Lime and Lemon data comparison

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Atul Prajapati

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Lemon Data

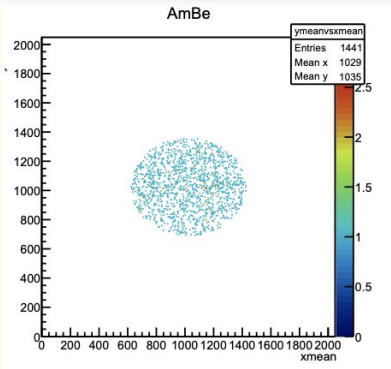
- AmBe Runs: 2097, 2098
- Cosmic Runs: 2156-2159
- Fe Runs: 1840-2089 (Fe source at position 4)
- Exposure: 40 ms
- Gas Mix: He:CF4 (60:40)
- GEM V: 460 V
- Transfer Field: 2.5 kV/cm
- Drift Field: 500 V/cm

Lime Data

- Cosmic Runs: 11289-11582
- Fe Runs: 11285, 11956, 12172 (Source at 3rd position)
- Exposure: 300 ms
- Gas Mix: He:CF4 (60:40)
- GEM V: 440 V
- Transfer Field: 500 V/cm
- Drift Field: 1000 V/cm

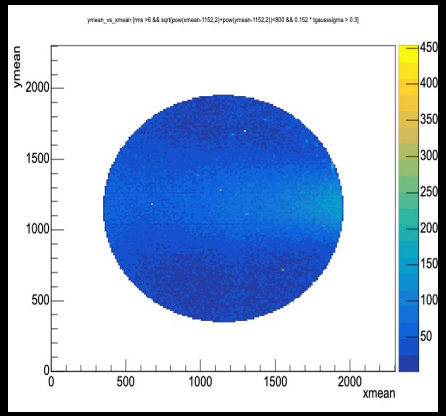
Lemon Selection

1. sqrt(pow(xmean-1024,2)+pow(ymean-1024,2))<400
2. For long tracks: length<500 or slimness>0.3
3. density >5
4. Selection for 60 keV ER from AmBe

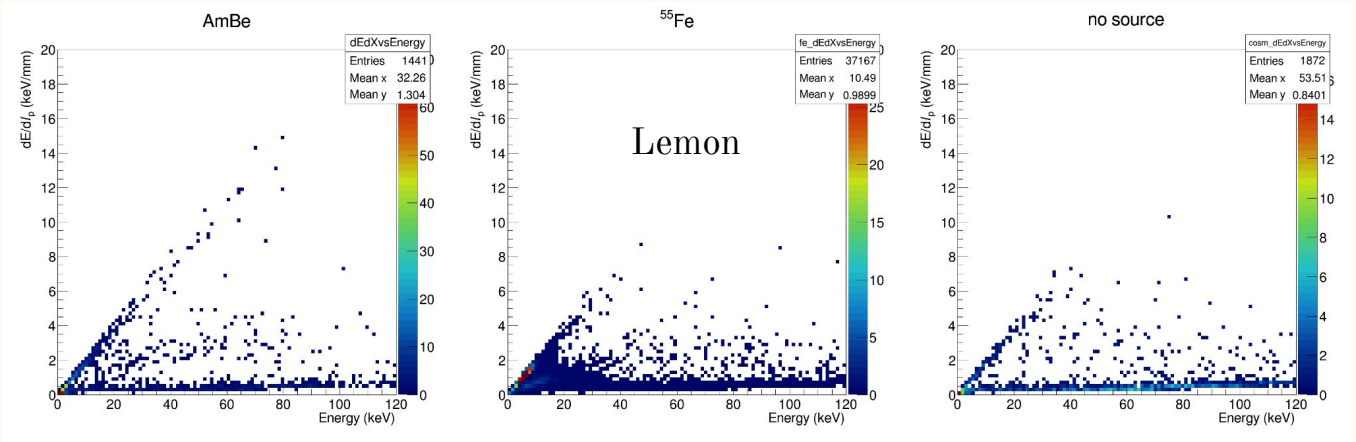


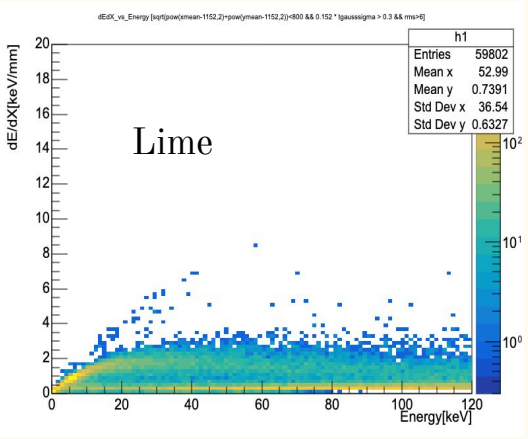
Lime Selection

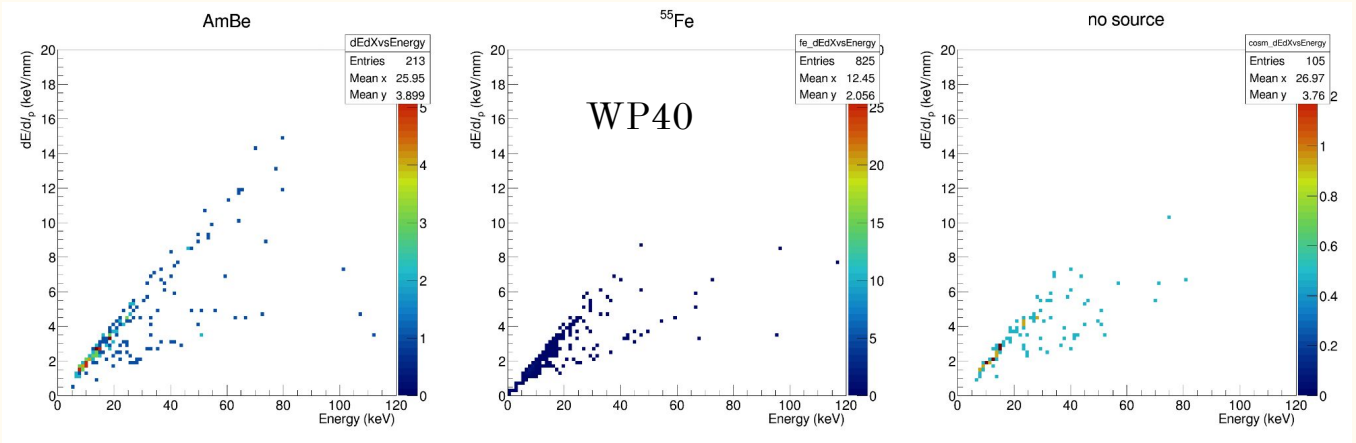
1. sqrt(pow(xmean-1152,2)+pow(ymean-1152,2))<800
2. For noise: tgausssigma*0.152>3 and rms>6



dEdX vs Energy:

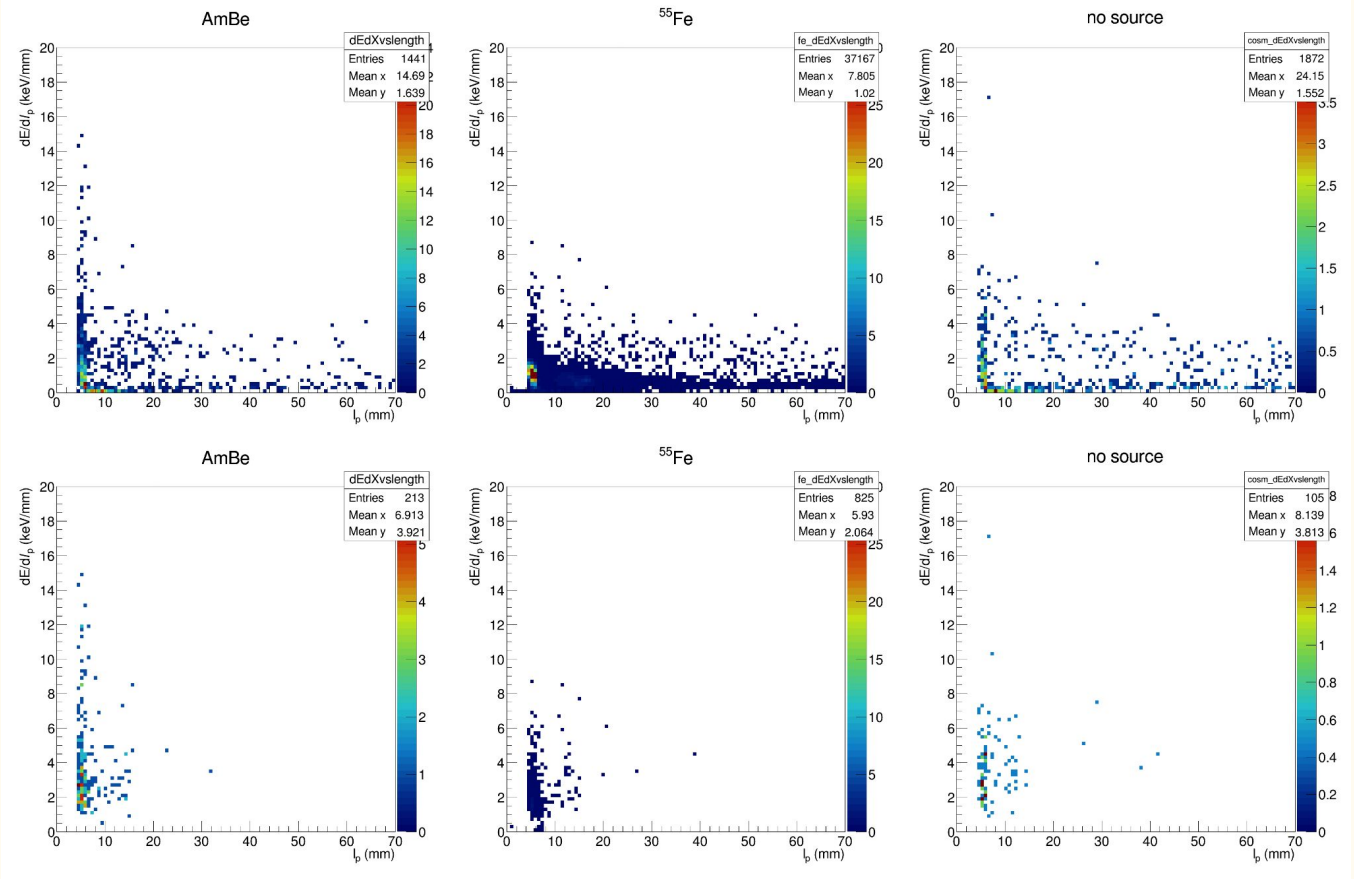


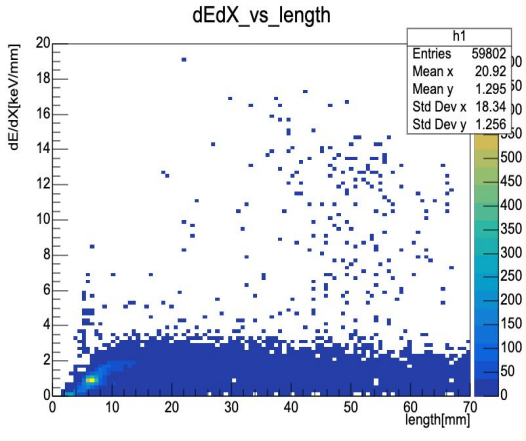




First row: w/o any selection
WP40: lemon cuts for 40 % signal eff

dEdX vs length:



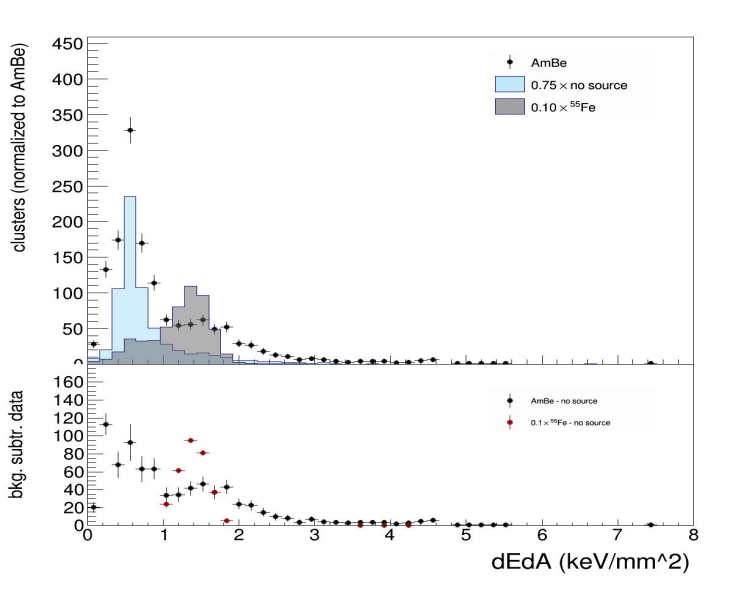


dE/dA

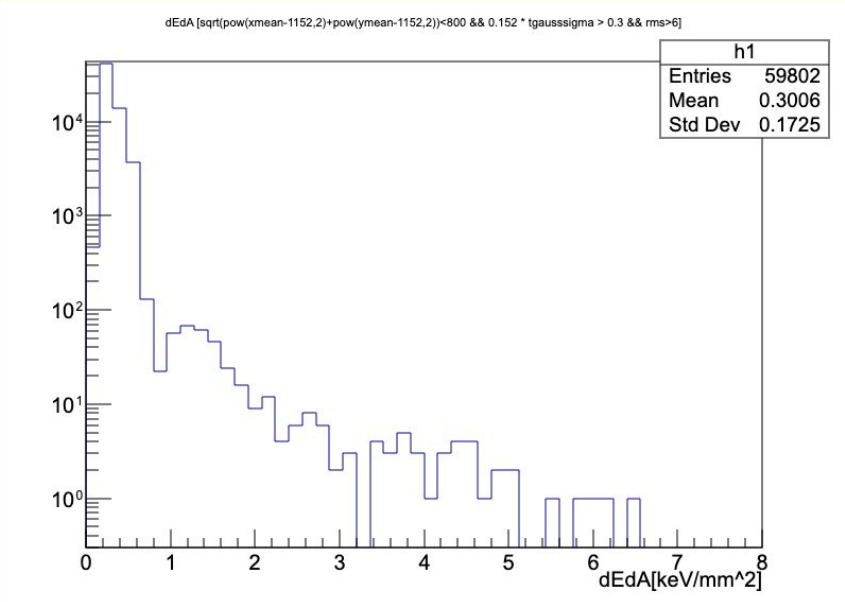
dEdA [keV/mm^2]= calibrated energy / nhits * pixel area

