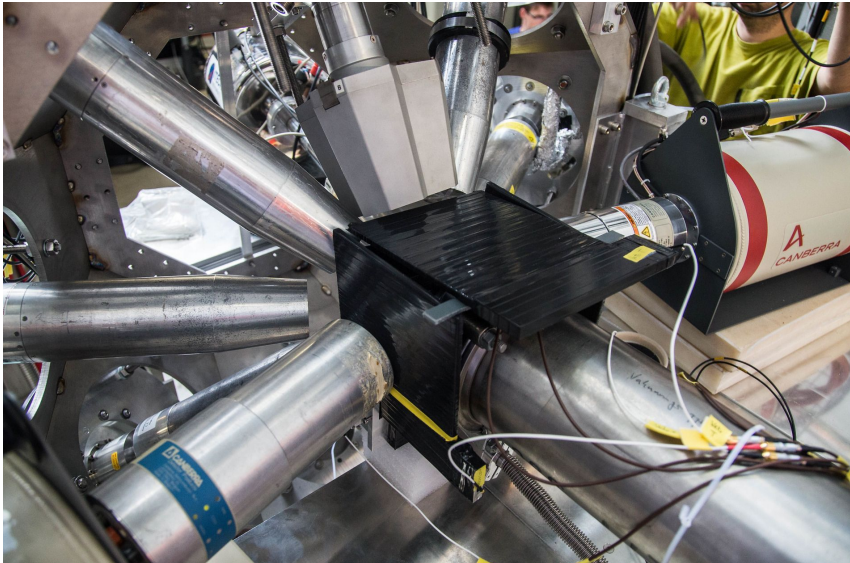


2018

- 1 miniball cluster
- 8 Orsay pool detectors
- 2 stand alone

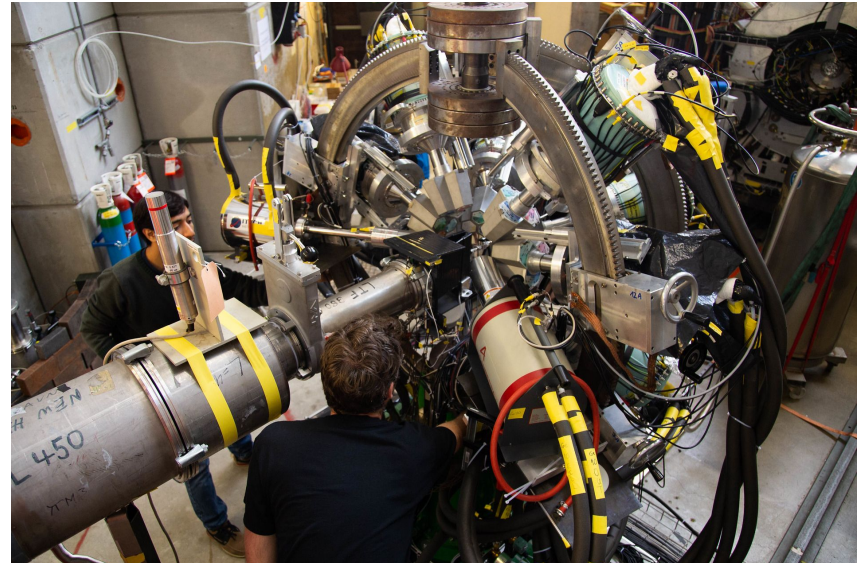
Physics: Kr in H_2 2sIs observation

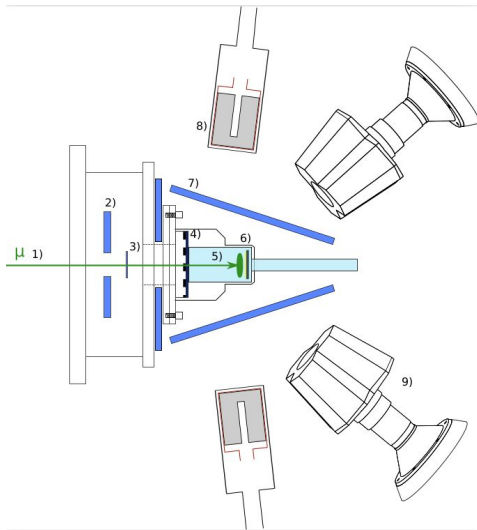


2019

- 8 miniball cluster
- 2 stand alone

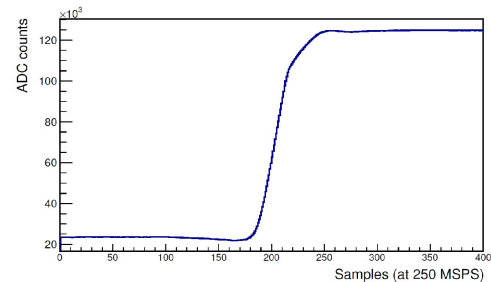
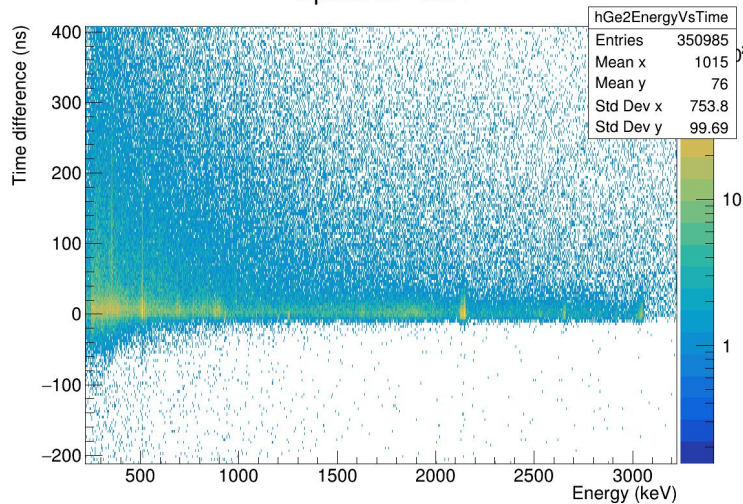
