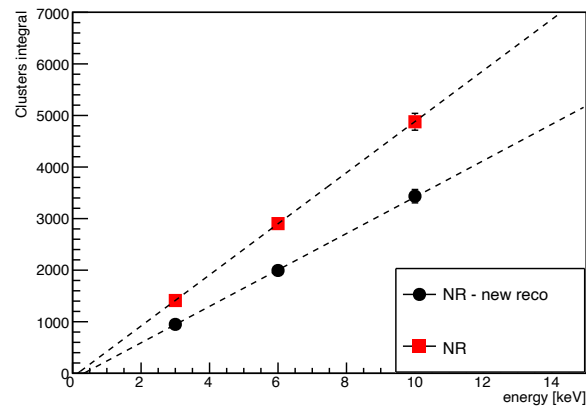


Status of the analysis on MC tracks

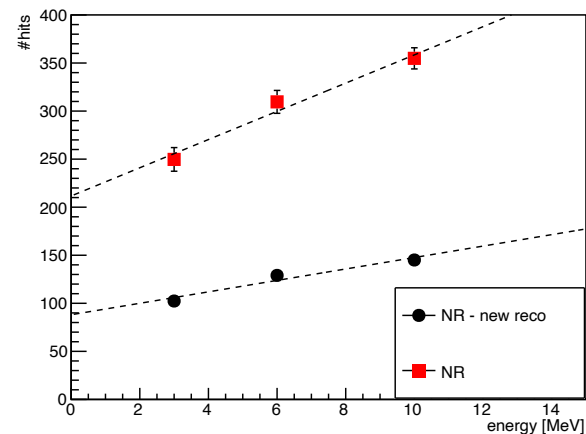
F.Petrucci

CYGNO Analysis Meeting 06/04/2020

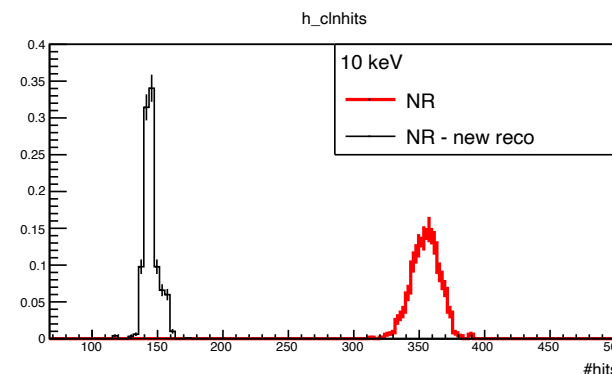
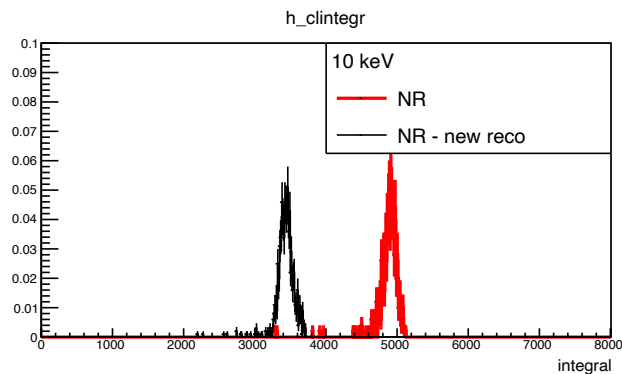
