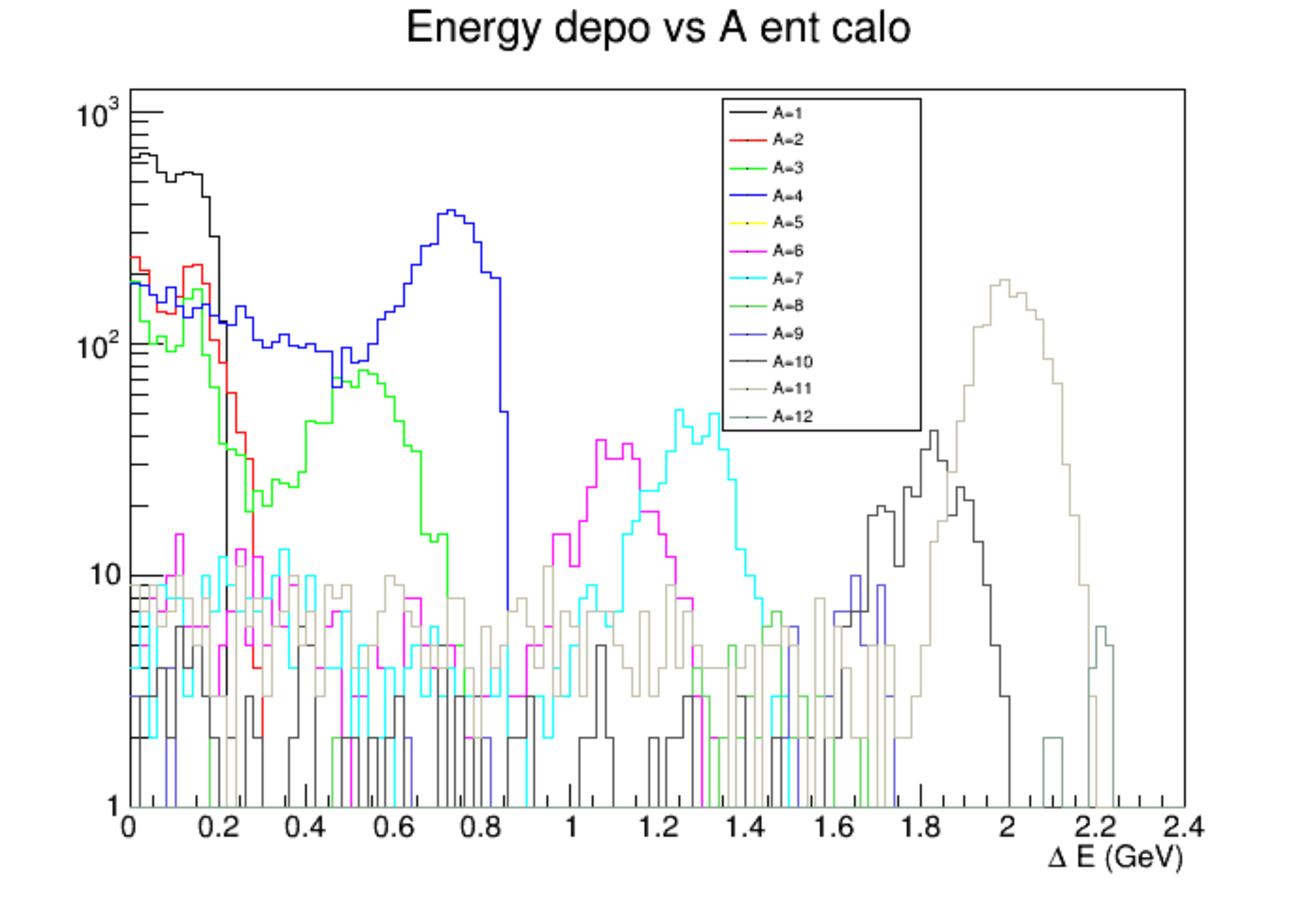
A=3, Z=1 e Z=3



Con la separazione
in Z si distinguono
3H e 3He

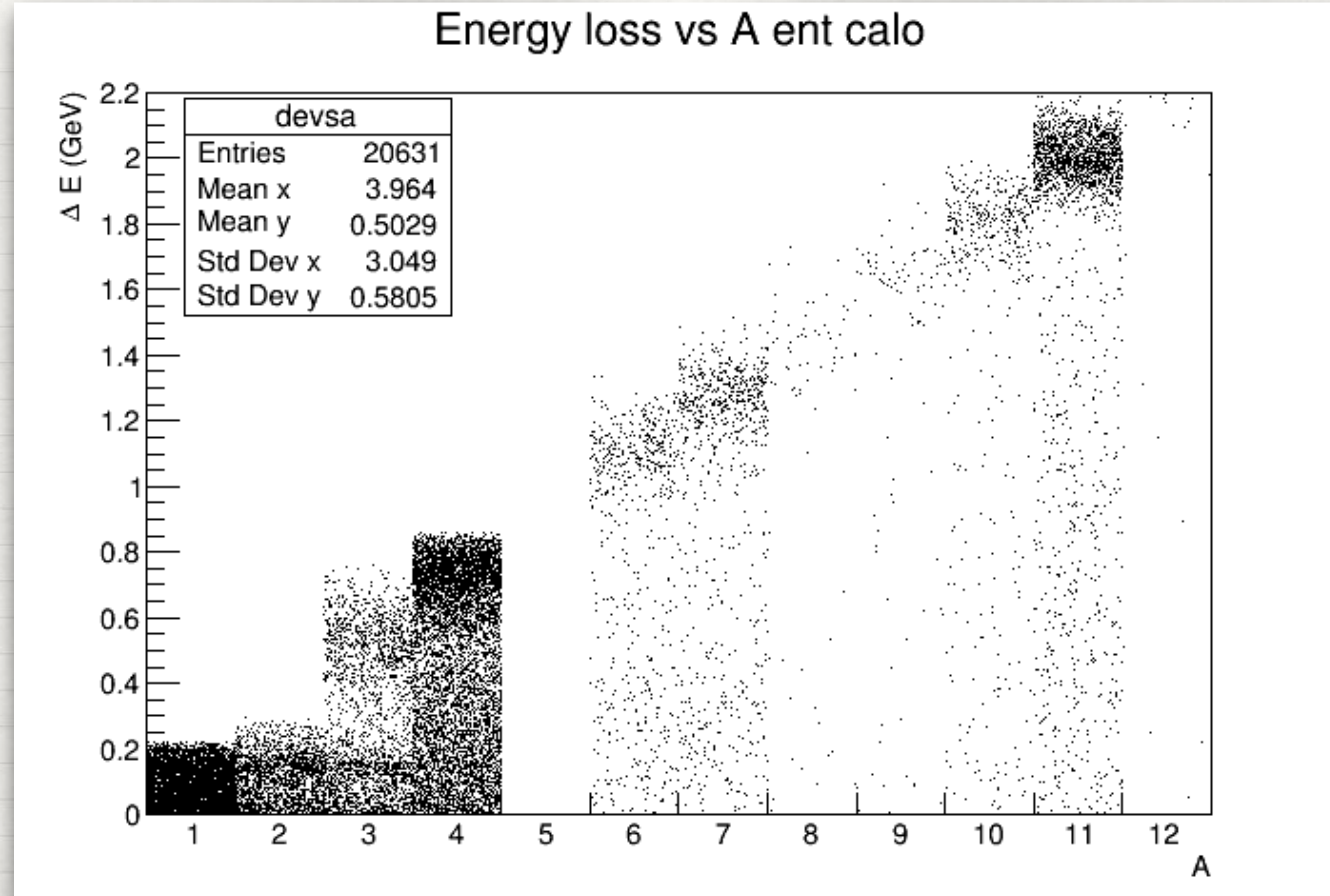