Physics: Zn in H_2 2sIs observation via $\gamma\gamma$ coincidences
X-rays of Radium and Curium





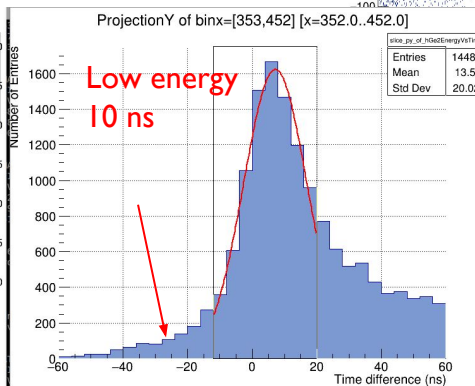
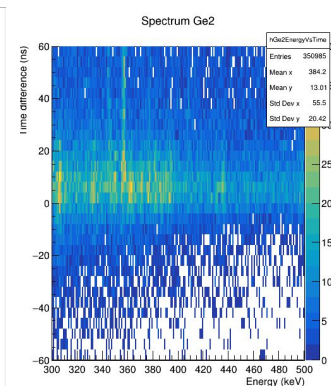
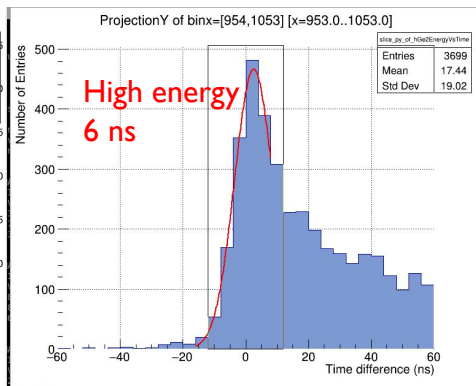
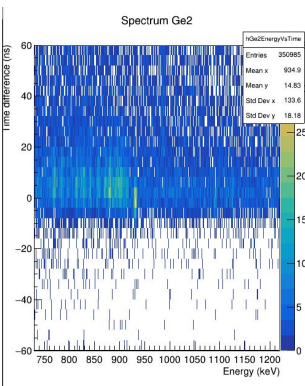
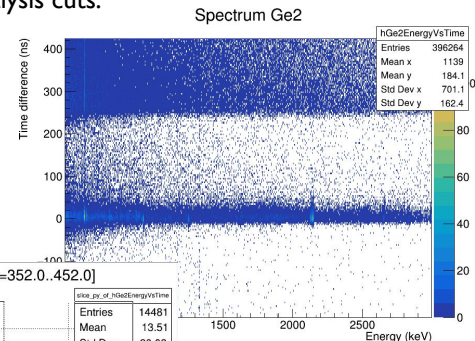
Bread n butter spectrum