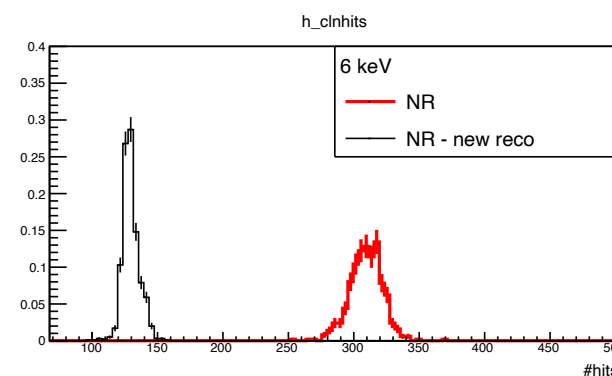
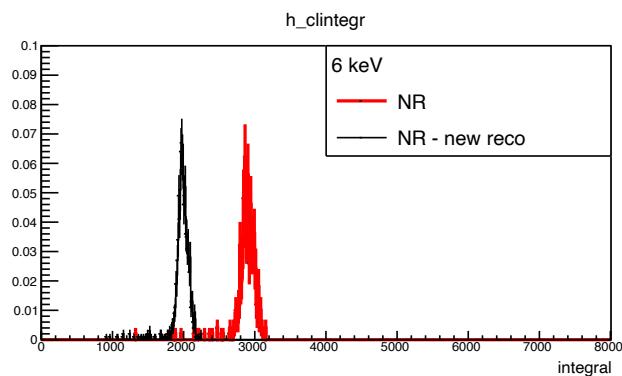
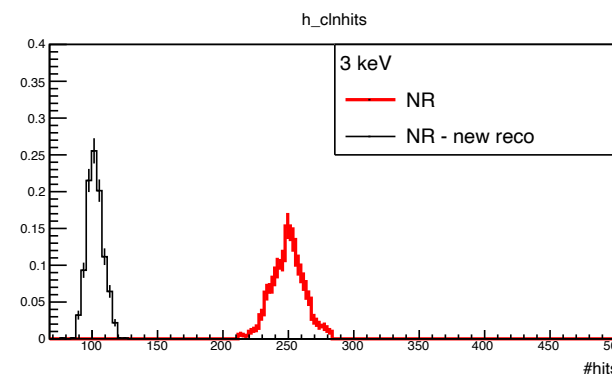
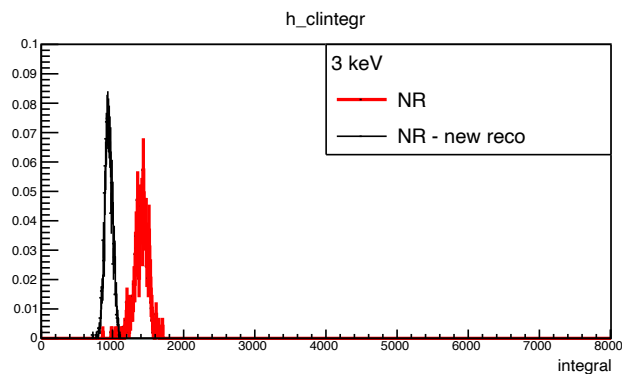
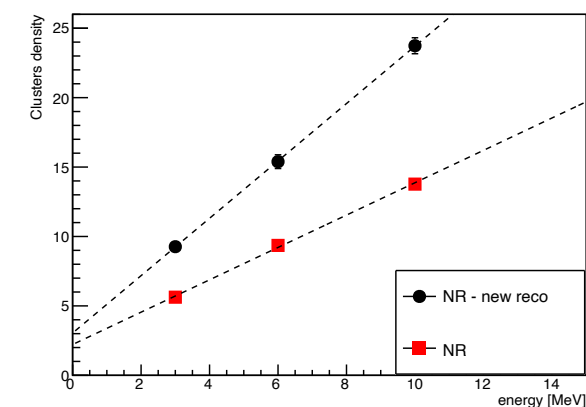
Clusters integral vs energy