MARIO: SIMULAZIONE COMPLETA

12C_C2H4_Mag



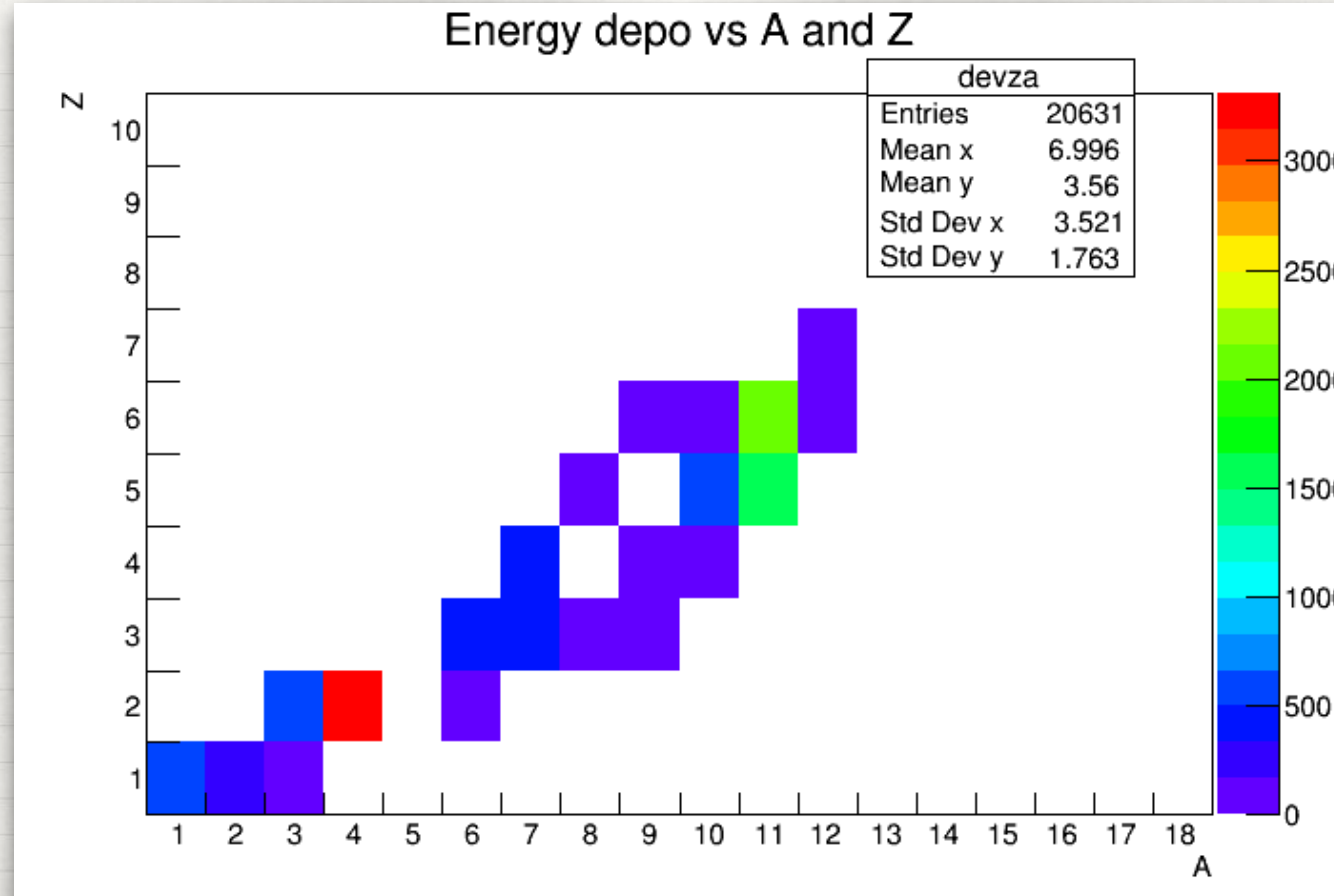
MARIO: SIMULAZIONE COMPLETA

