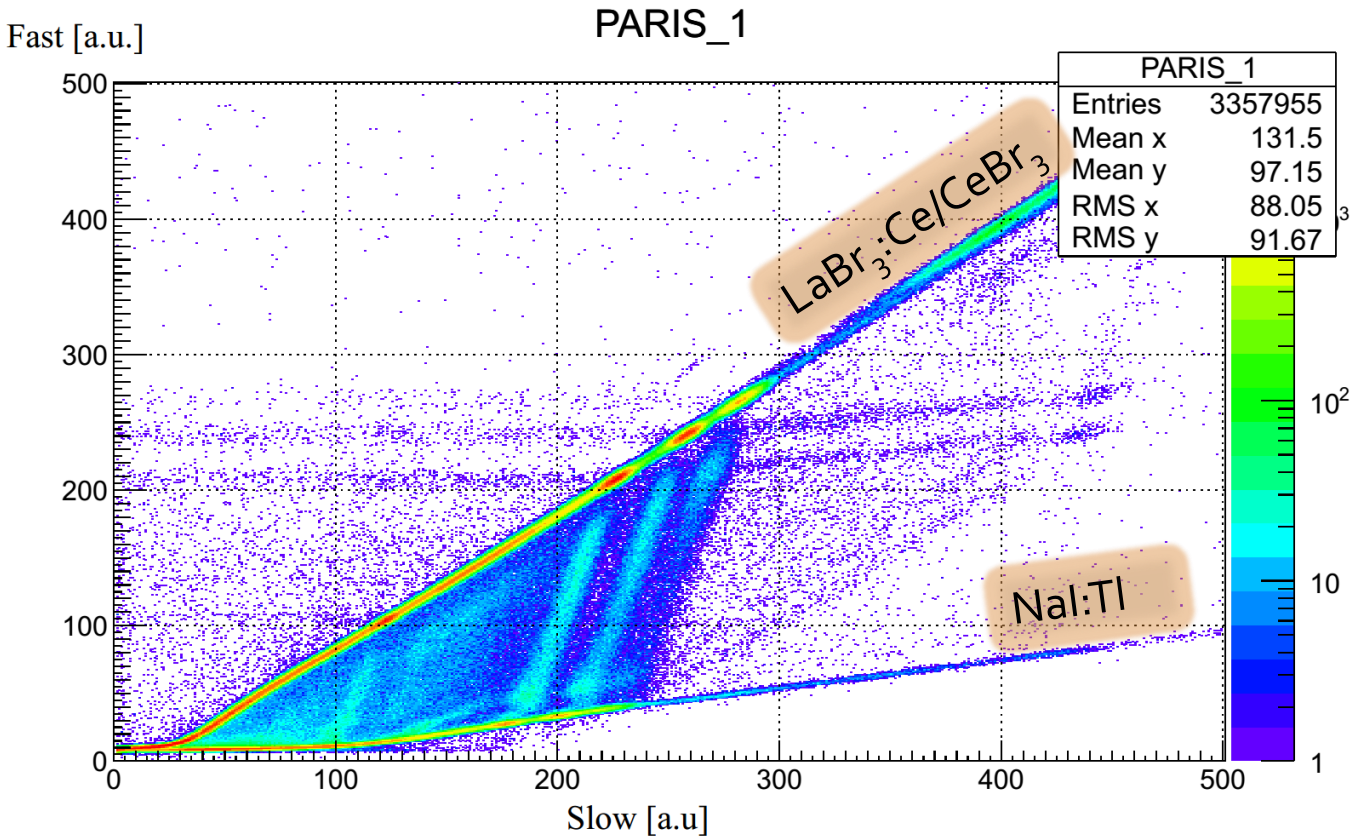
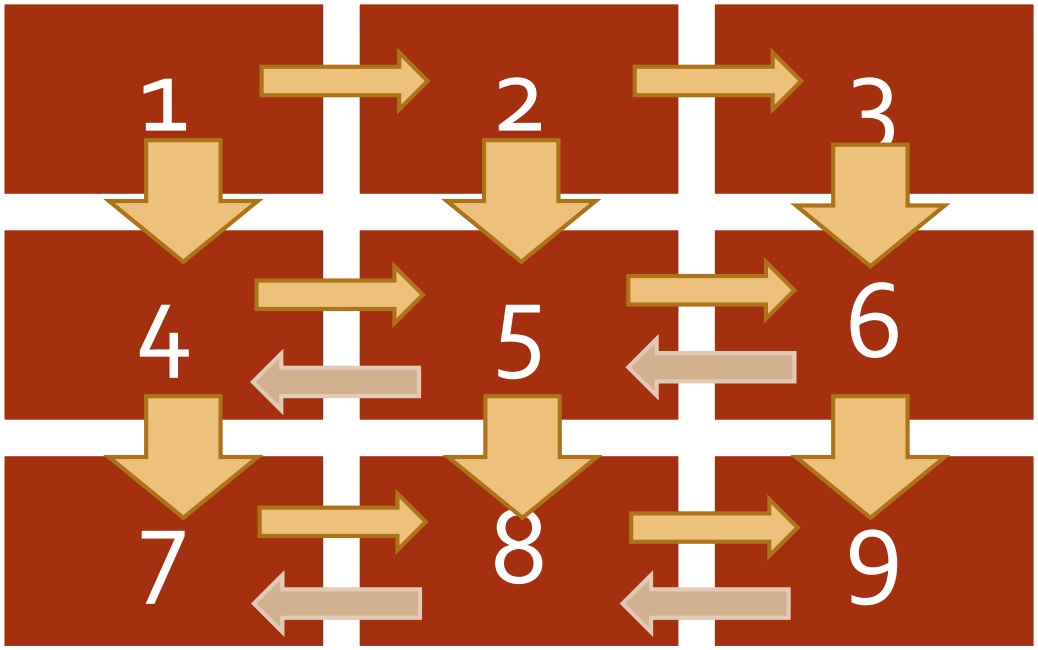
PARIS CLUSTER TESTS AT ELBE AND ATOMKI FACILITIES

