HPGe-LaBr-LaBr triple gamma coincidences technique in fast-timing experiments.

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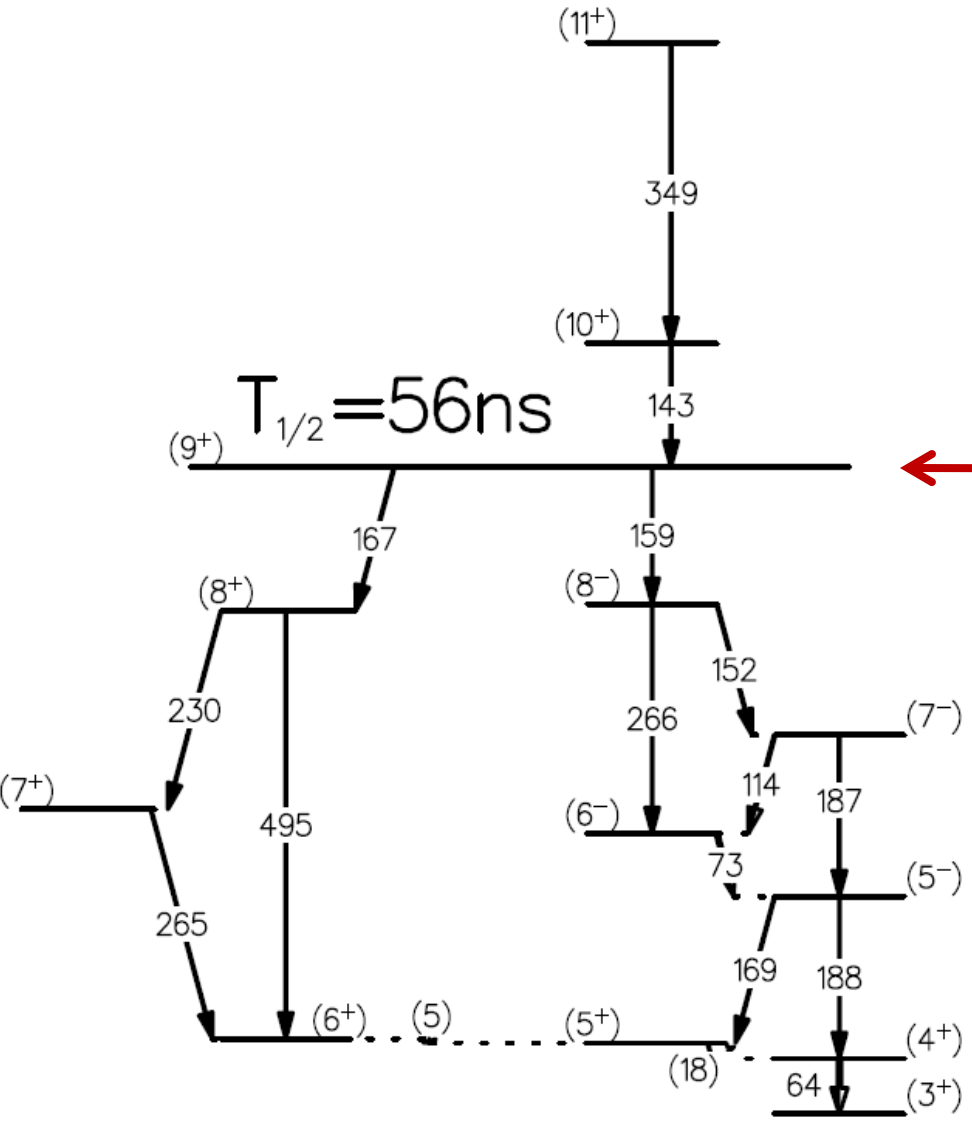