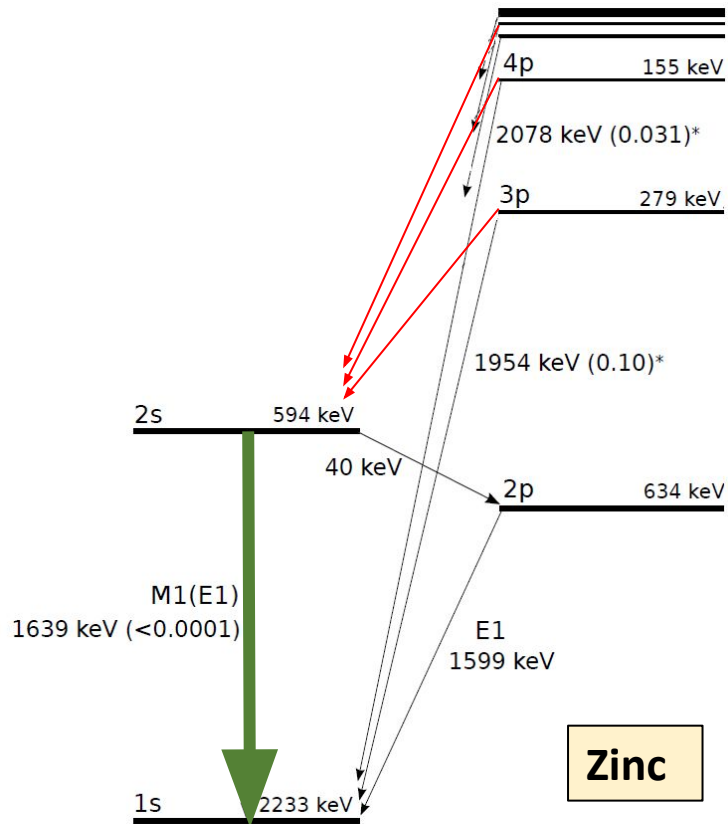
Spectrum Ge2



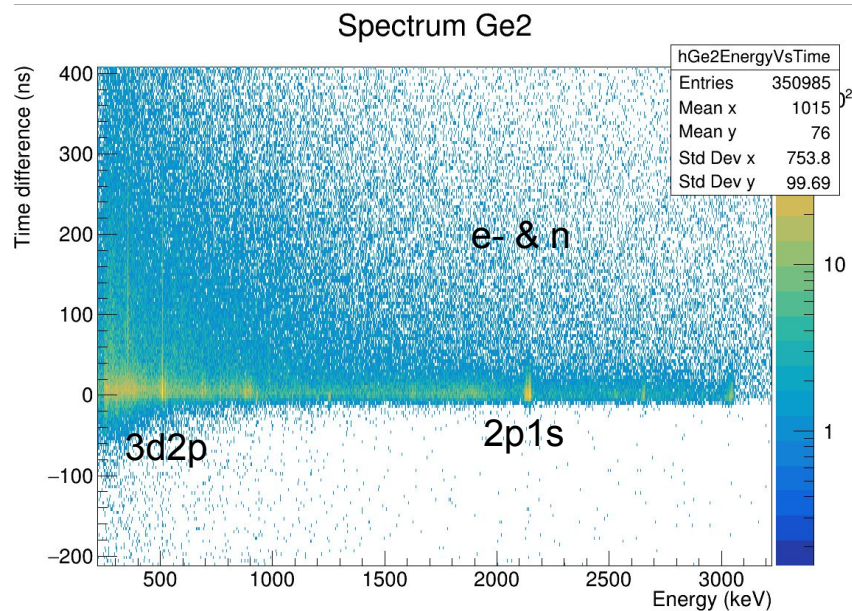
Get the HPGe time from a non-template waveform

Produced $t=0$ data driven training data with analysis cuts:





Bread n butter spectrum

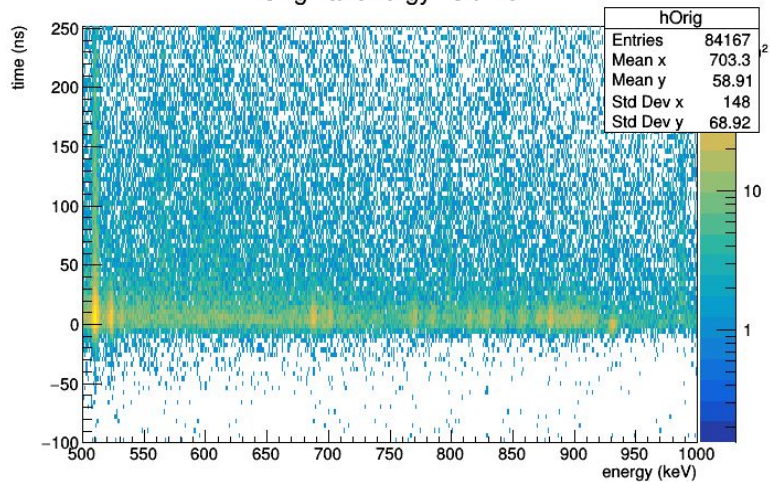


Physics case for better (NN?) timing:

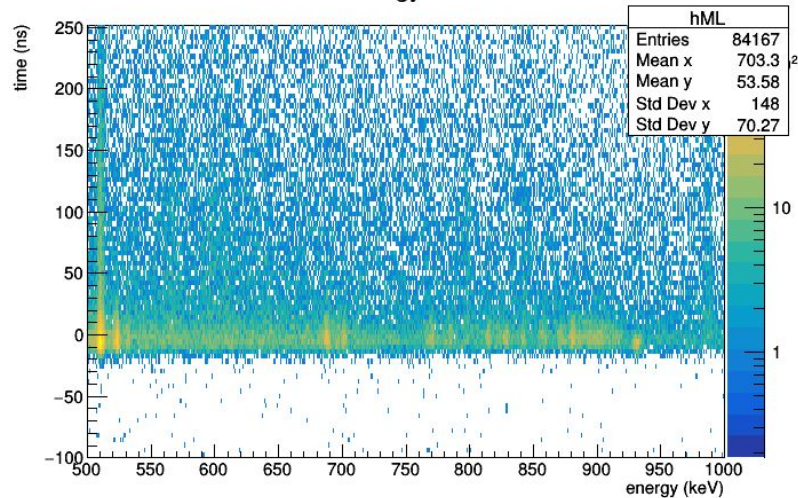
- Reconstruct cascade (2S population)
- Tag 2S feeding lines