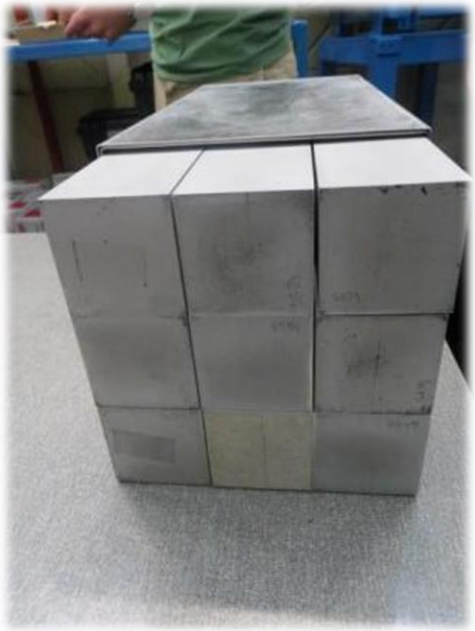
Raw data
calibration run – ^{60}Co + ^{137}Cs



Matrix transformation for *internal add-back*

External add-back

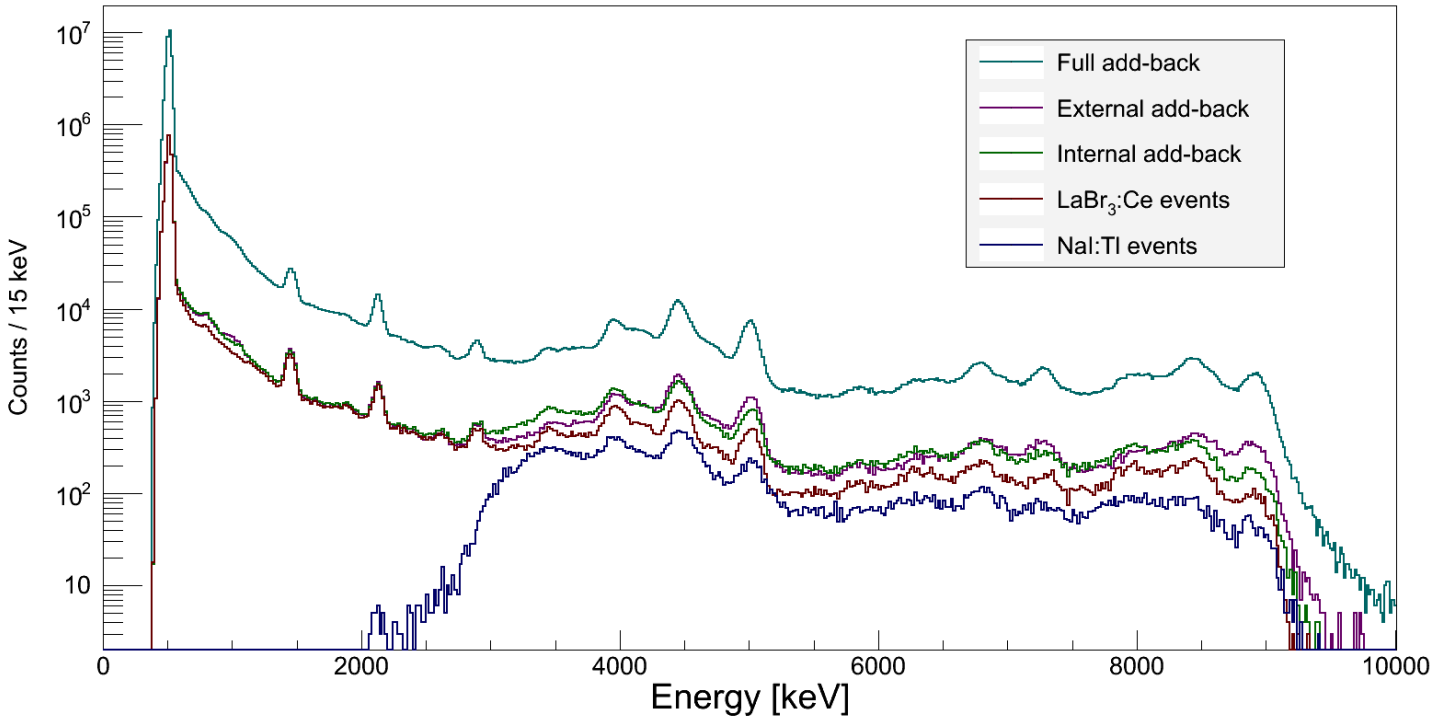




Test at the γELBE facility, Dresden, Germany