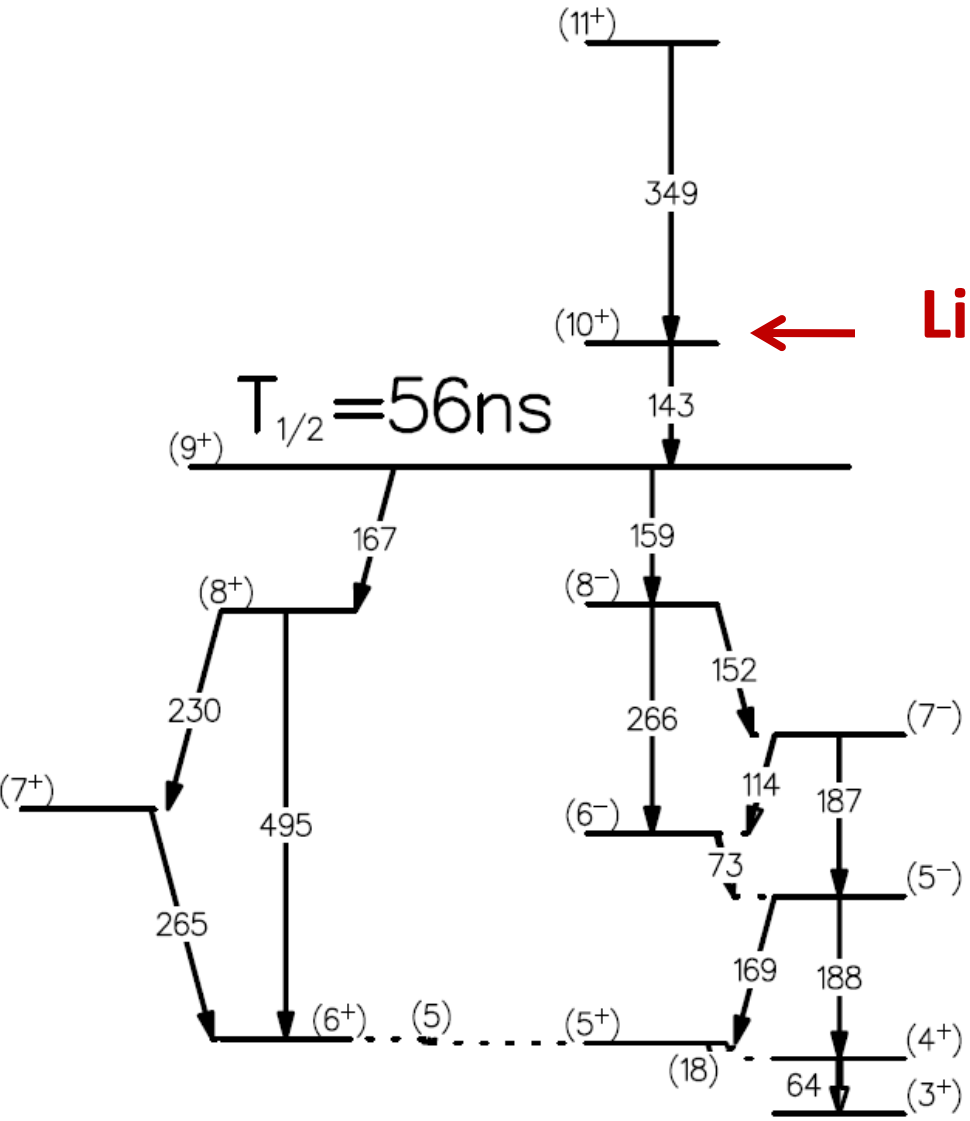
chirality in ^{128}Cs



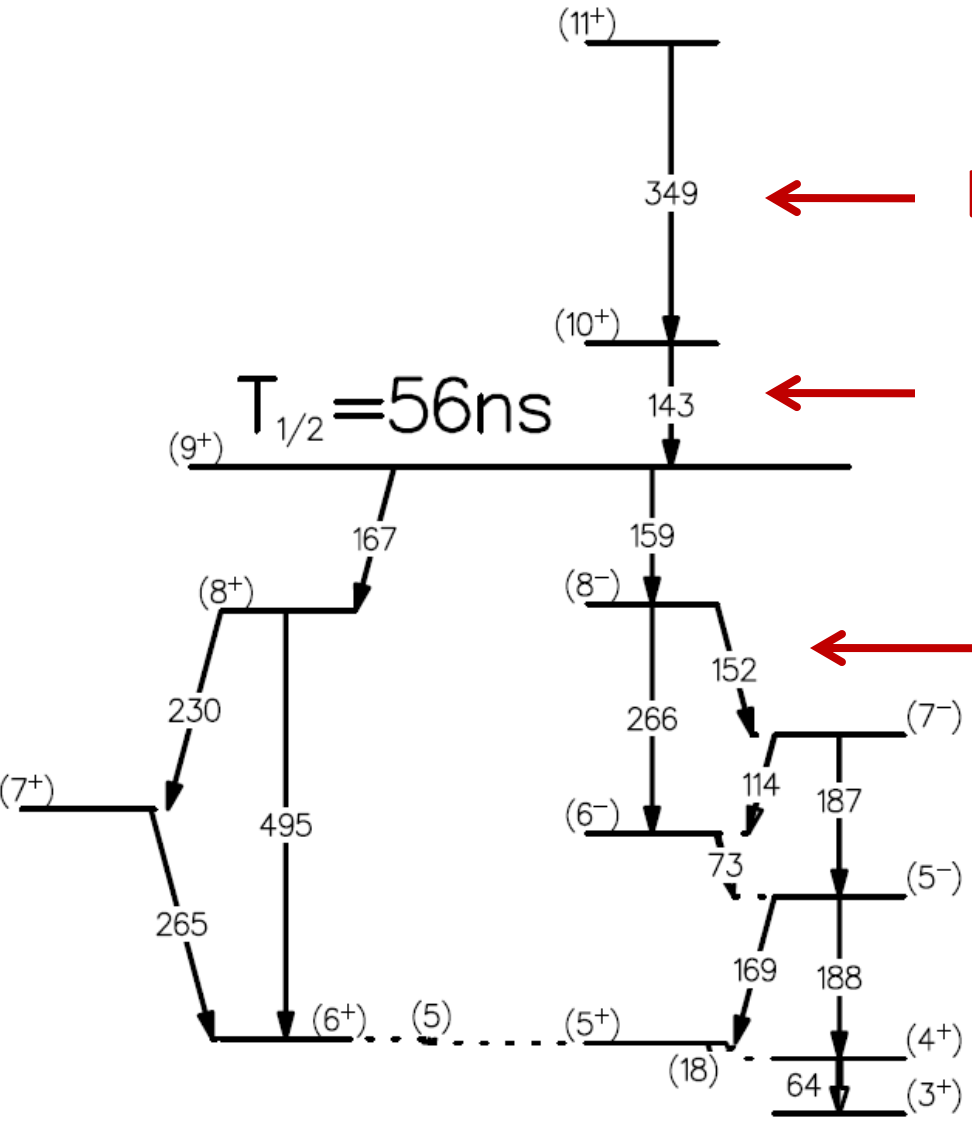
