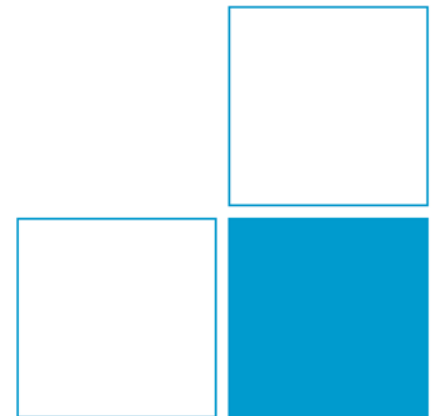


## Recoil Test: more Results with PRT-PTB



# Agenda

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## To be discussed:

- Any progress with the analysis of the first run?
- Plans for the second beam time:
  - Development of the detectors
  - Dates
- Plans for the fission channel:
  - Properties and availability of deposits
  - Construction of the FC
- INTC Application for the ‚real‘ experiment:
  - Final concept for detectors
  - Dates: **CERN shutdown!**
  - Can we make a PhD thesis out of the project?

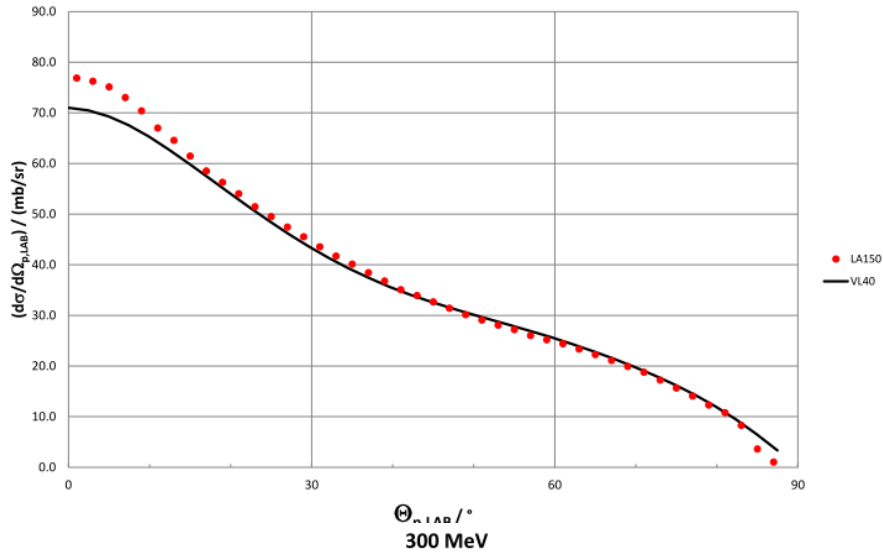
# Analysis

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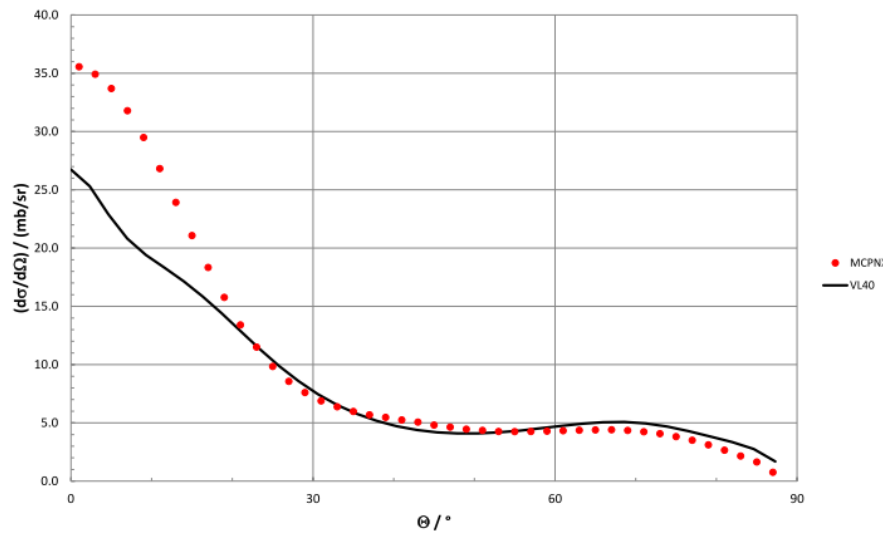
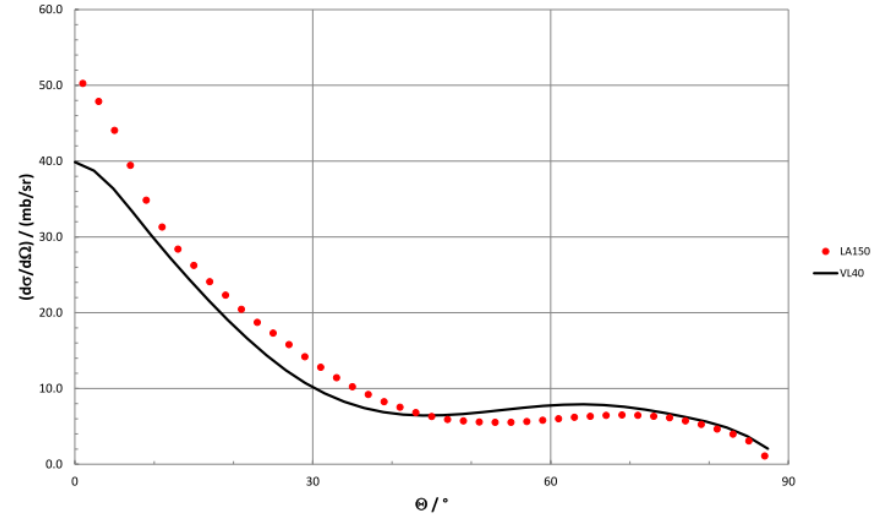
- **Experimental data:**
  - $\Theta \approx (23 \pm 2)^\circ$
  - $\Delta E_1 = 2 \text{ mm}$ , 5 mm EJ228,  $\Delta E_2 = 5 \text{ mm}$  EJ228,  $E = 80 \text{ mm}$  EJ204
  - No particle separation
  
- **Comparison with MC simulations (MCNPX 2.7):**
  - $E_n < 150 \text{ MeV}$ : LA150 library for n and p
  - $E_n > 150 \text{ MeV}$ : default INC model
  - Tracking of p and d
  - Non-linear light output simulated
  - $\Delta L/L = 10\%$  for E-detector