pixel area = pixel width*pixel length

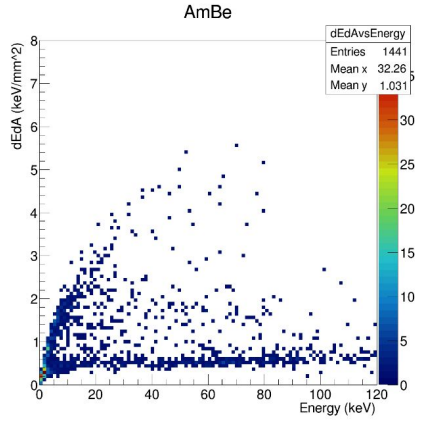
Lemon Data

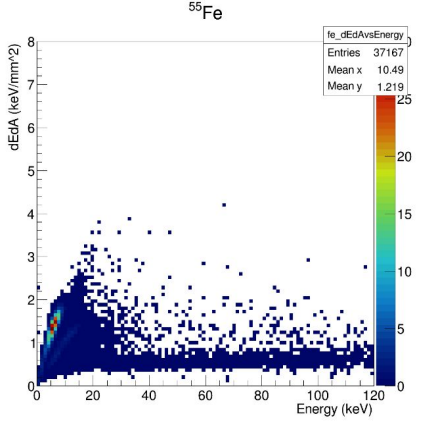


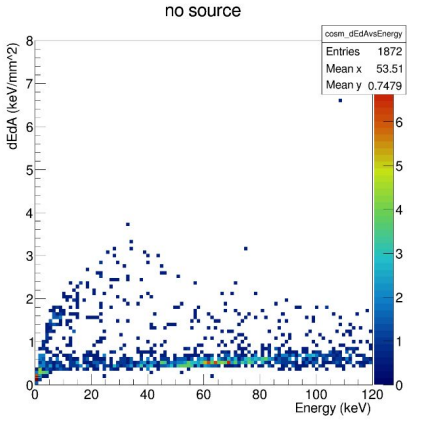
Lime Data

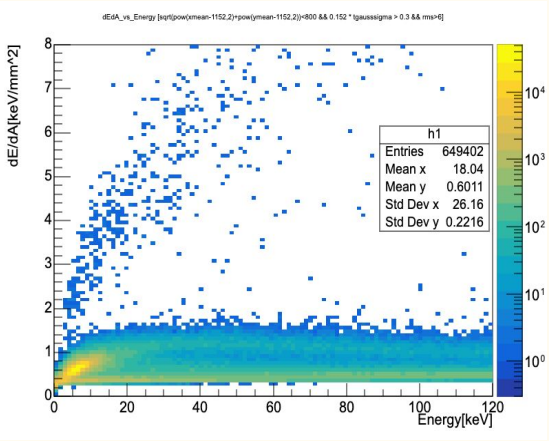


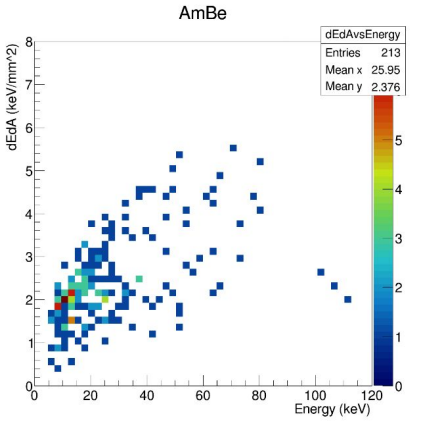
dEdA vs Energy

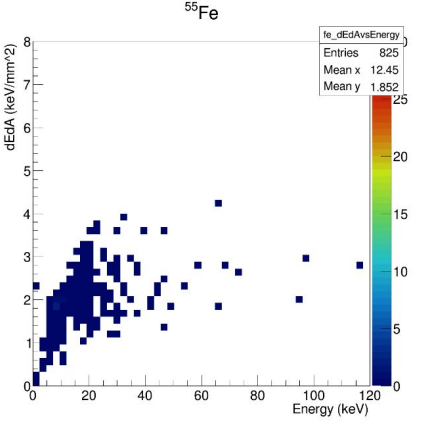


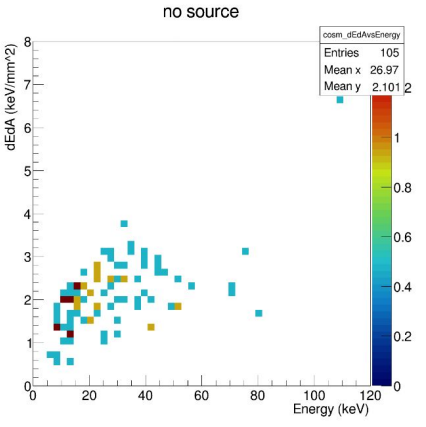




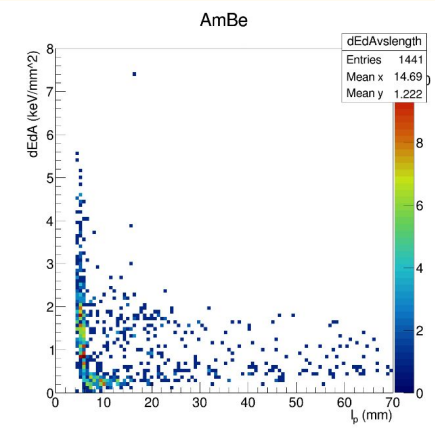


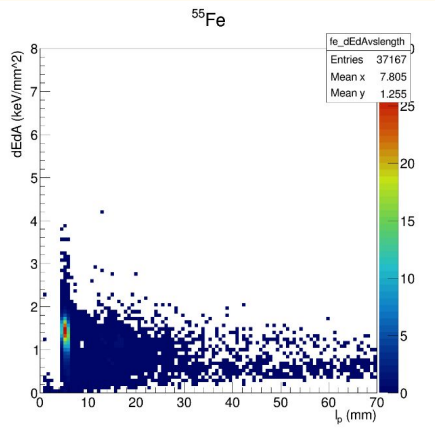