Isomeric state

The most problematic measurement



Lifetime to be mesured

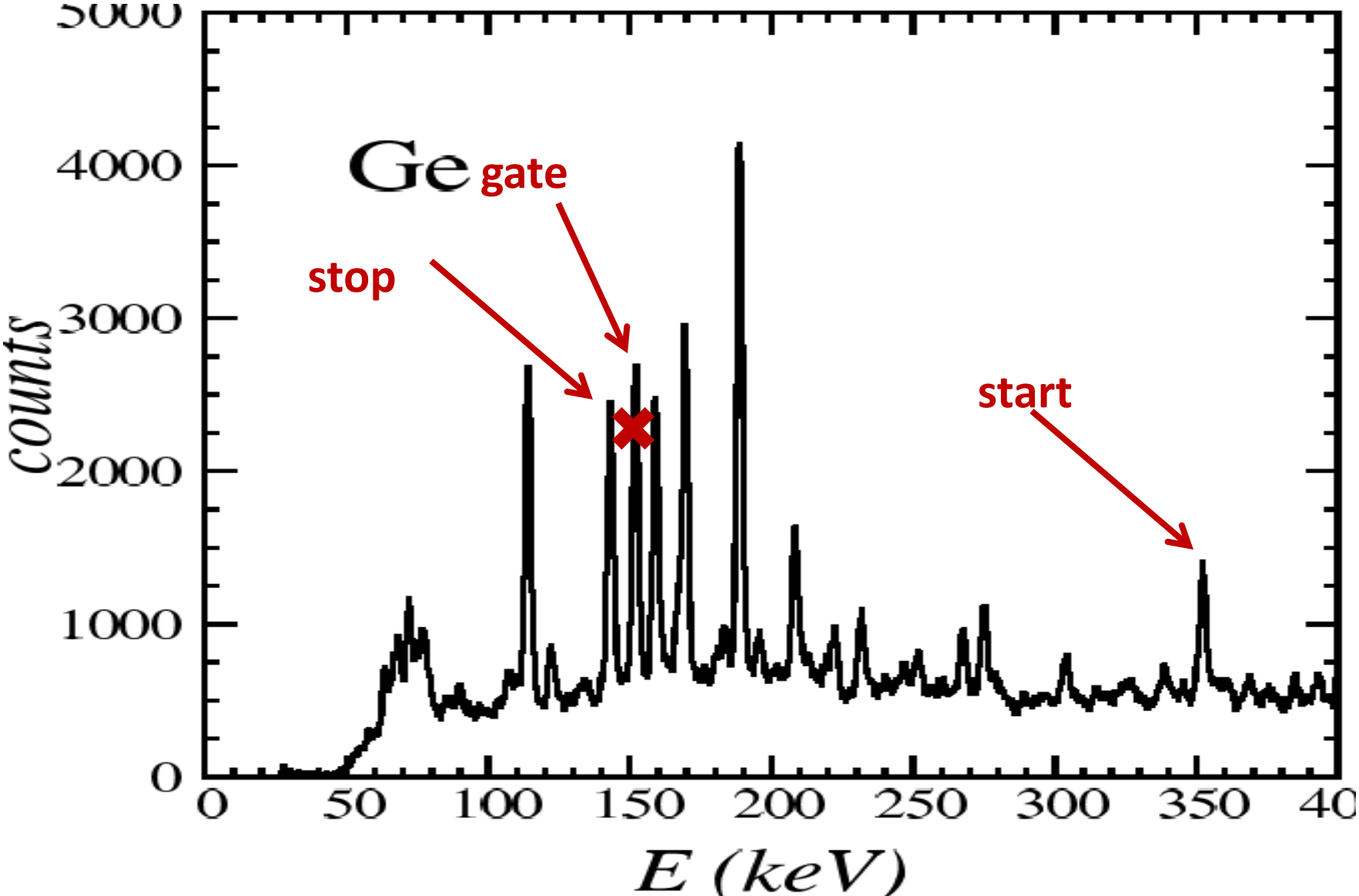
LaBr FAST-TIMING MEASUREMENT

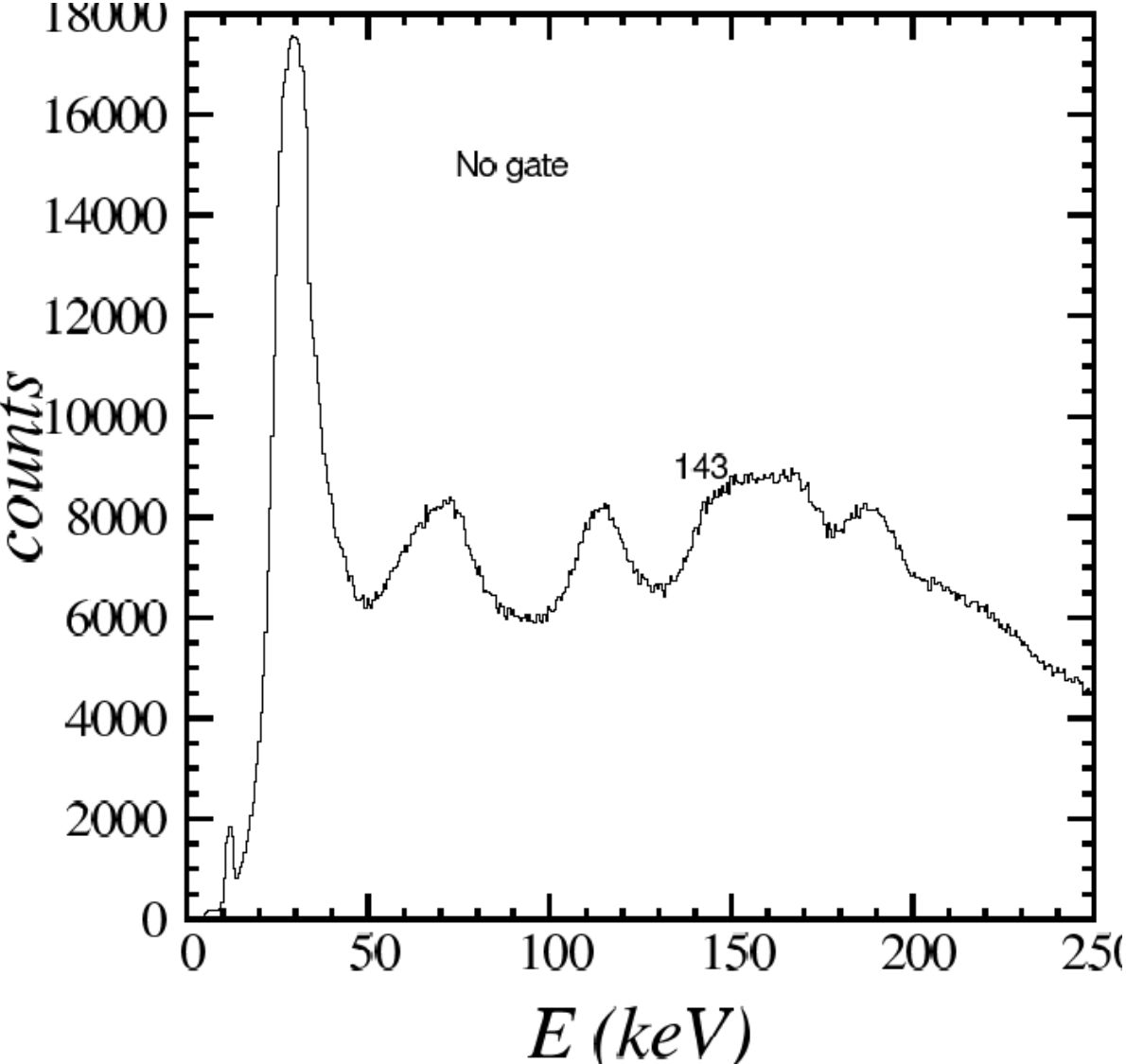