# np Scattering: LA150/Models vs. Phase Shift Data

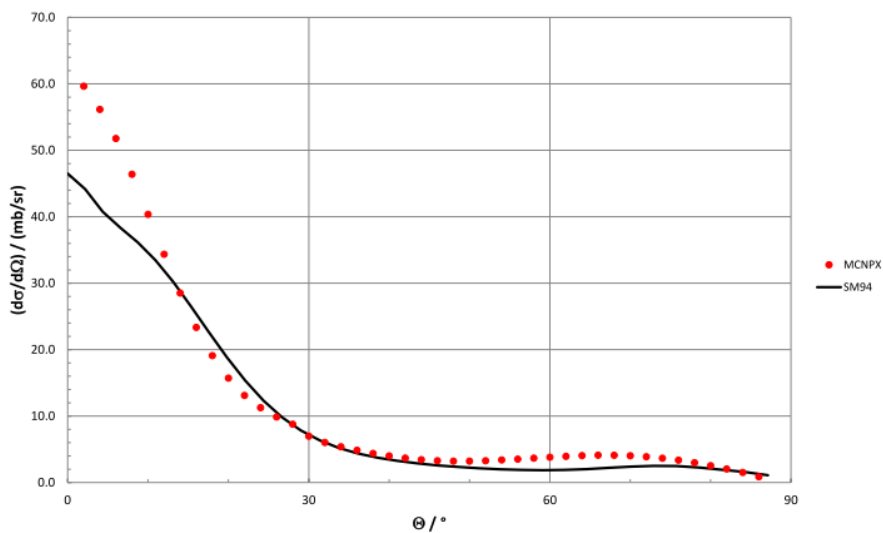
50 MeV



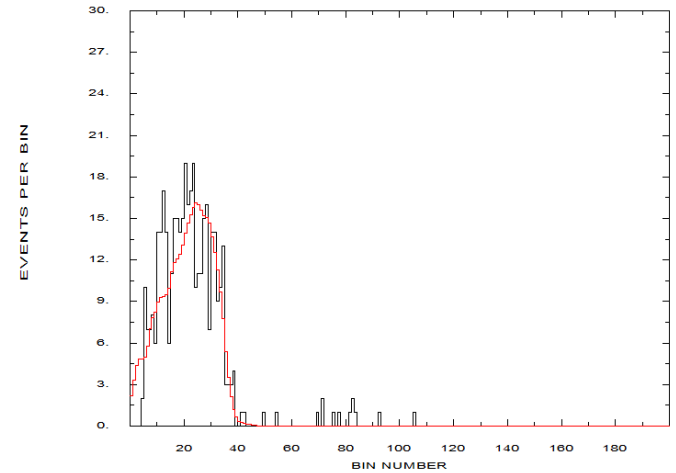
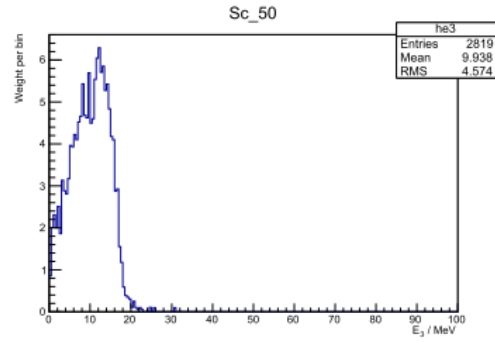
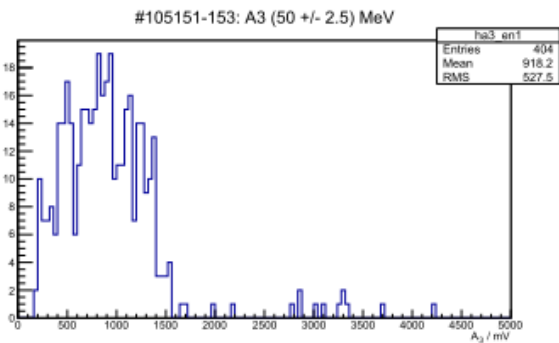
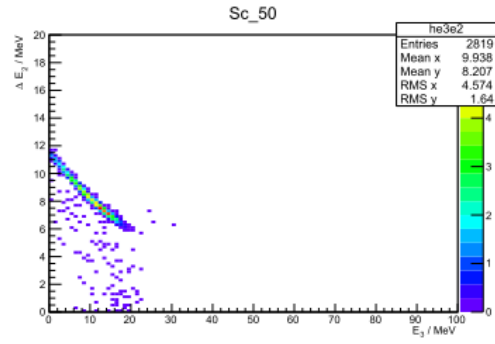
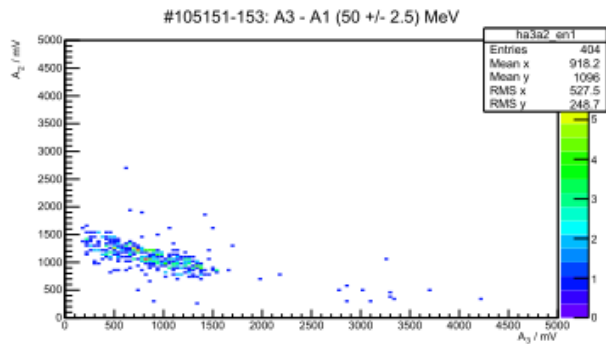
150 MeV



600 MeV



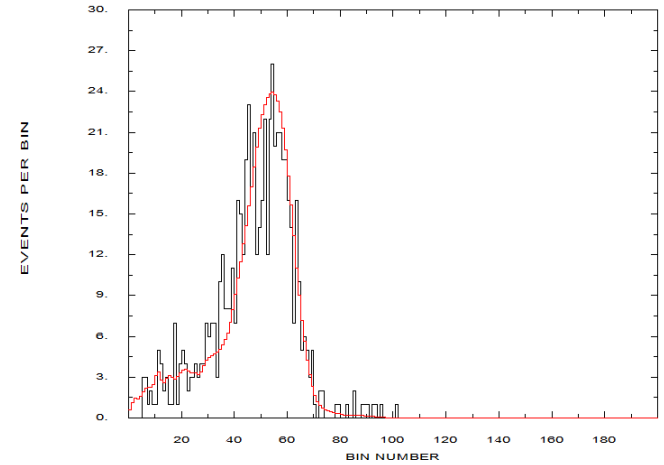
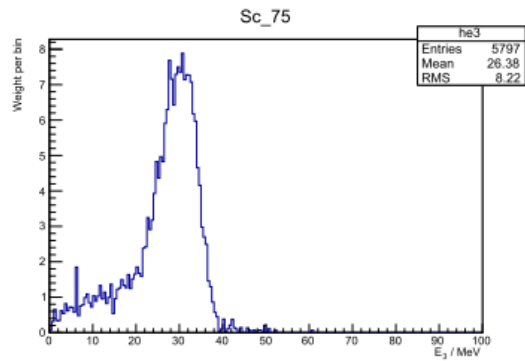
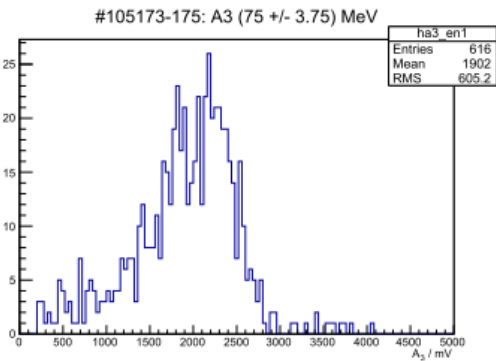
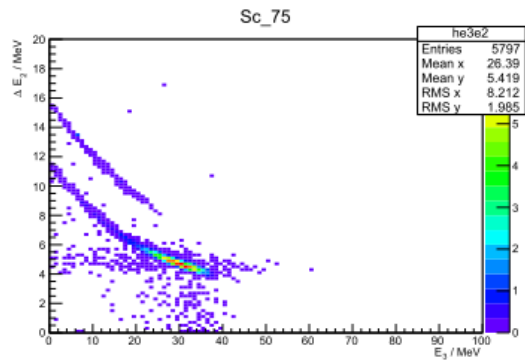
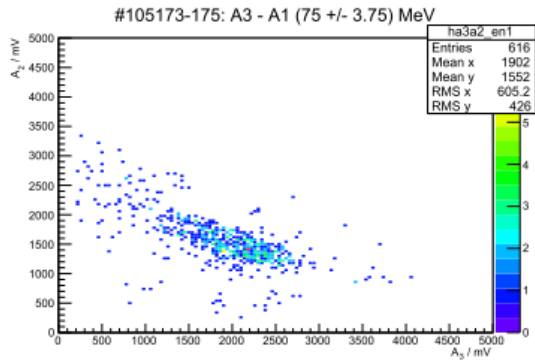
# 50 MeV