Production test on Kr data

Original energy vs time



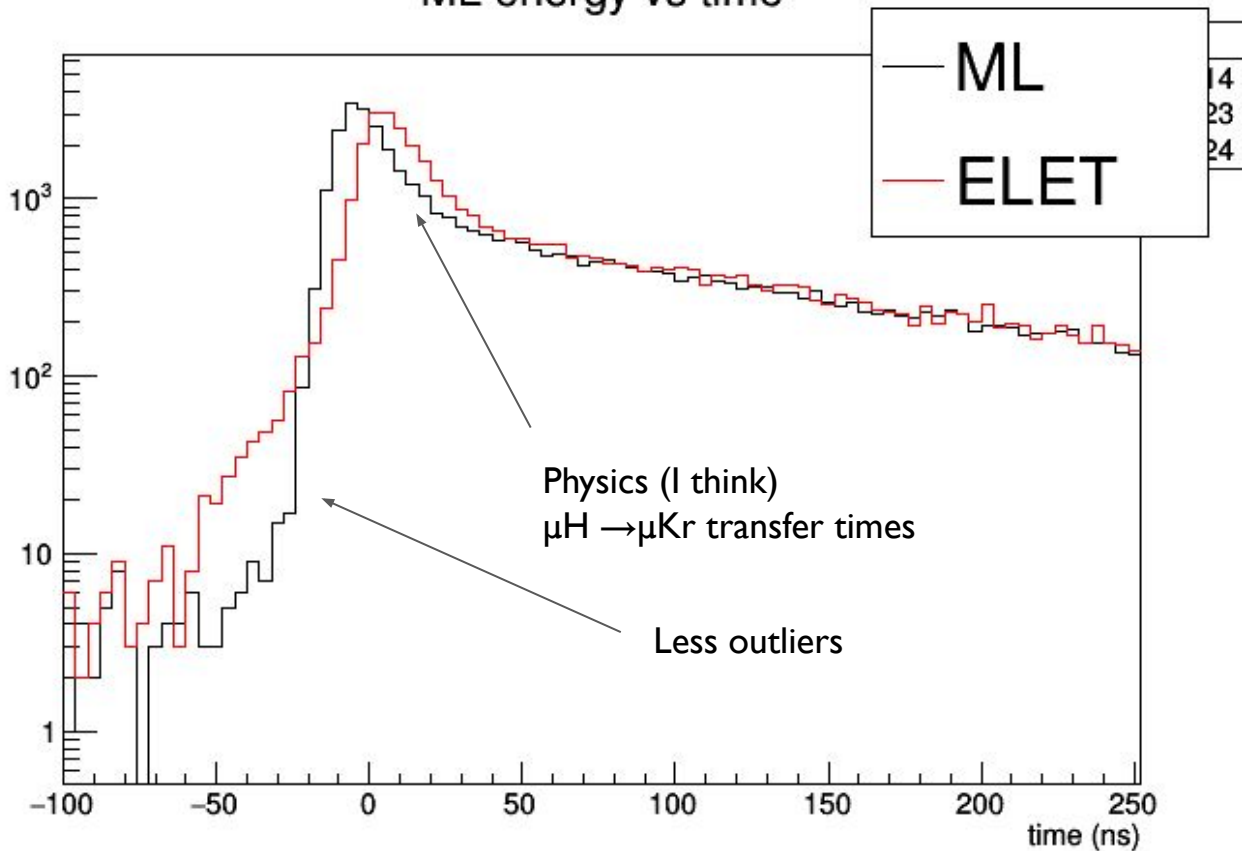
ML energy vs time



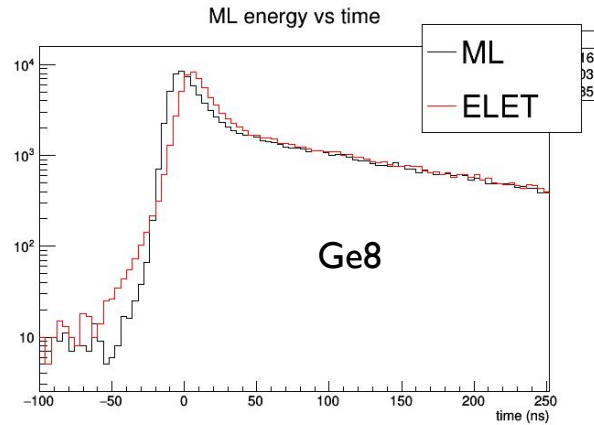
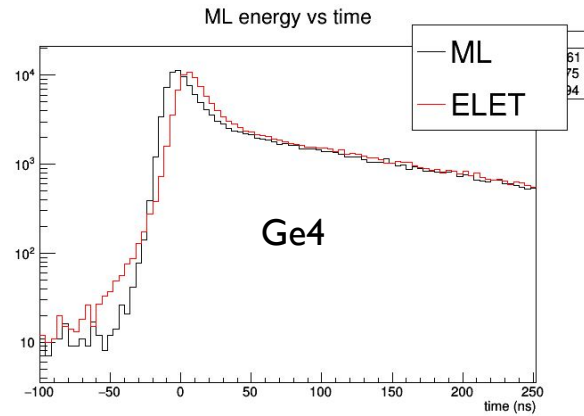
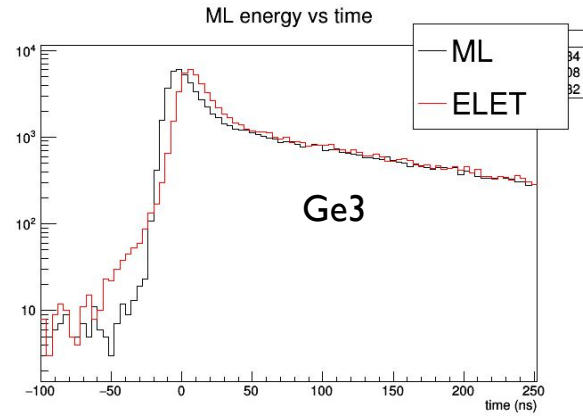
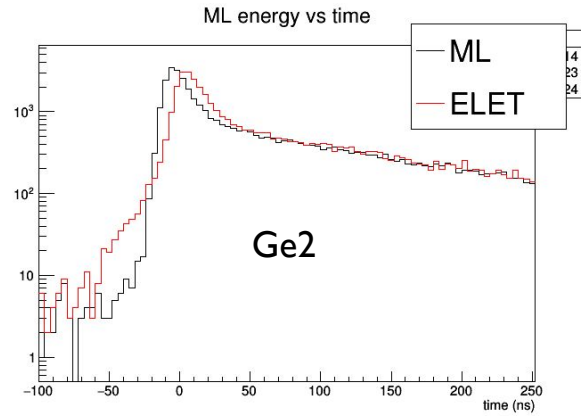
Ge2 Kr Xray spectrum 500-750 keV
Trained on Kr data (500-1000 keV)