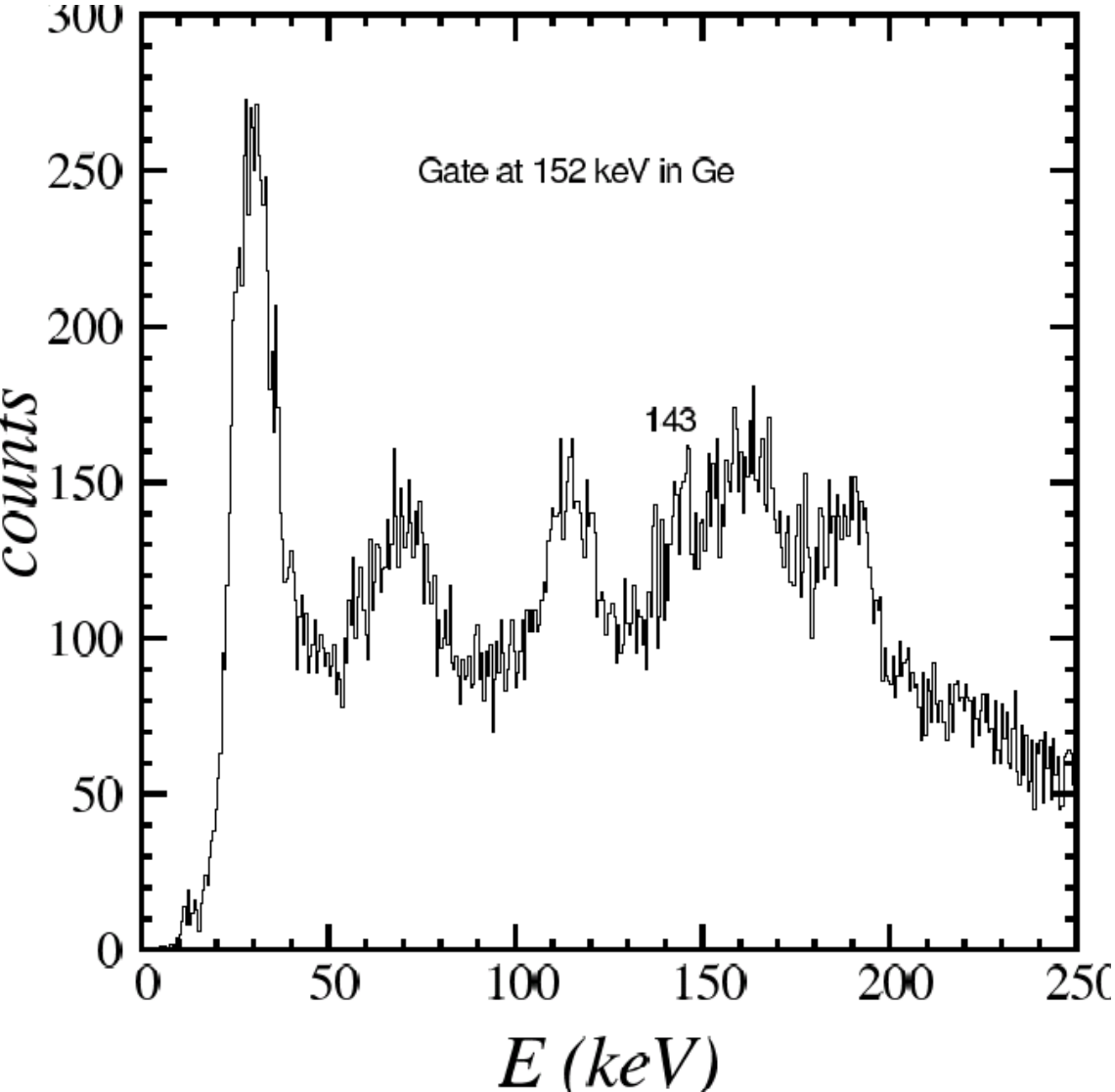
LaBr (start) signal

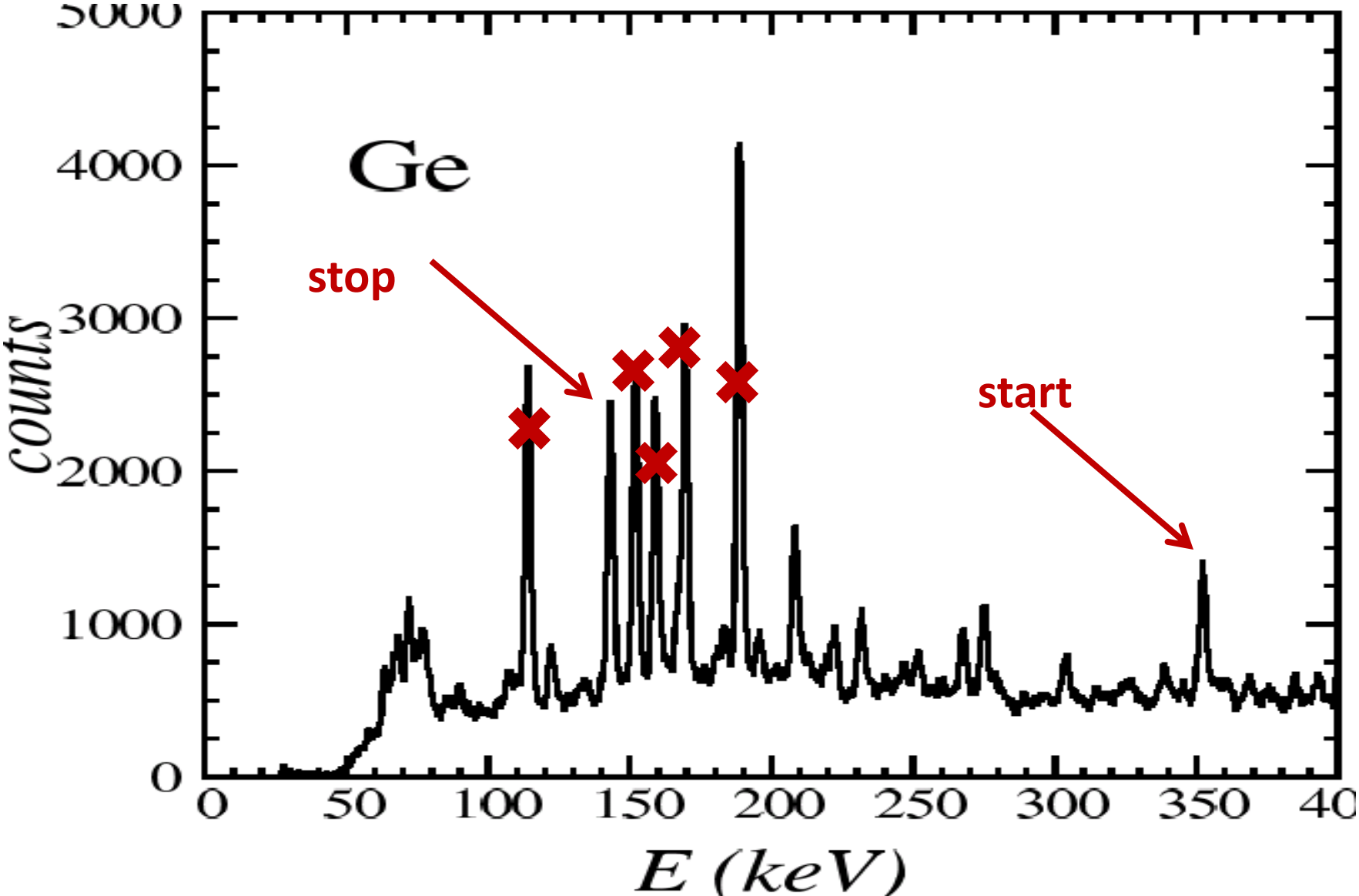