Clusters #hits vs energy



Clusters density vs energy



NR

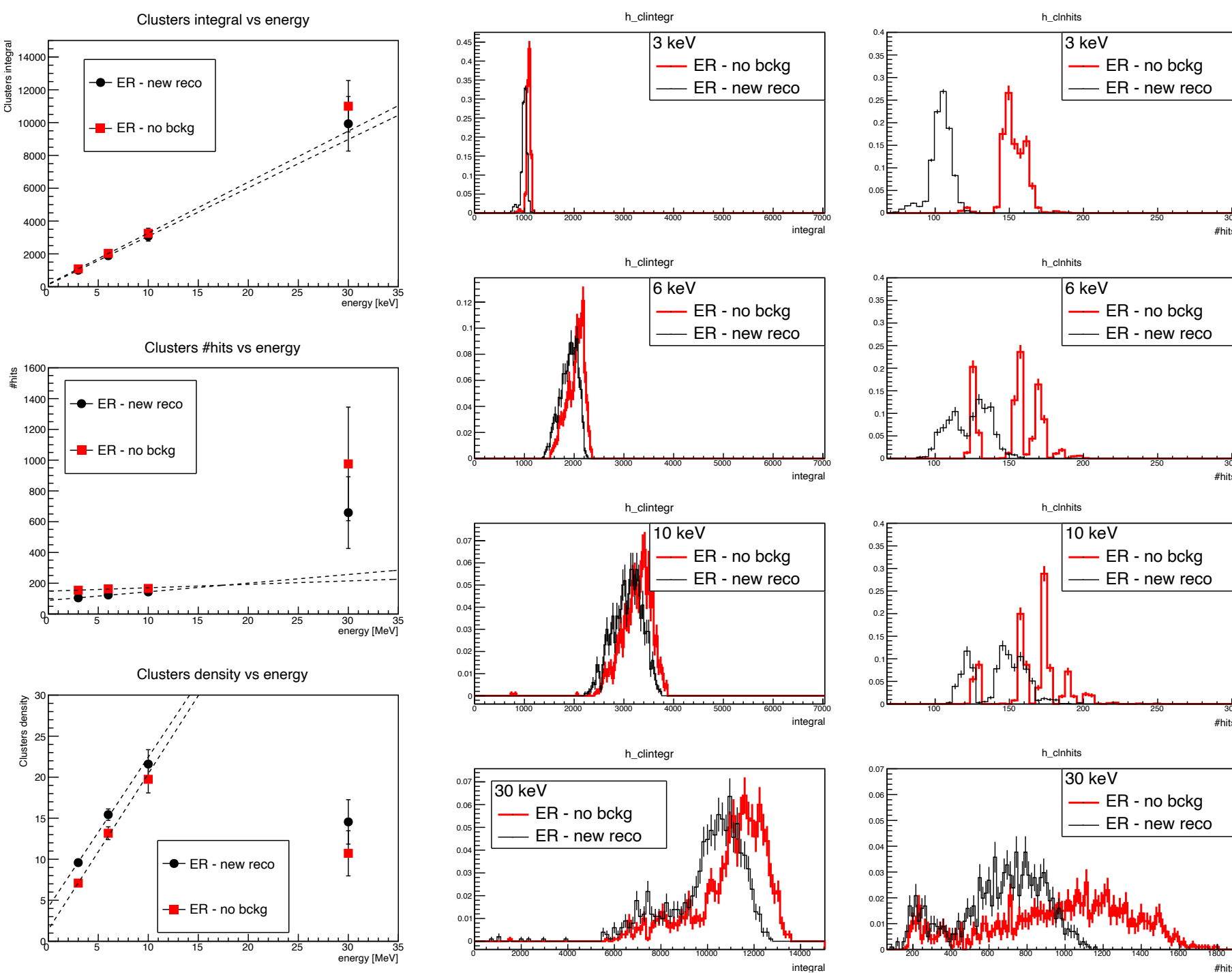
Comparison between “old” and “new” reconstruction code (parameters should be the same...)

Comments:

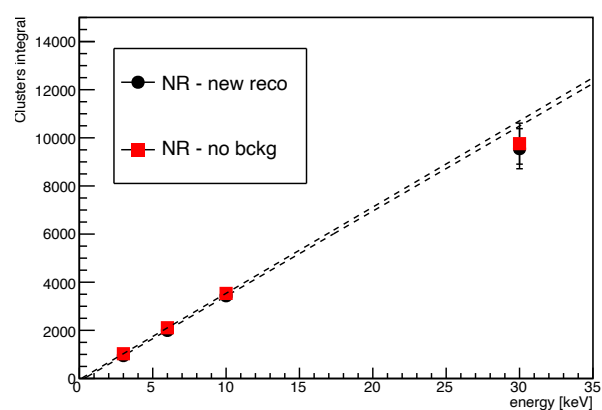
- 1) Very large differences
- 2) Similar differences observed comparing ER with “old” and “new” reconstruction code
- 3) Different results wrt Giulia’s plots?