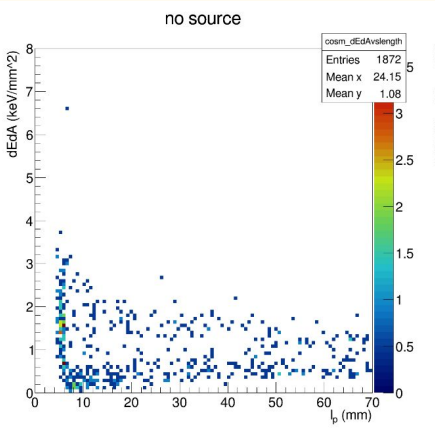


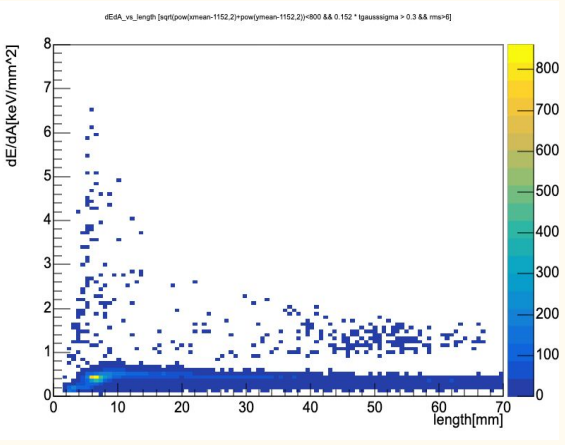


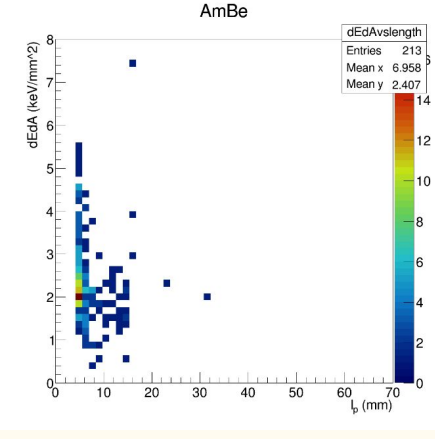
dEdA vs length

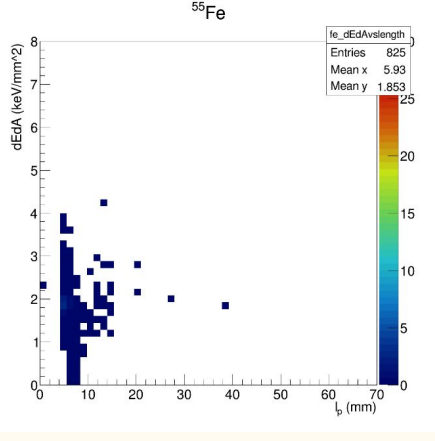


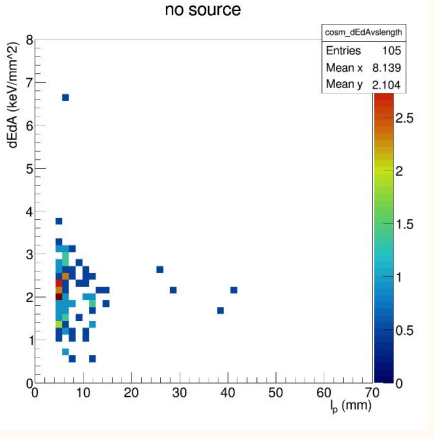




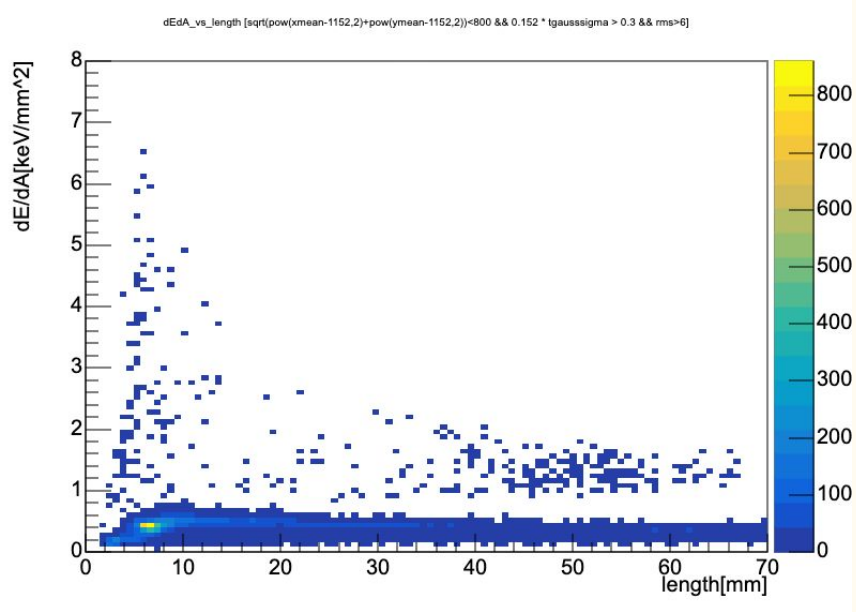


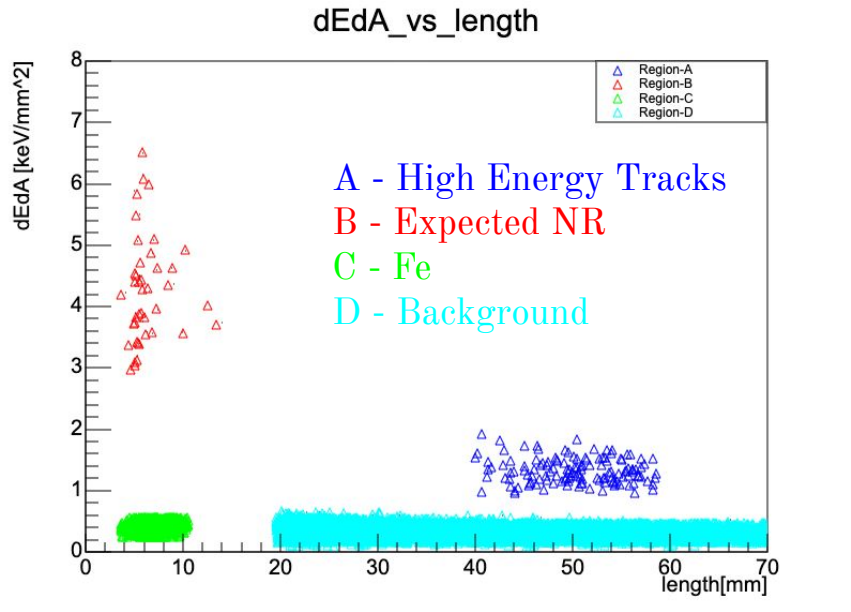




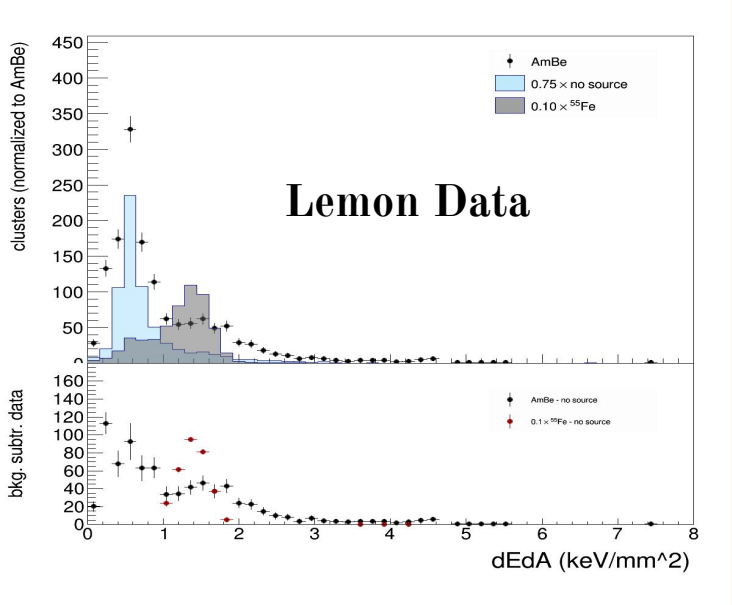


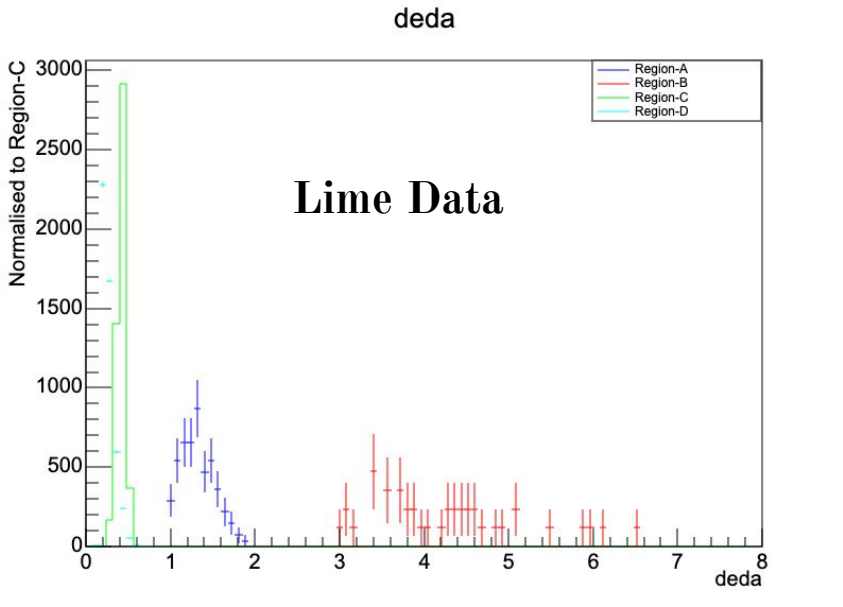
Different regions in dEdA vs length plot [Lime data]