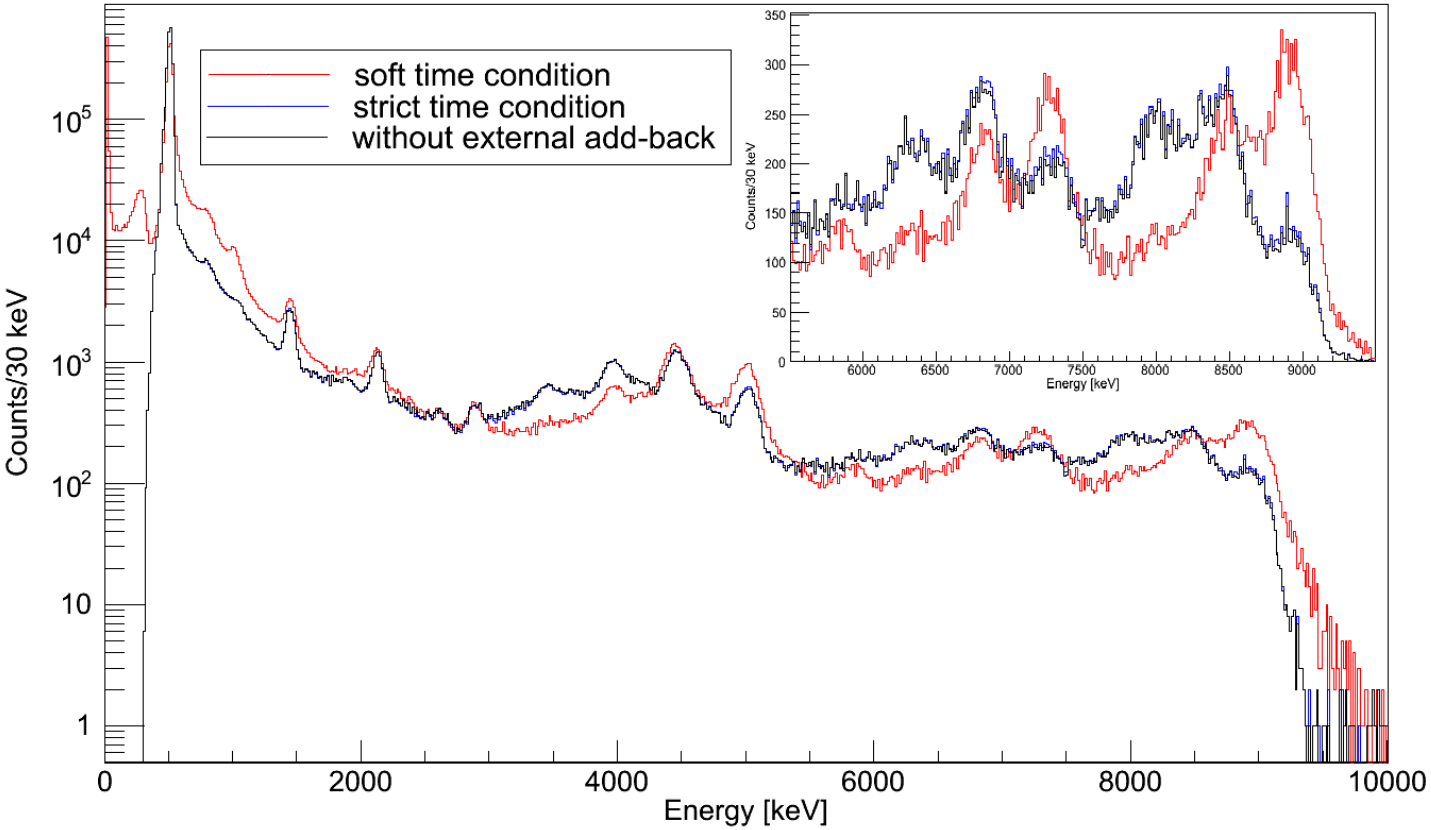
- 10 – 12 December 2013
- Electron beam converted into Bremsstrahlung (γ energy up to 15.6 MeV)
- Target: 11B + C (natural)
- Expected lines: 2.125, 4.444, 5.020, 7.285, 8.917 MeV (from 11B) & 15.1 MeV (from 12C)