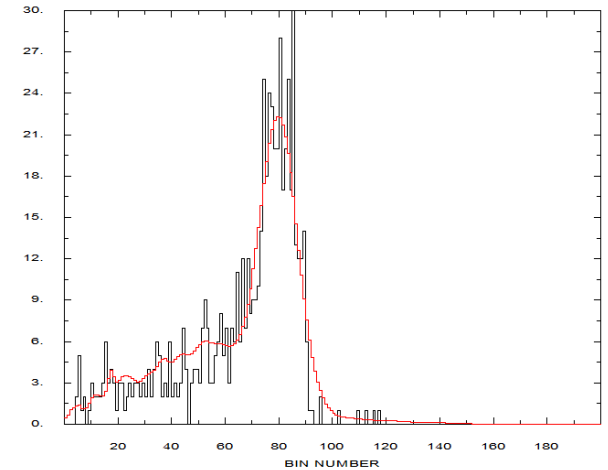
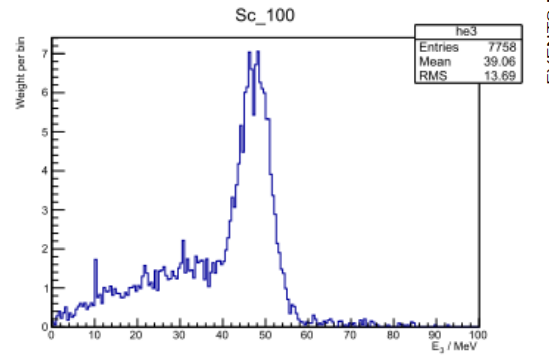
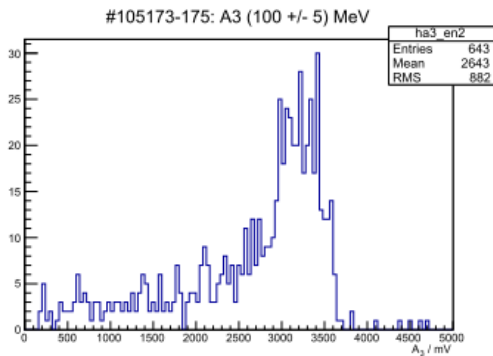
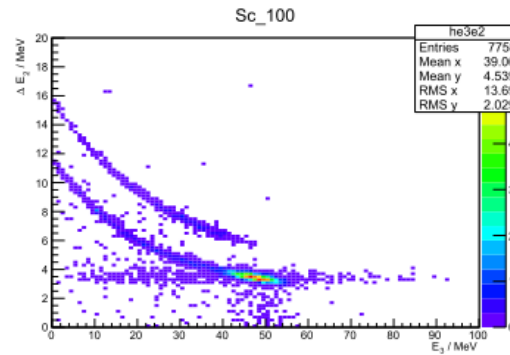
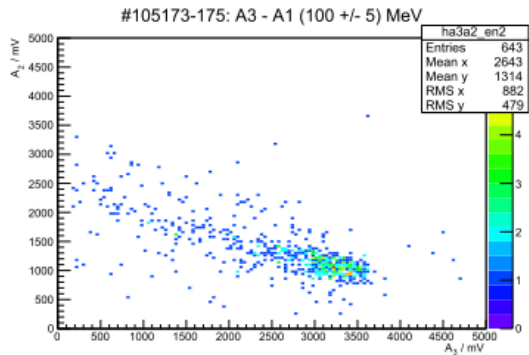
Rad.: 10 mm PE

$\Delta E_1 = 2$  mm EJ228,  $\Delta E_2 = 5$  mm EJ228,  $E = 80$  mm EJ204

# 75 MeV



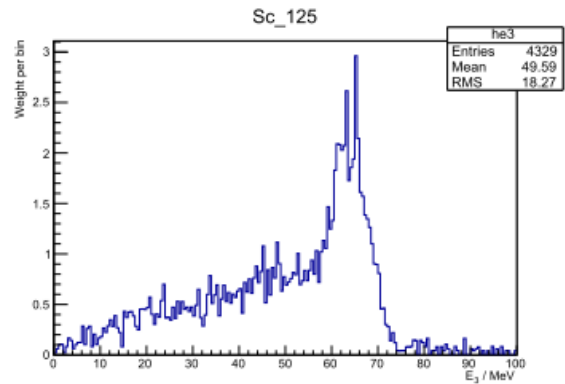
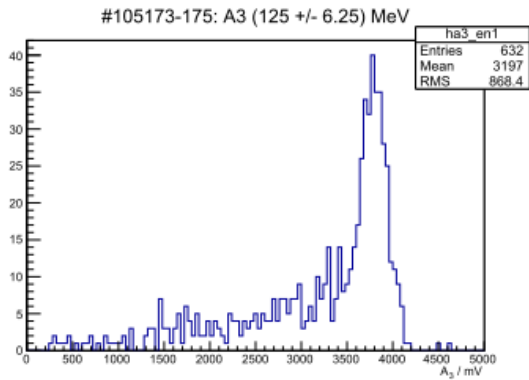
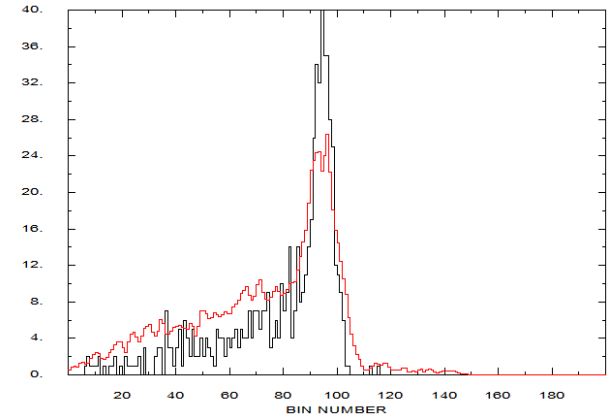
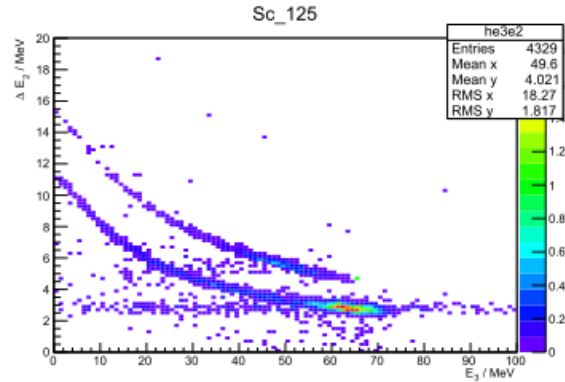
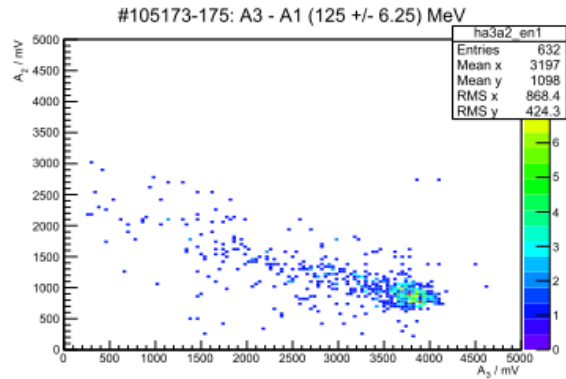
# 100 MeV