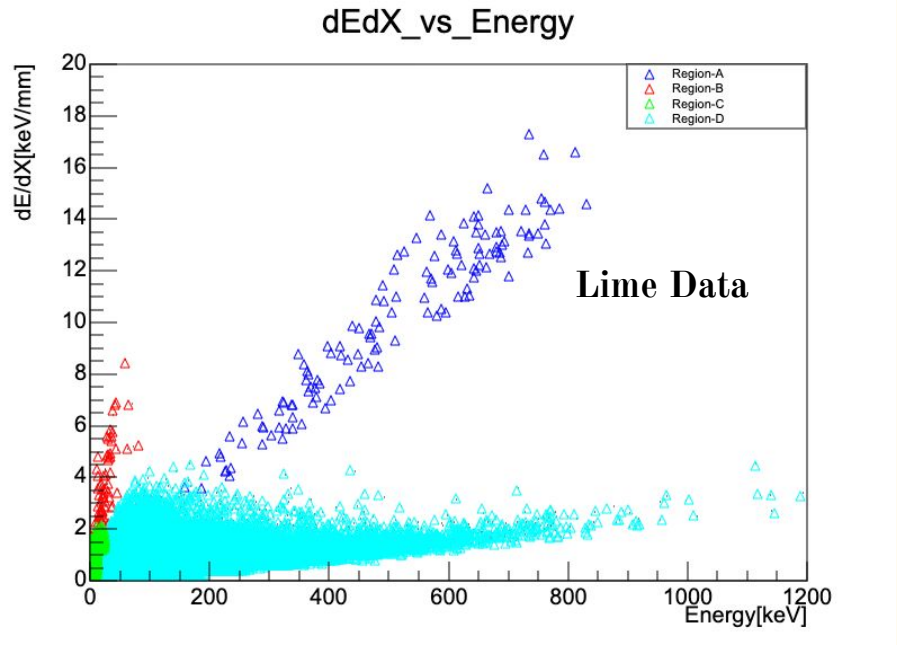


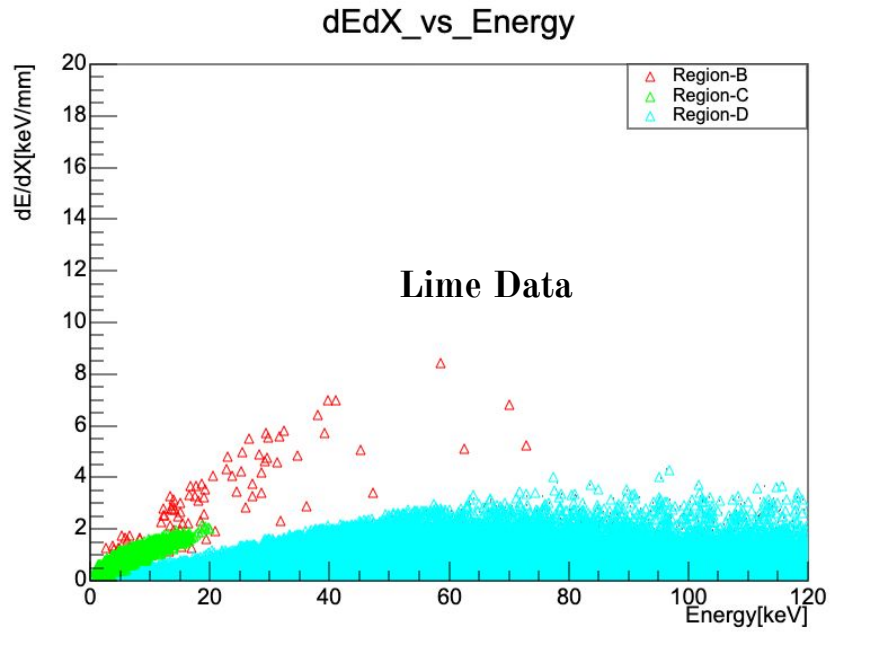
dE/dA


Lemon Data
AmBe
0.75 × no source
0.10 × 55Fe
clusters (normalized to AmBe)
AmBe - no source
0.1 × 55Fe - no source
bkg. subtr. data
dEdA (keV/mm^2)