Results

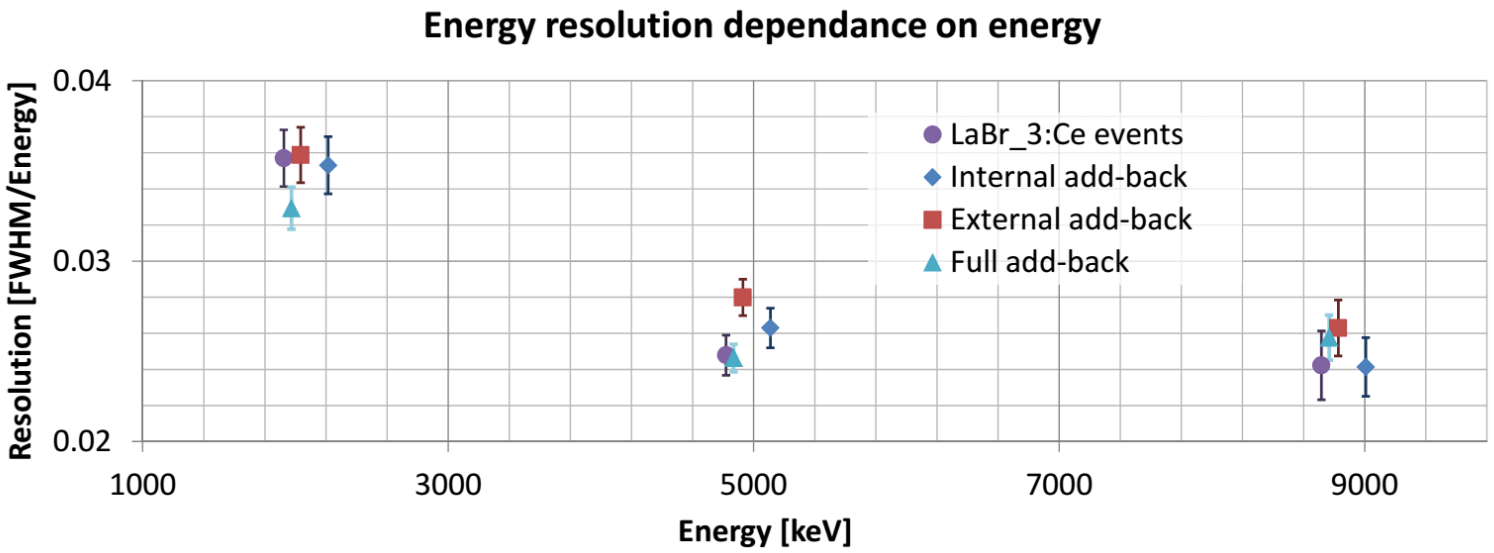


- Enormous background
- Dead time ~90%

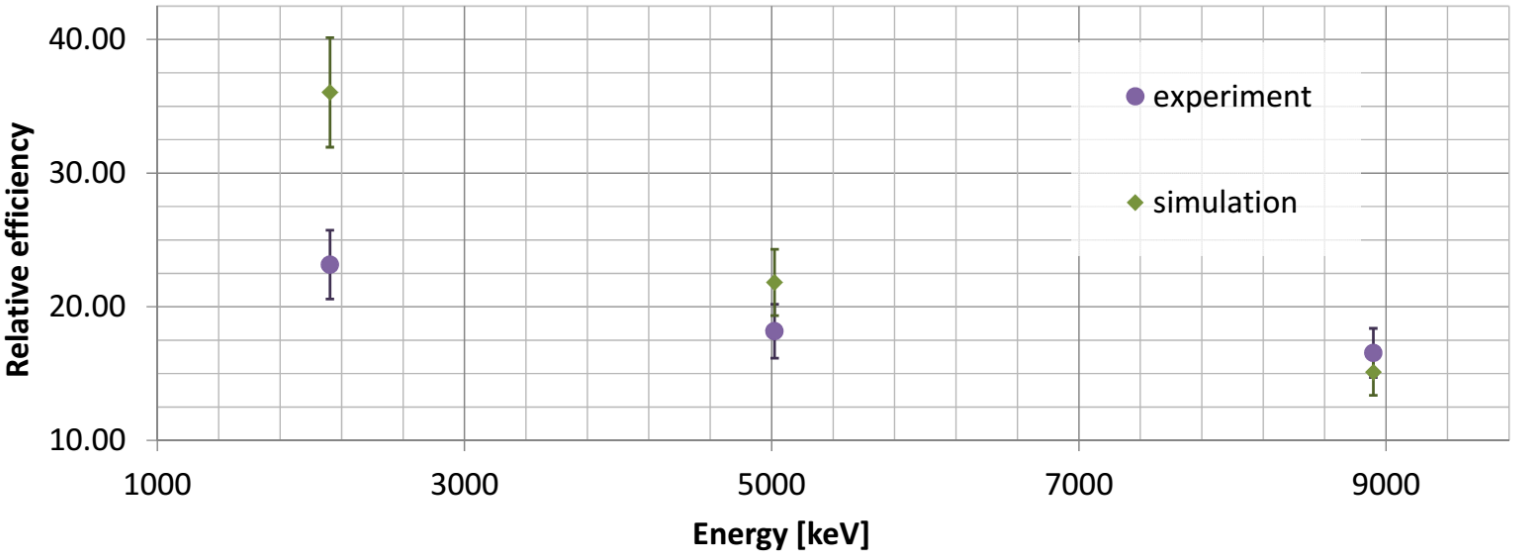
Sensitivity to time conditions



Energy resolutions