Rad.: 10 mm PE

$\Delta E_1 = 5$  mm EJ228,  $\Delta E_2 = 5$  mm EJ228,  $E = 80$  mm EJ204

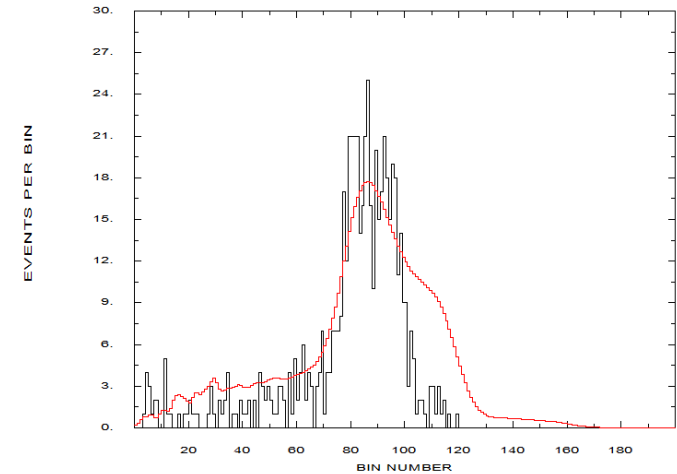
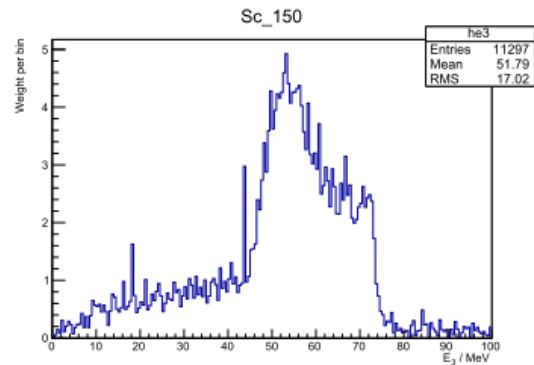
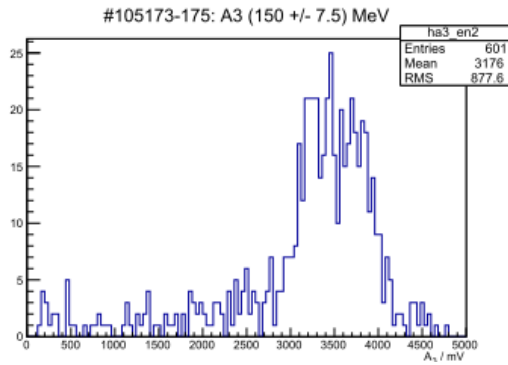
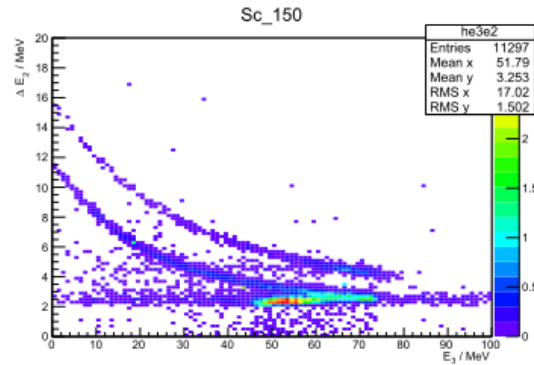
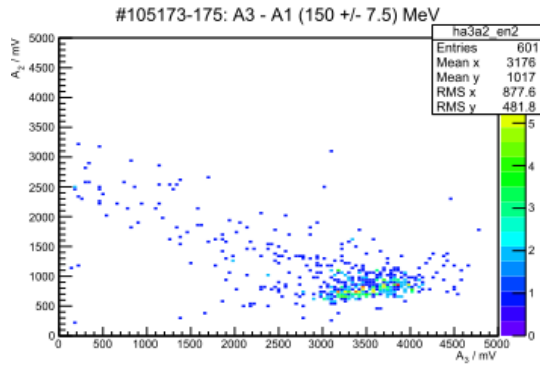
# 125 MeV



- **Protons stopped close to rear side of E detector:**
  - **Less light collected ?**
  - **Resolution improved ?**