12C_C2H4_Mag



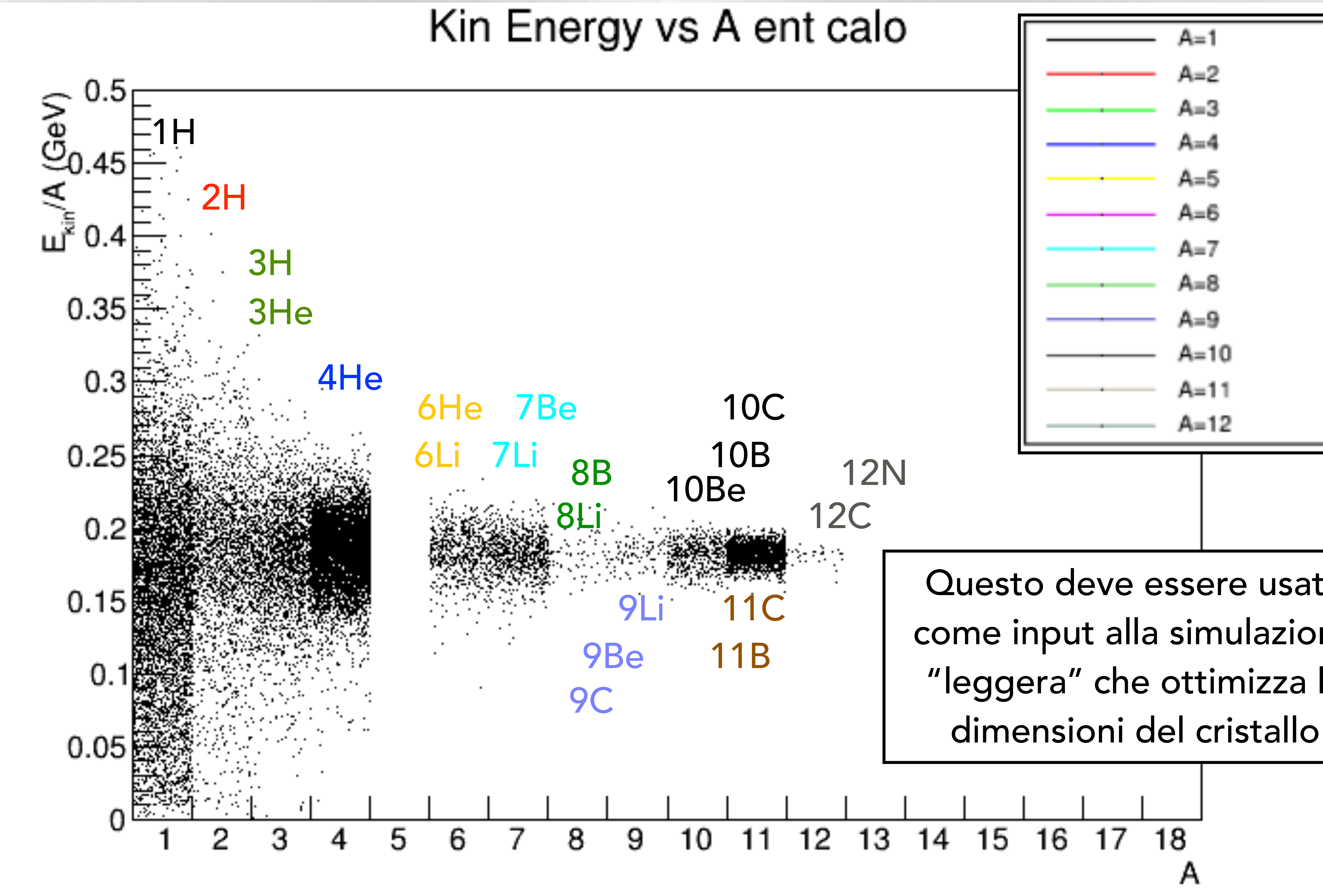
MARIO: SIMULAZIONE COMPLETA

12C_C2H4_Mag



MARIO: SIMULAZIONE COMPLETA

12C_C2H4_Mag



Questo deve essere usato come input alla simulazione "leggera" che ottimizza le dimensioni del cristallo