Relative efficiency of the cluster

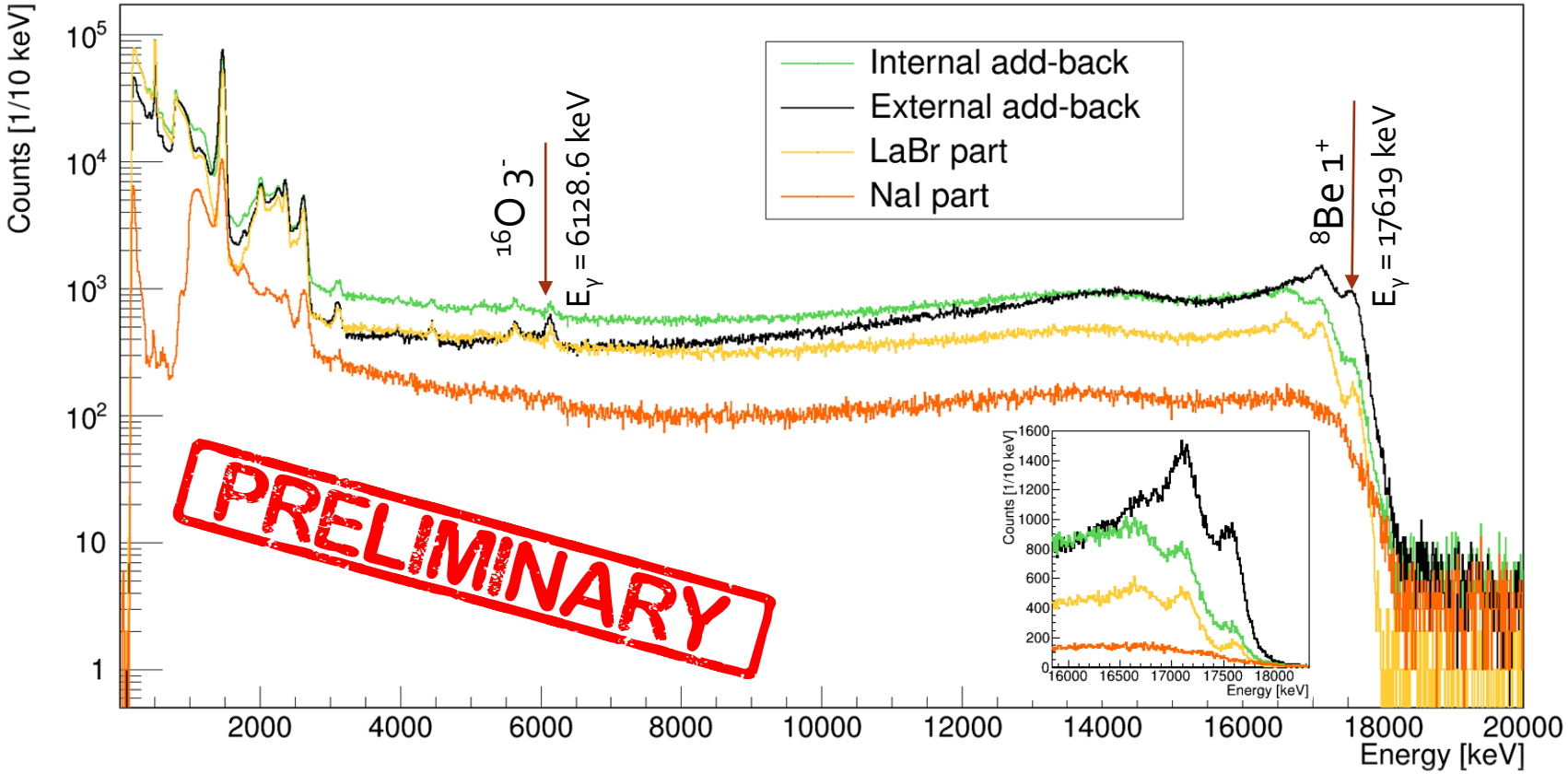


In relation to the mean efficiency for 5019 keV line of the $LaBr_3$:Ce part of a phoswich.