ER w vs w/o background comparison

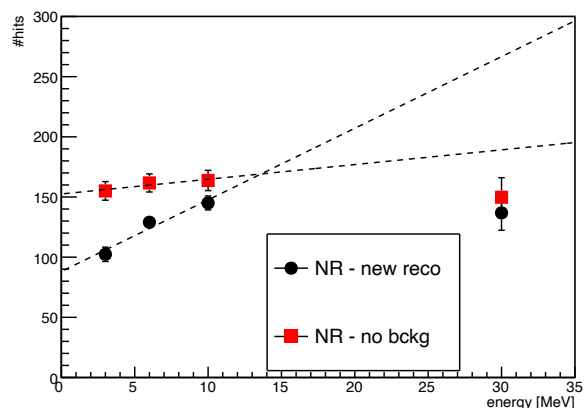
Note the different scale in the plots @30keV



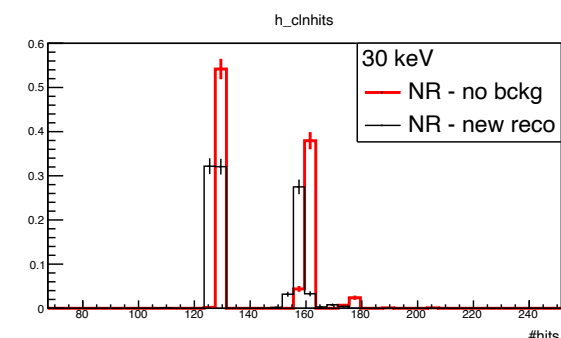
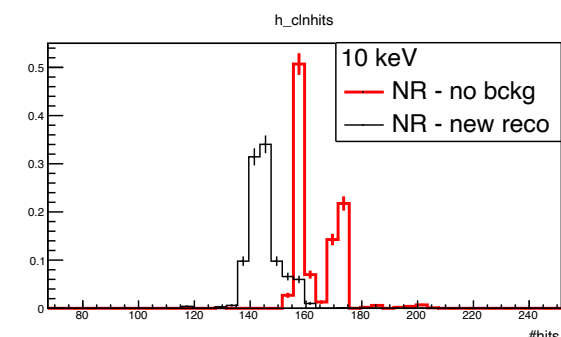
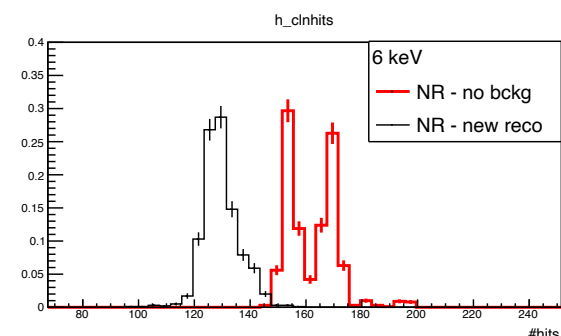