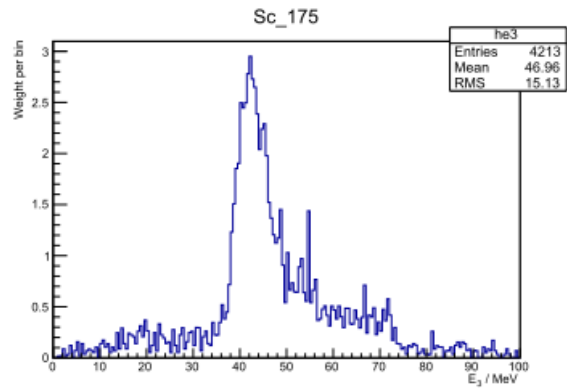
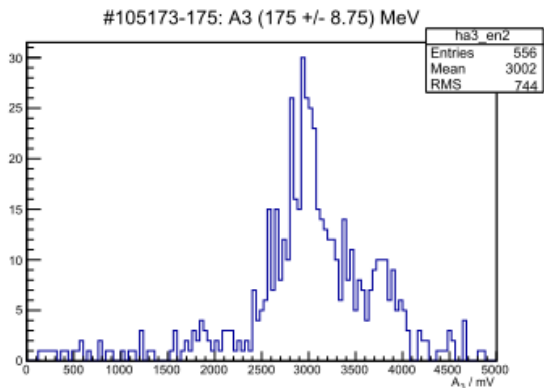
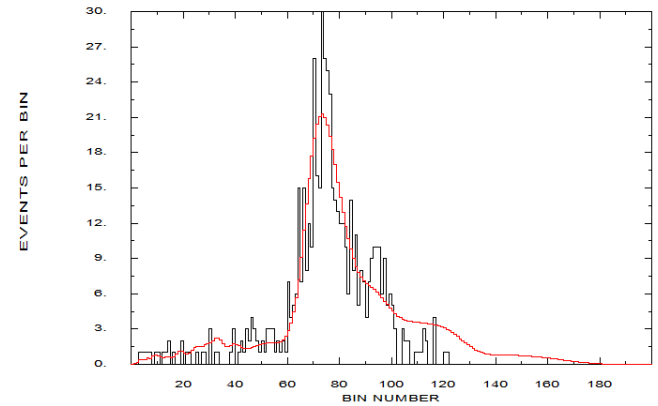
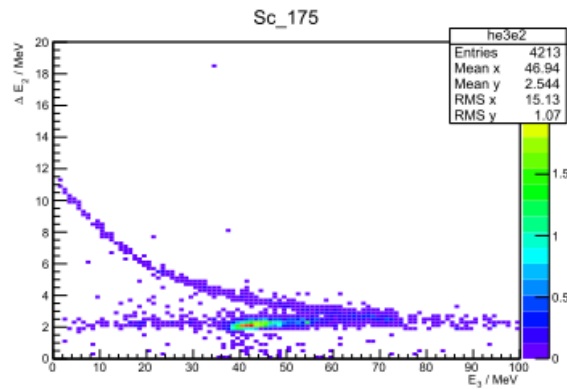
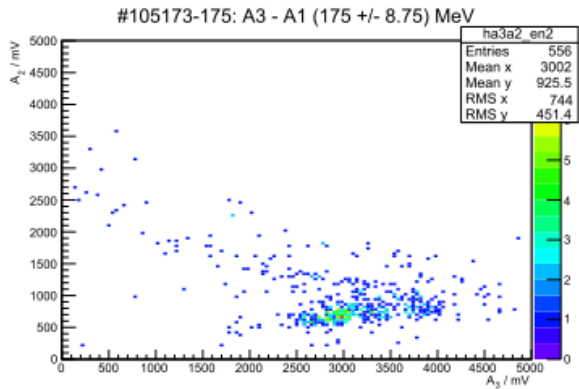


# 150 MeV

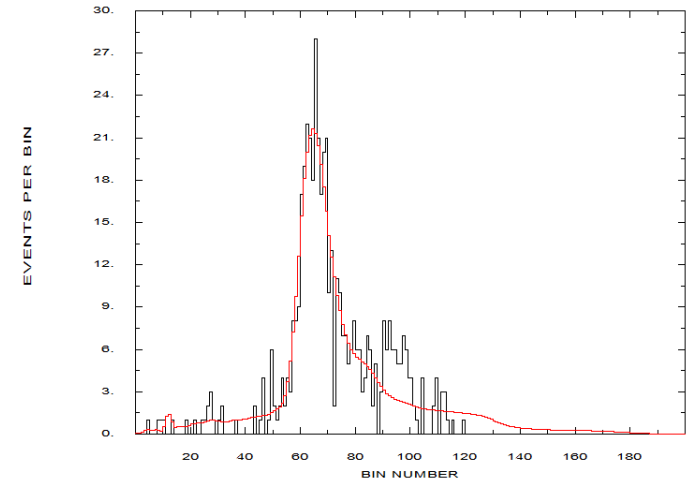
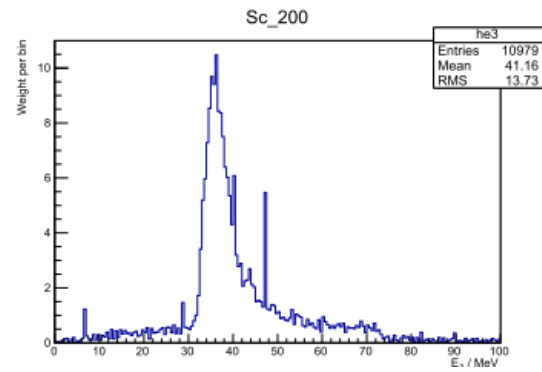
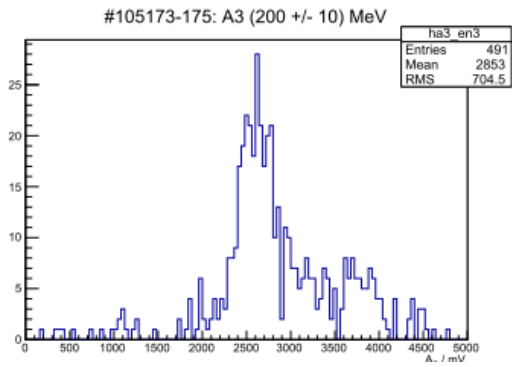
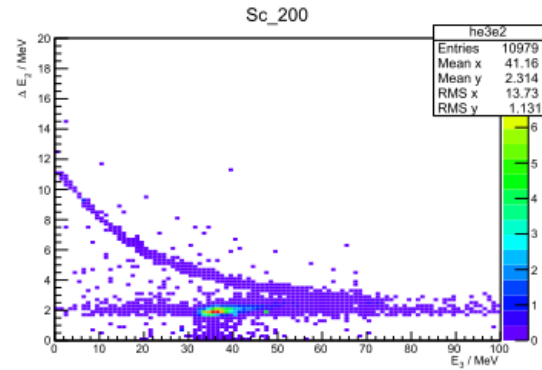
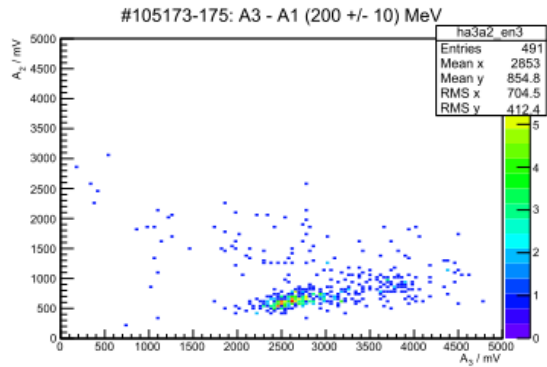