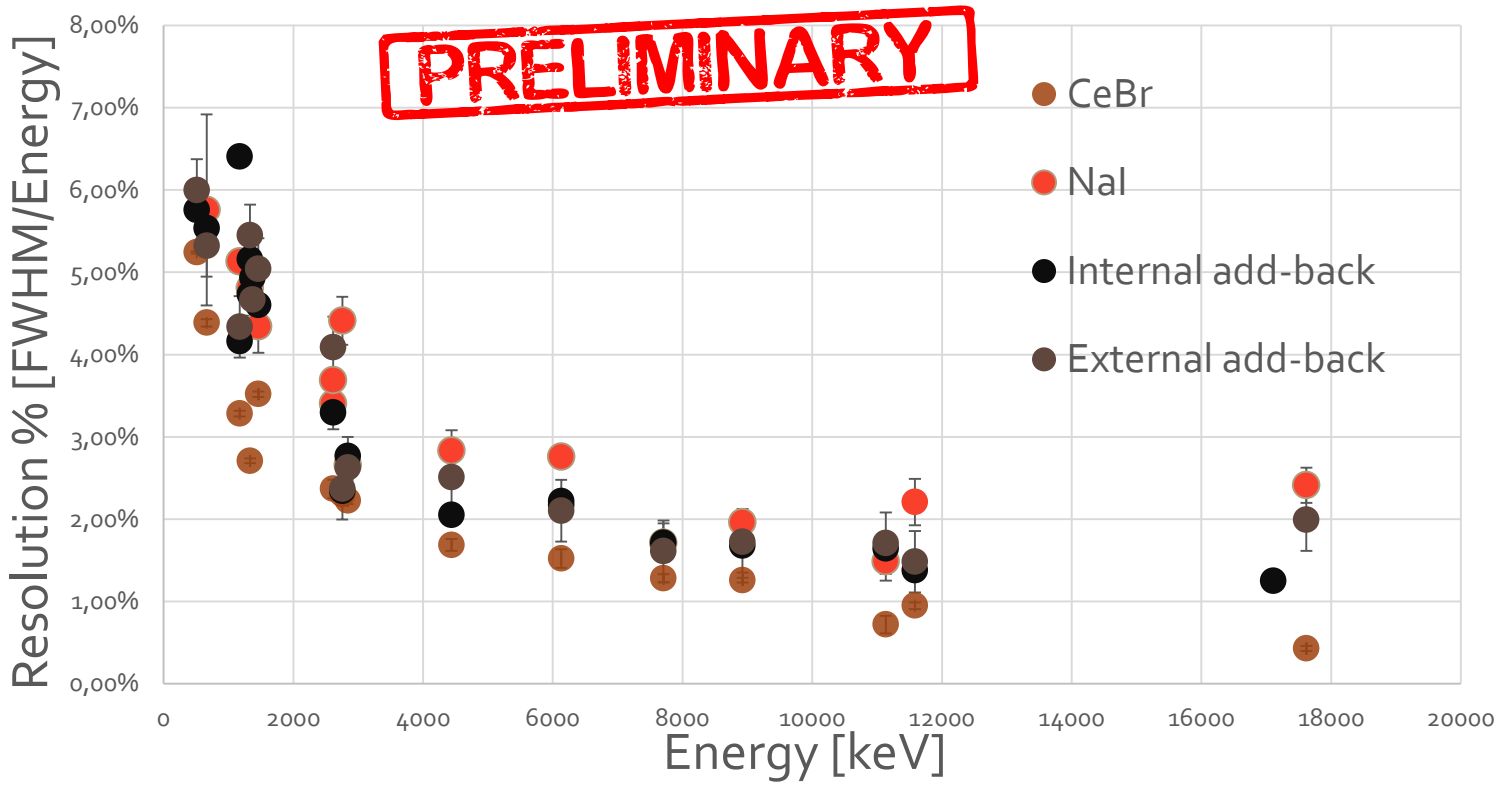
Test at the ATOMKI institute, Hungary

- 31st March – 7th April 2017
- Proton capture - (p, γ) resonance reactions
- Targets: $NaWO_2$, LiBO, Al
- Expected lines in range from 1 to 17 MeV
- 5 $CeBr_3$+NaI:Tl, 4 $LaBr_3$:Ce+NaI:Tl
- Two distances
- 3 different configurations

LiBO run – spectra from the detector in the middle



Results


PRELIMINARY
Resolution % [FWHM/Energy]
8,00%
7,00%
6,00%
5,00%
4,00%
3,00%
2,00%
1,00%
0,00%
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
Energy [keV]
CeBr
NaI
Internal add-back
External add-back

Conclusions

- Two different tests performed
- Quality data from Debrecen
- Technical paper soon

List of collaborators

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