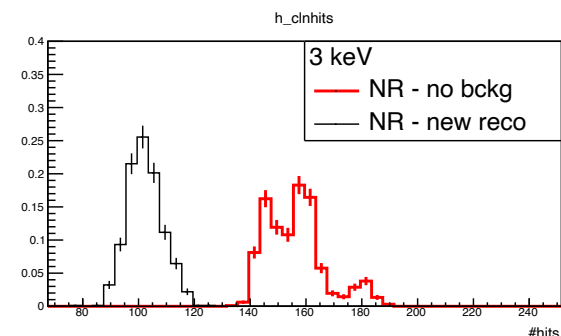
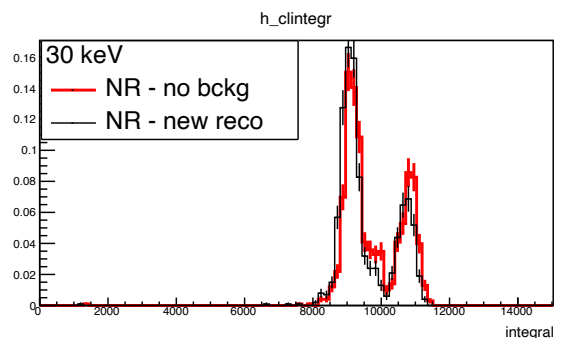
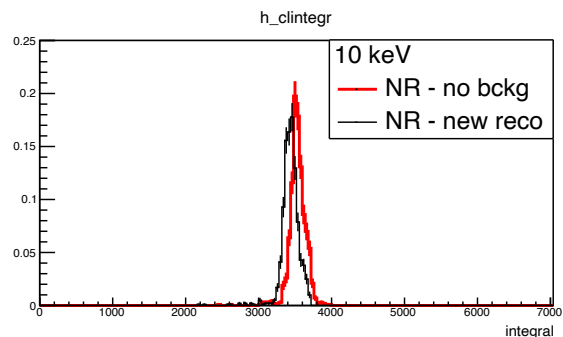
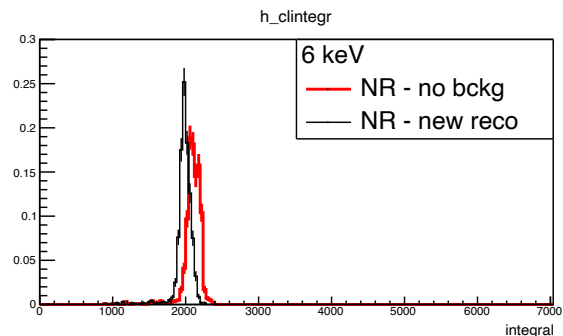
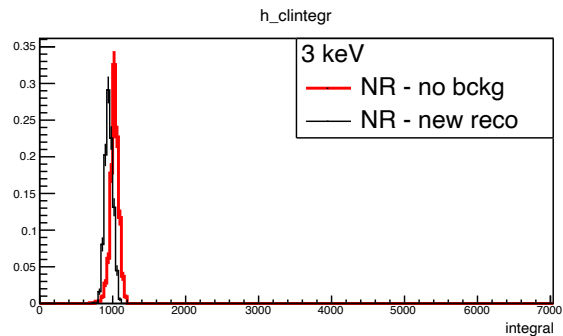
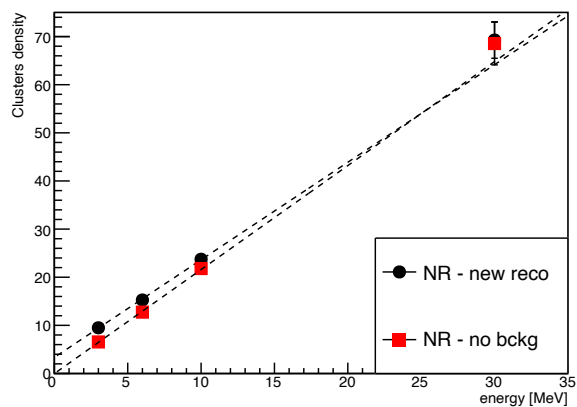
Clusters integral vs energy