**Excess of (n,d) events in simulation ?**

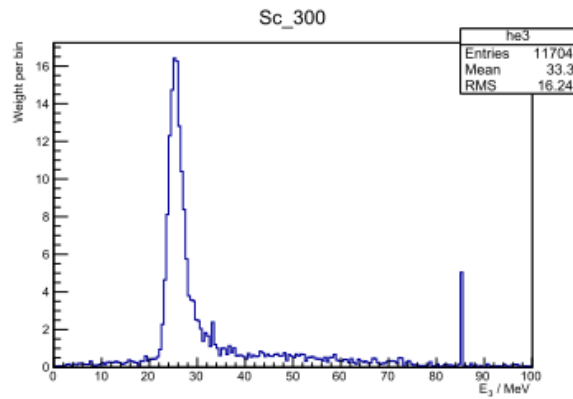
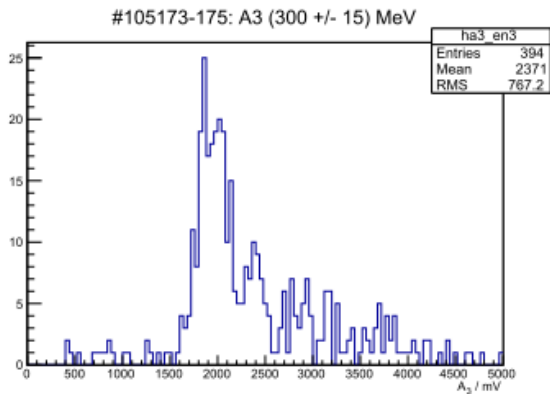
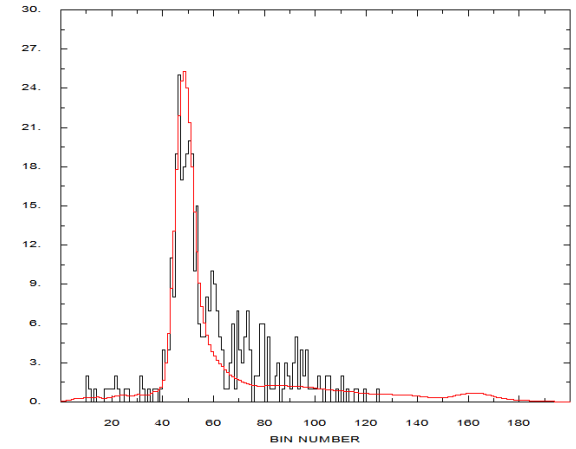
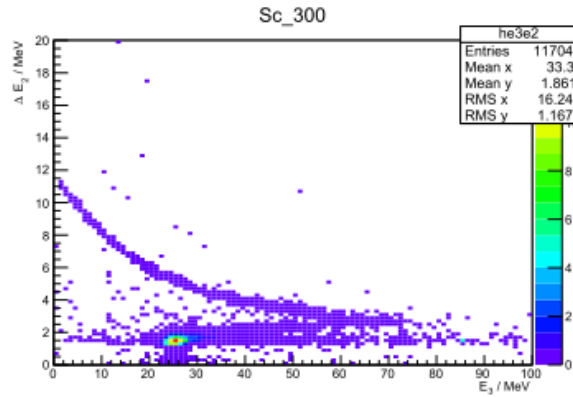
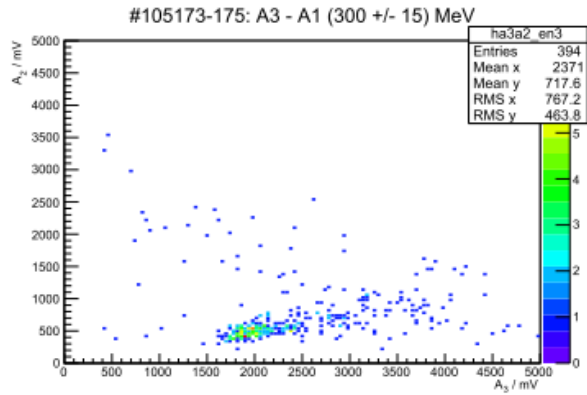
# 175 Mev



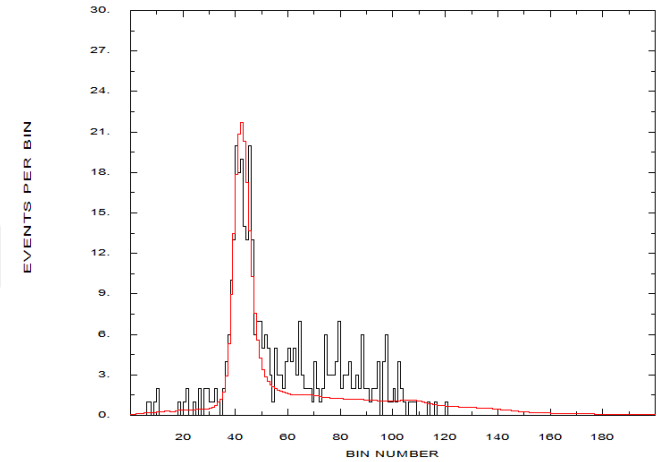
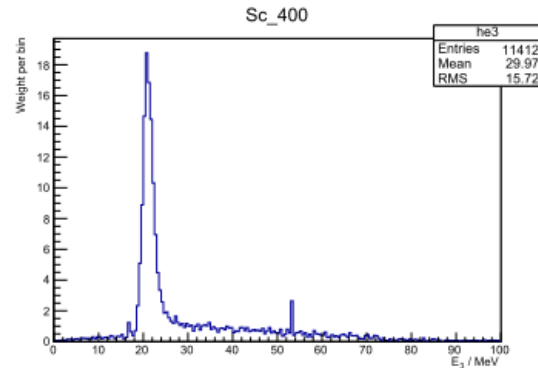
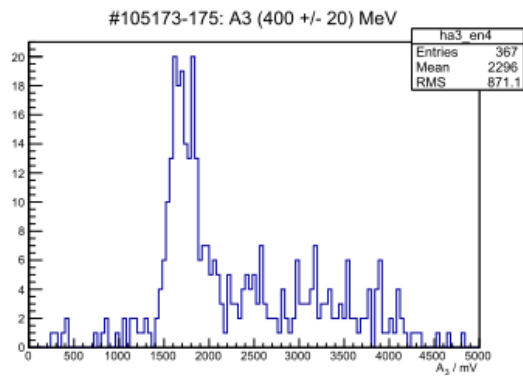
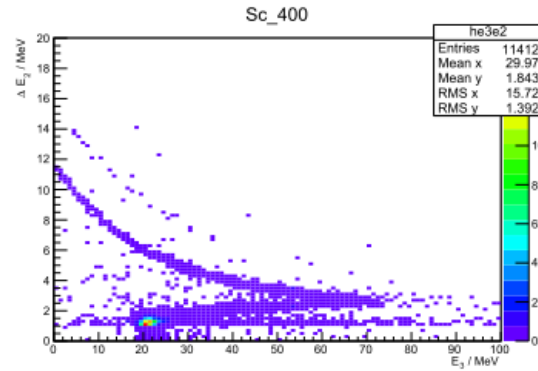
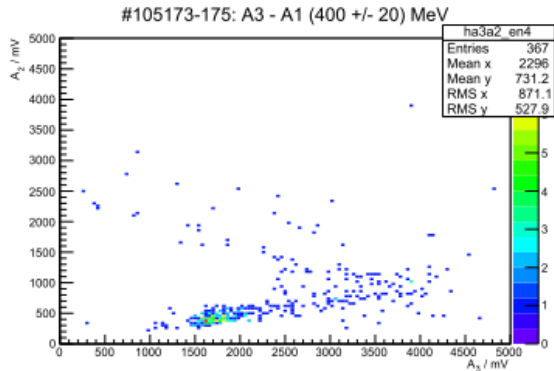
# 200 MeV