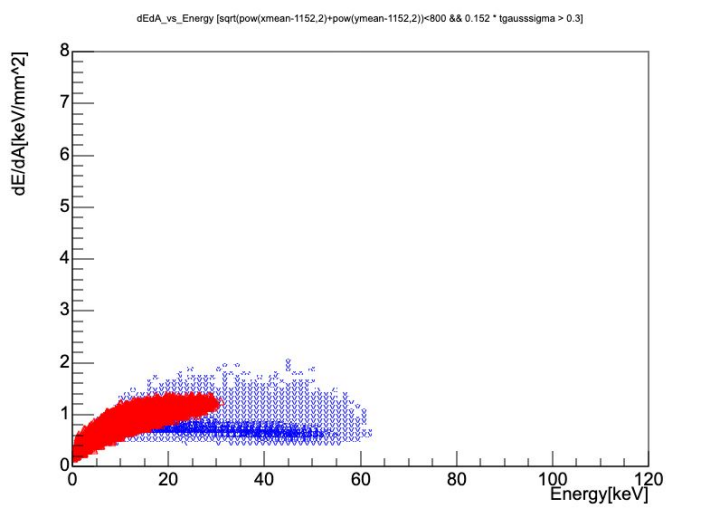

deda
Lime Data
Region-A
Region-B
Region-C
Region-D
Normalised to Region-C
deda

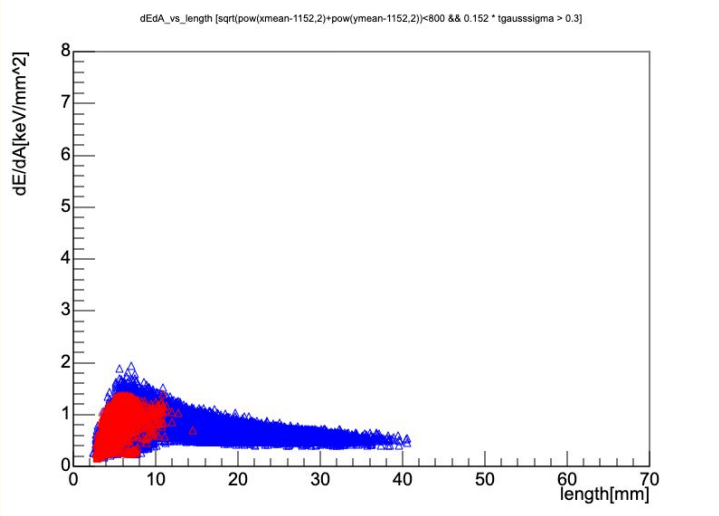
dEdX vs Energy



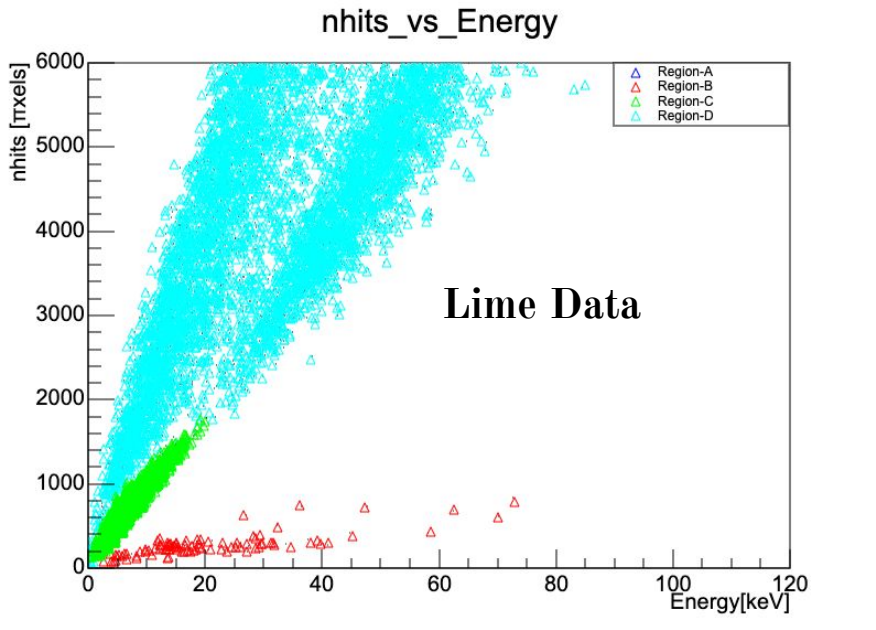


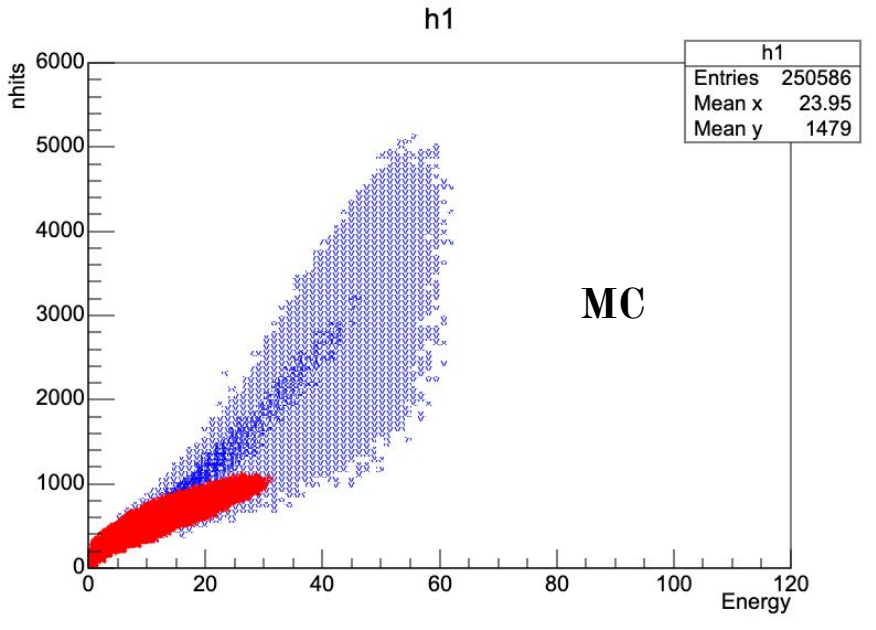
Do we have NR band in dEdA plot in MC data?



