

pECal energy resolution study

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UCLA

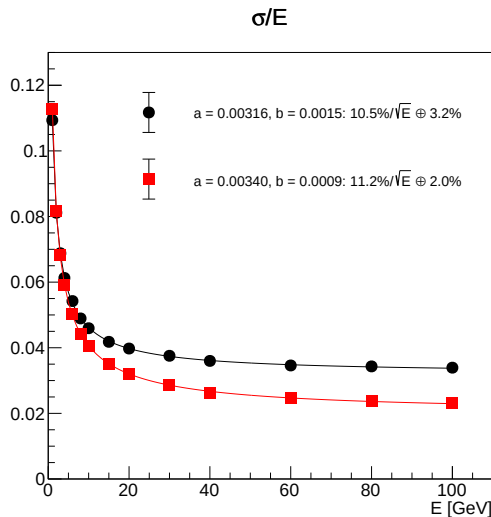
April 19, 2023

- Smear each tower energy by:

$$\frac{\sigma_{tower}}{E_{tower}} = \frac{a}{\sqrt{E_{tower}}} \oplus b$$

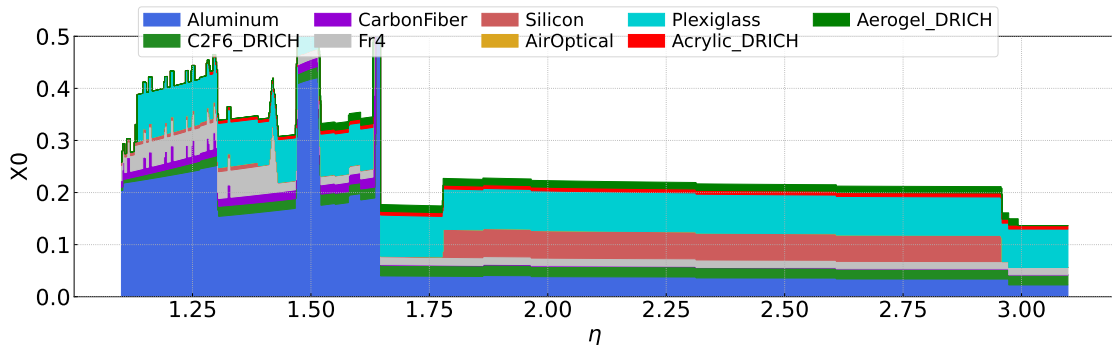
- Targeted cluster energy resolution:

$$\frac{\sigma_{cluster}}{E_{tower}} = \frac{11\%}{\sqrt{E_{cluster}}} \oplus 2\%$$



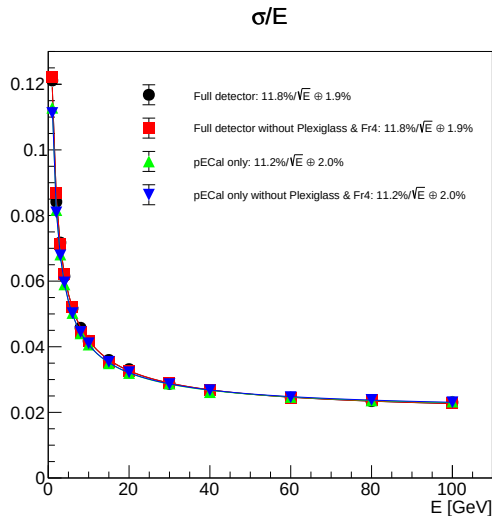
Material scan (code from Chao)

```
<slice name="Cover_slice" material="Aluminum"/>  
<slice name="Air_slice" material="Air"/>  
<slice name="PCB_slice" material="Fr4"/>  
<slice name="LightGuide_slice" material="Plexiglass"/>  
<slice name="Scintillator_slice" material="AvgTungstenScFi"/>
```

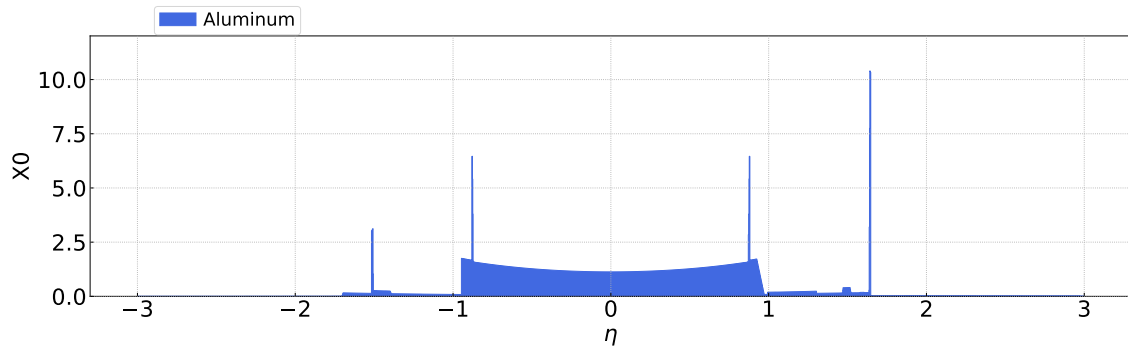


Comparison of pECal resolutions

- Full detector: *epic_full.xml*
- pECal only:
compact/ecal/forward_homogeneous.xml
- With & without Plexiglass & Fr4.



Backup



Geometry (from Sylvester)