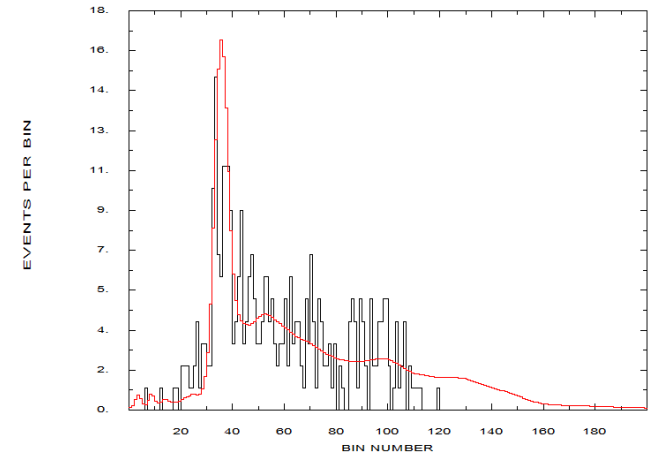
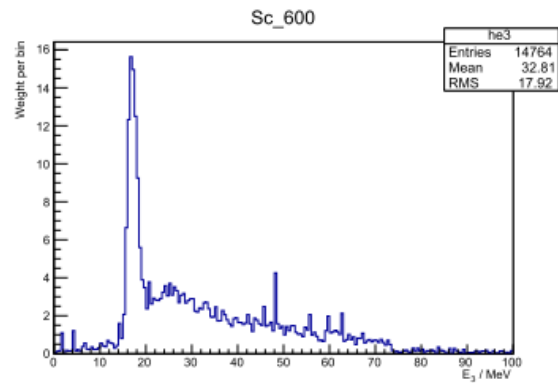
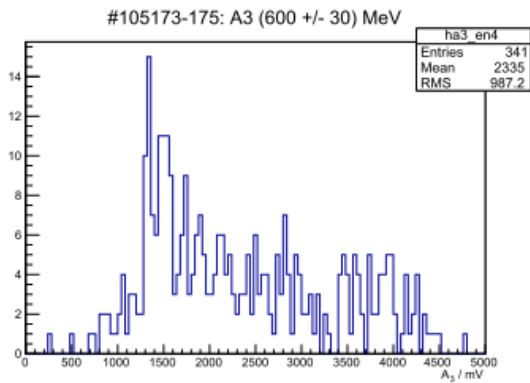
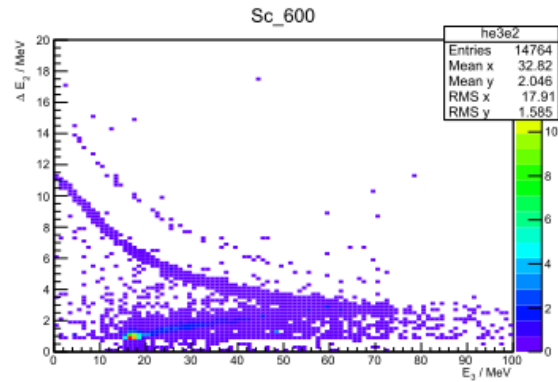
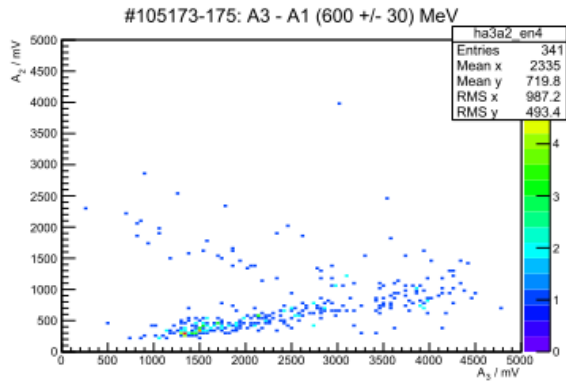
# 300 MeV