Production test on Kr data

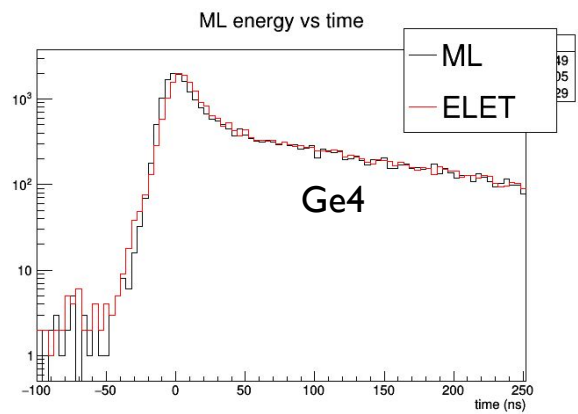
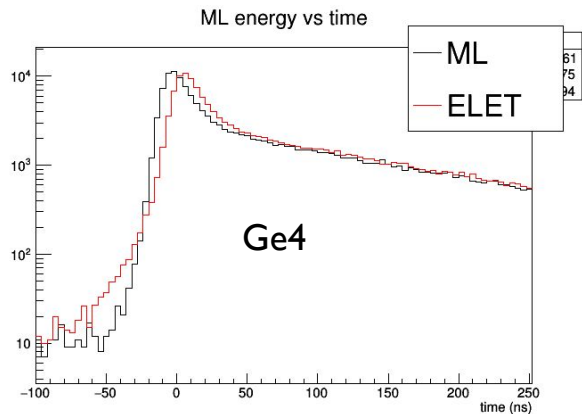
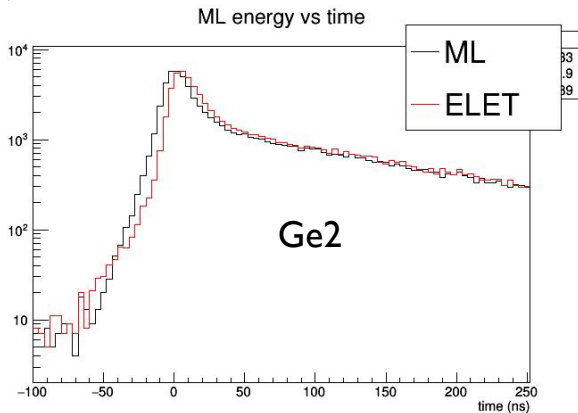
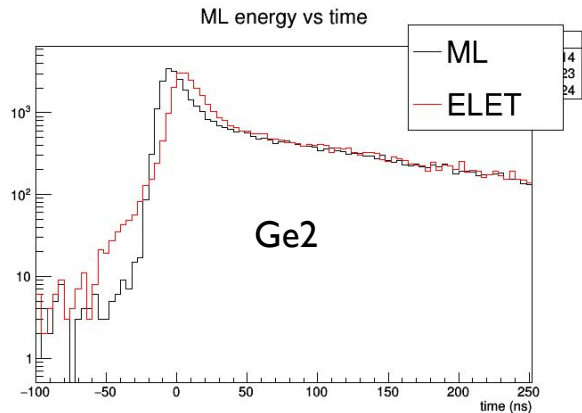
ML energy vs time



Picture book



NN trained over larger energy range (red training, orange production)



How to move forward?

- Only for interesting events (Not implement in first pass over the data, Midas → ROOT TTree)
- Good training data sets (close to analysis data). Energy range cuts / slices need not clear yet.
- A training scripts which is easy to use
- Export a NN model (+ scaler ?) so we interface (how?) with the C++ TTree analysis
- Looks pretty good. How much more do we push?