Clusters #hits vs energy

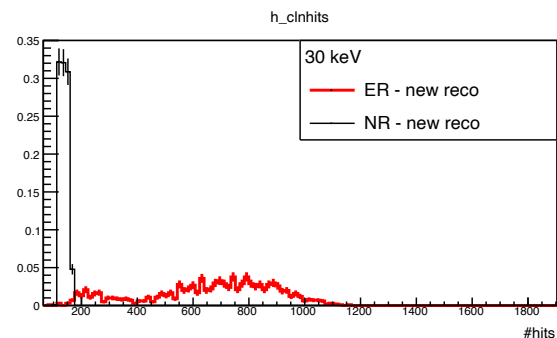
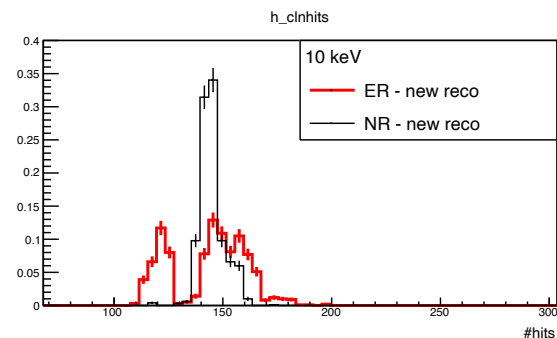
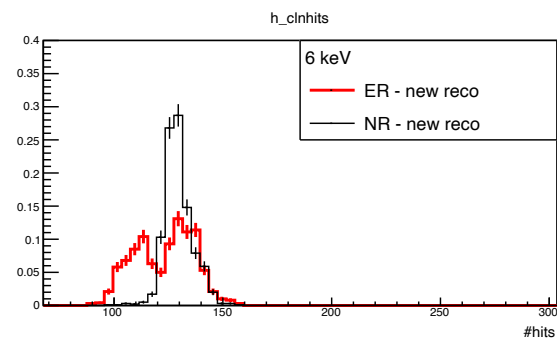
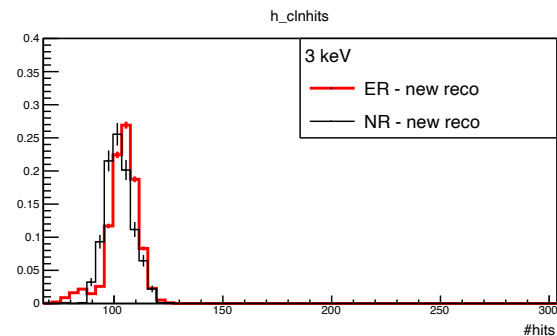
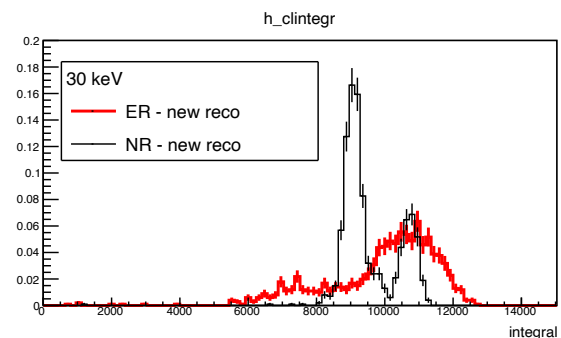
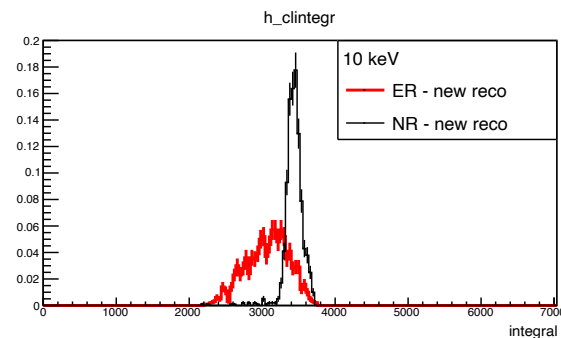
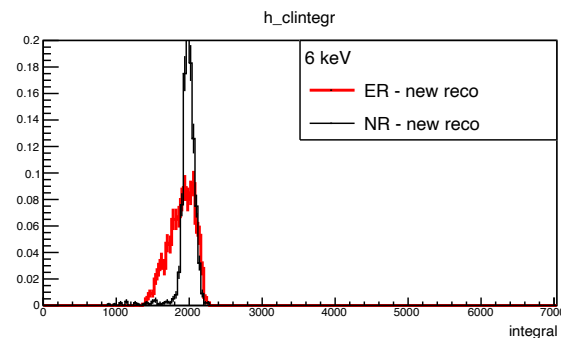
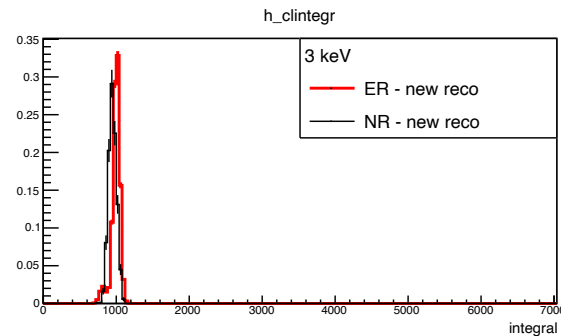
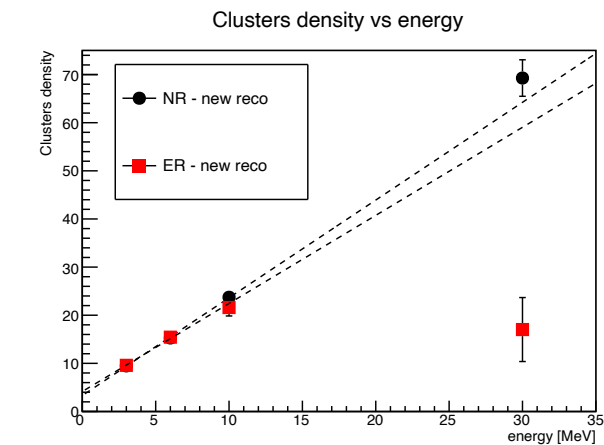
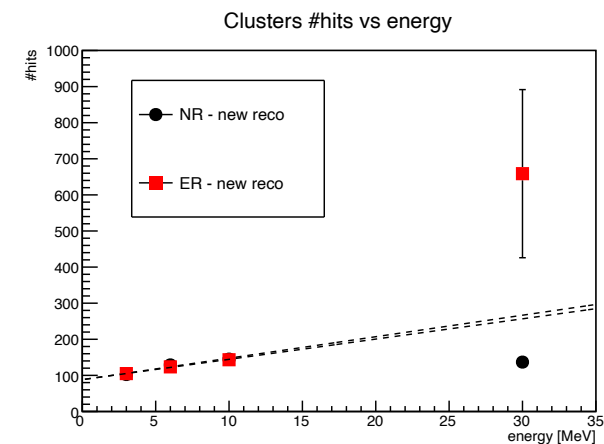
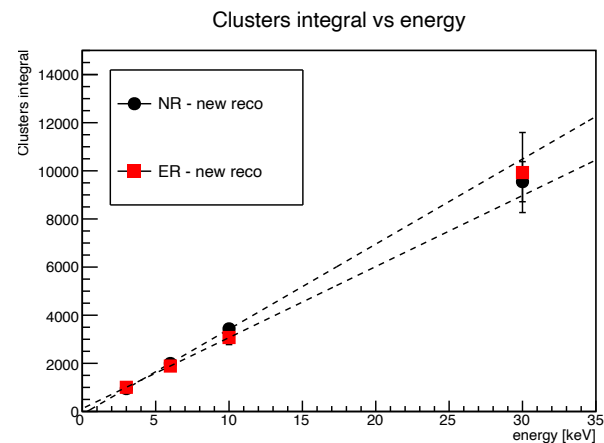


Clusters density vs energy



NR w vs w/o background comparison

- Very good agreement on the integral
- Two different populations appears increasing the energy...this should be investigated...



NR-ER comparison
 (“new” reconstruction
 code)

Comments

- Hopefully, there is still room for optimization in the analysis
- Relying only on the density (or on number of hits for a given energy) it looks impossible to me to get a reasonable NR/ER discrimination below 10-15 keV
- We have to start looking to other variables describing the cluster
- Any ML (or similar) approach can help but cannot grant orders of magnitude of improvement...

I also started studying the effect of the diffusion. No results available for the moment...