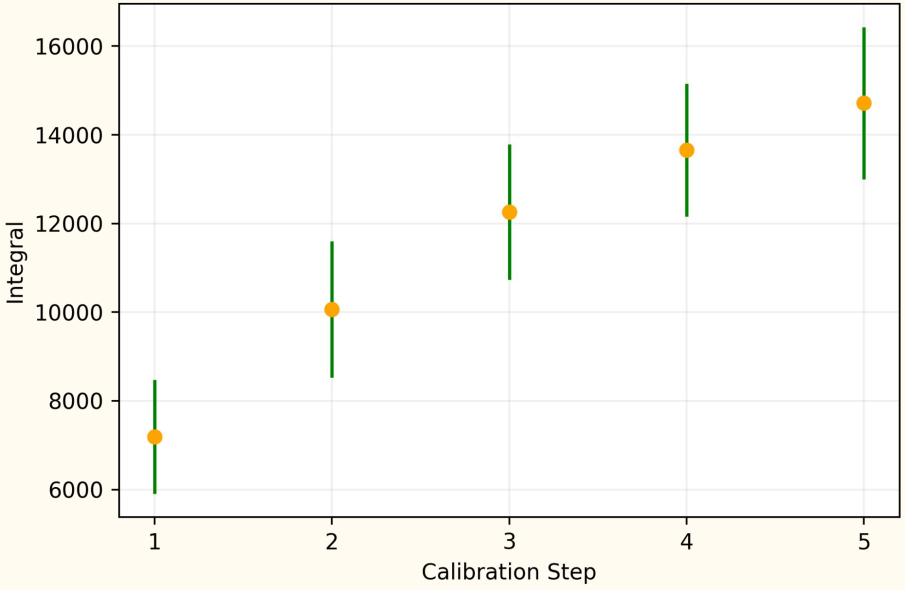


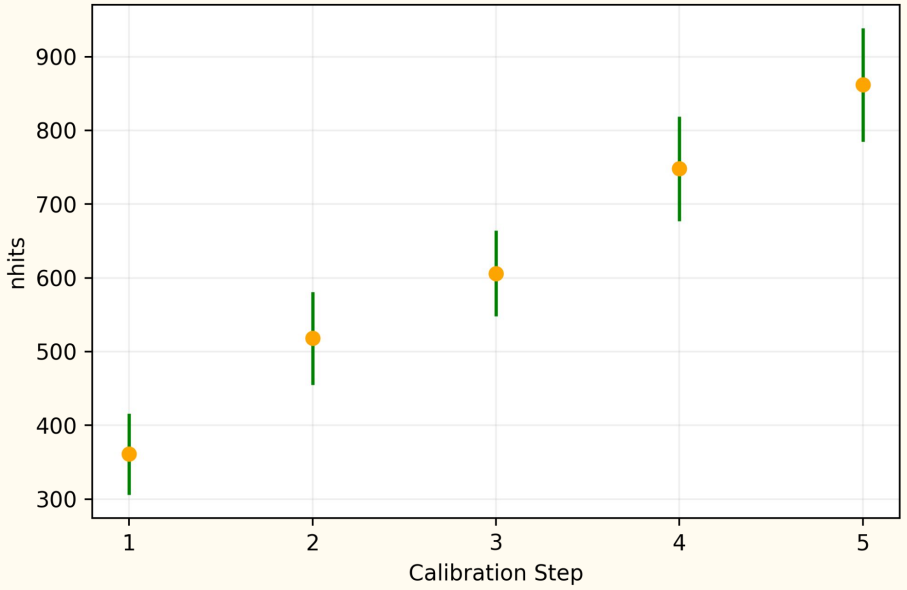
nhits vs energy



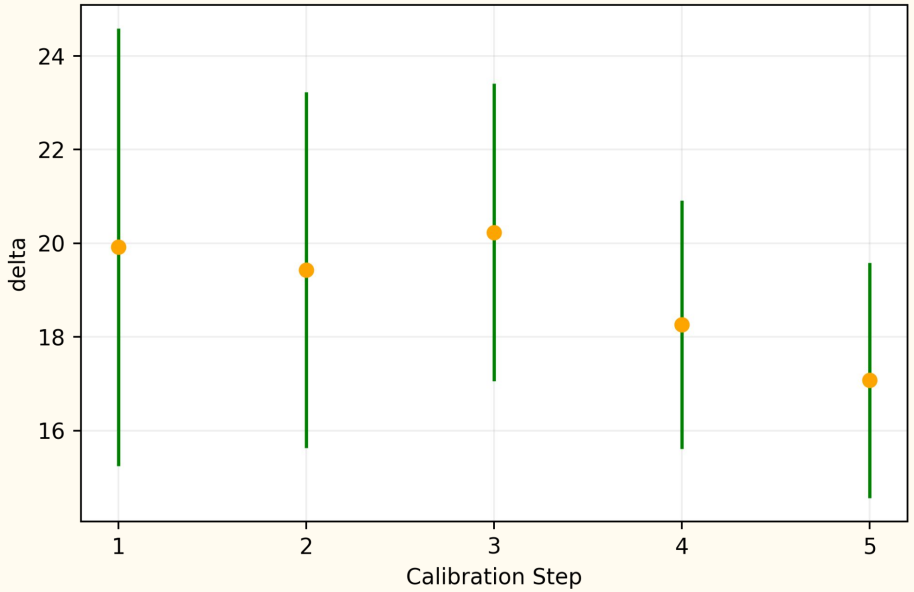


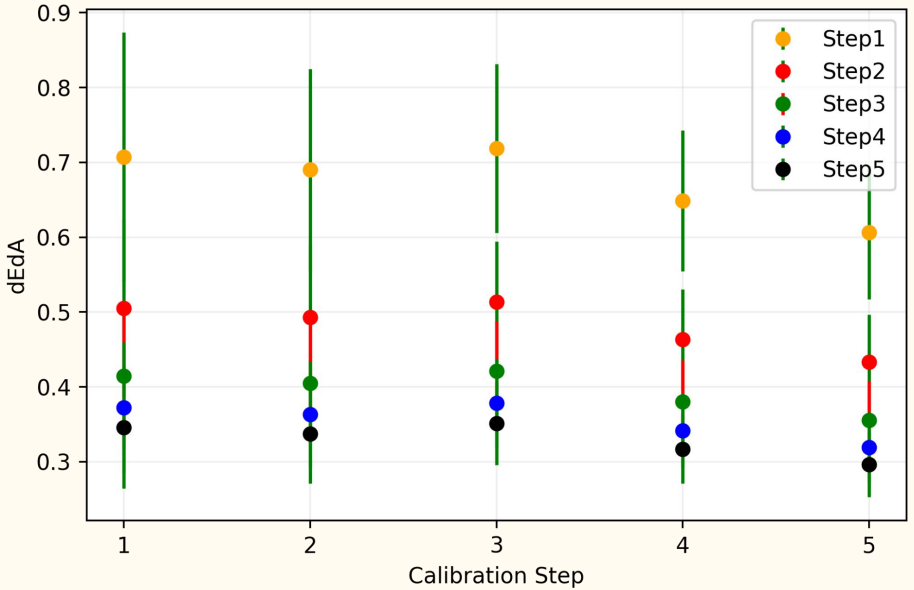
Can we get similar value of dEdA for Fe as Lemon in Lime data?



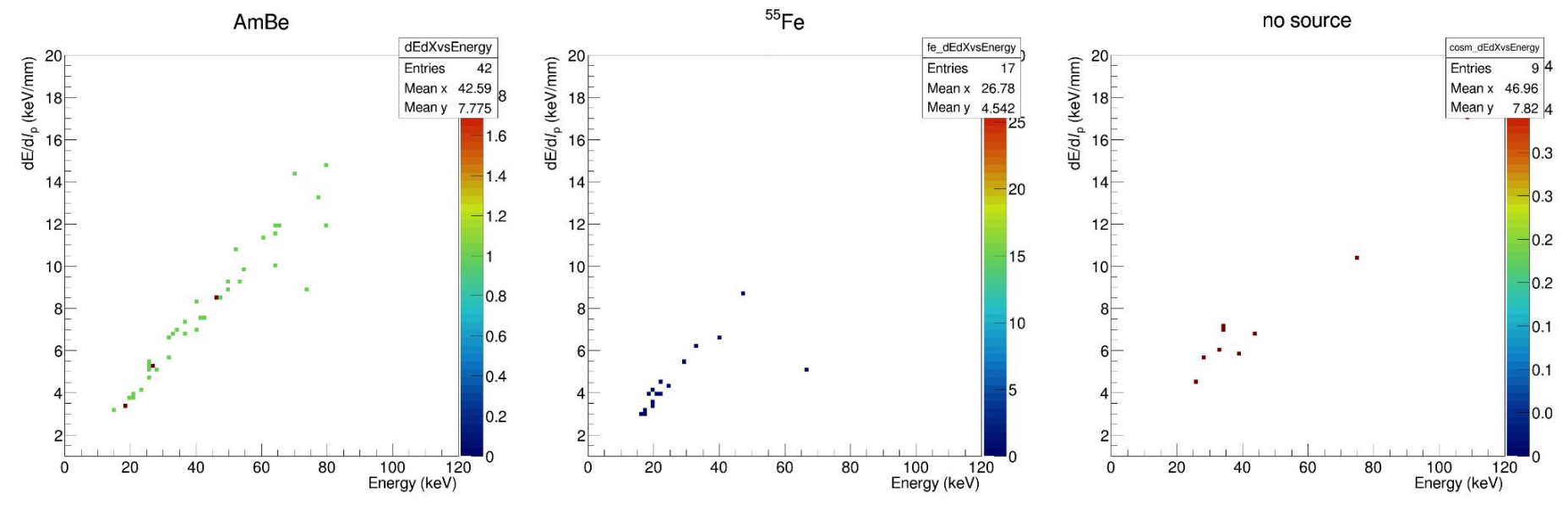


density and dEdA with different calibration





Selection on lemon data with dEdA



Cut : dEdA >3 and length <15 mm