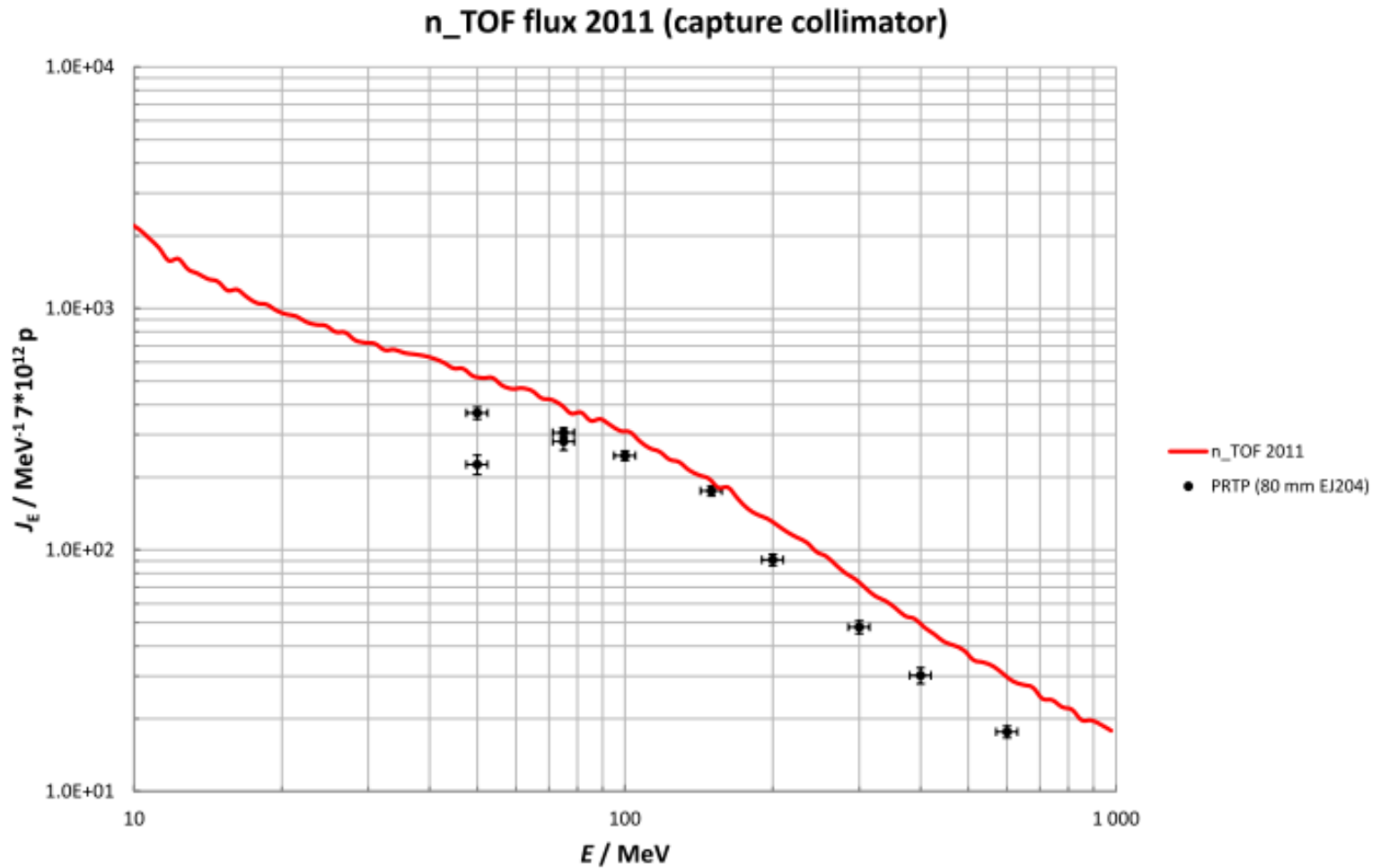
# 400 MeV



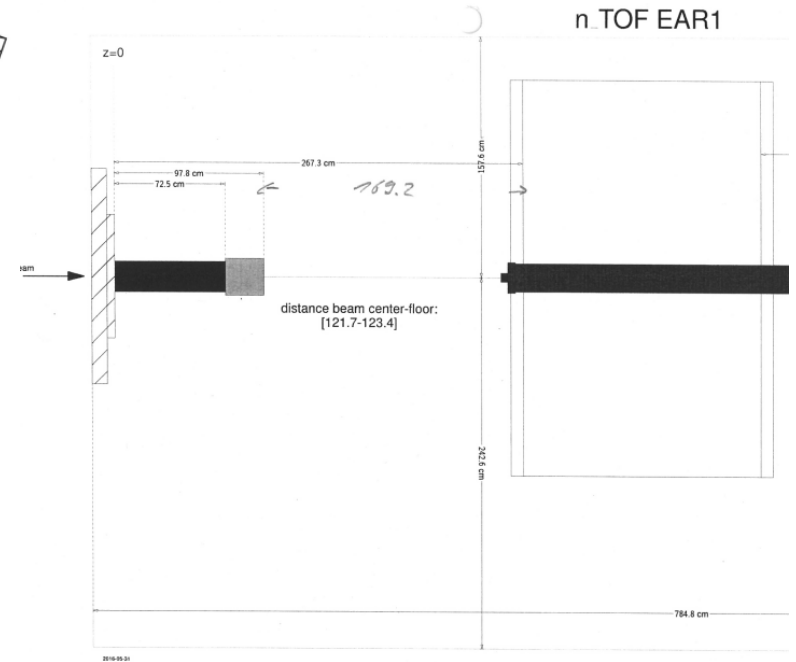
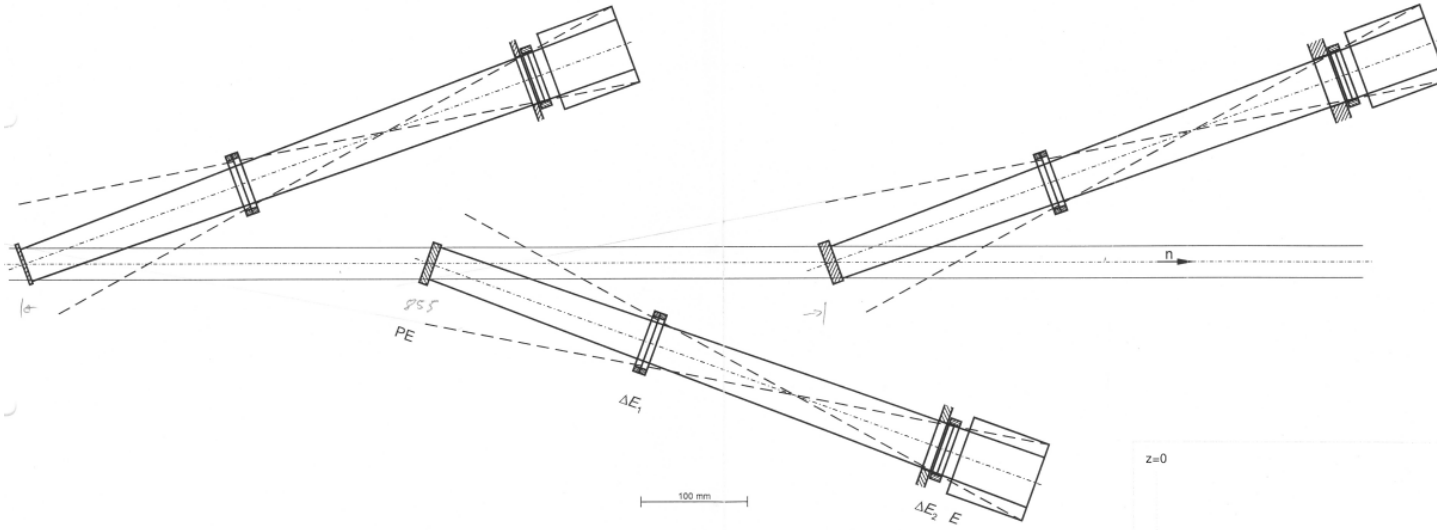
# 600 MeV



# Absolute Flux



# Multi-RPT set up





# $^{235}\text{U}$ Deposits from IRMM



## IRMM Deposits 2015

$m / \text{amu}$

$t_{1/2} / \text{s}$

$A/m / (\text{Bq/mg})$

			$m_{^{235}\text{U}} / \text{mg}$	$A_{^{235}\text{U}} / \text{Bq}$
TP-NP 08/65-01sp	0.1 Al	208 $\mu\text{g}/\text{cm}^2$	4.084	326.5
TP-NP 08/65-02	0.25 Al	318 $\mu\text{g}/\text{cm}^2$	6.242	499
TP-NP 08/65-05	0.15 VA	336 $\mu\text{g}/\text{cm}^2$	6.6	528
TP-NP 08/65-06	VA	271 $\mu\text{g}/\text{cm}^2$	5.31	424.7
TP-NP 08/65-07	VA	272 $\mu\text{g}/\text{cm}^2$	5.34	426.9
TP-NP 08/65-09	VA	507 $\mu\text{g}/\text{cm}^2$	9.96	797
<hr/>				
37.54 mg				
				3002.1