LaBr (stop) signal

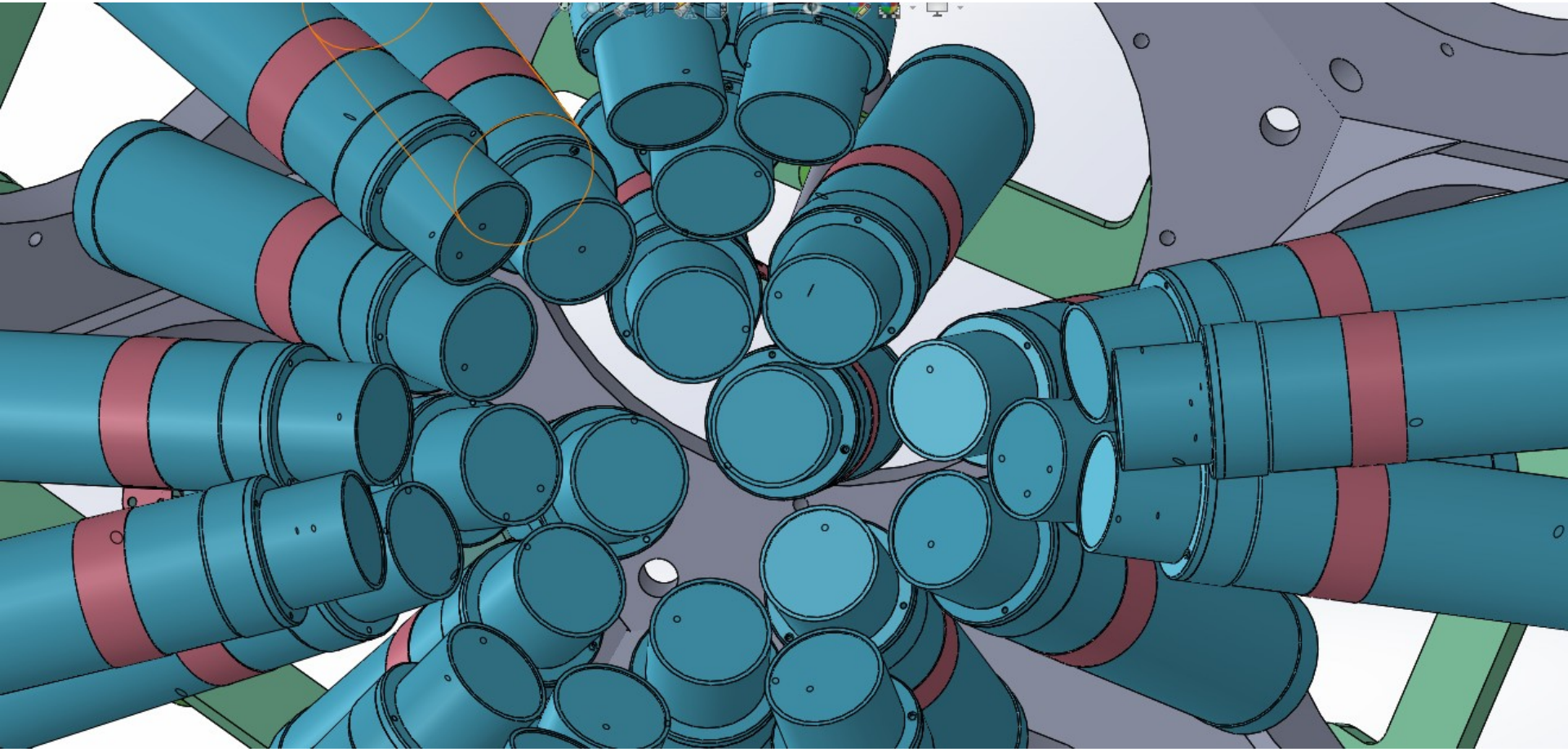
EAGLE HPGe gate

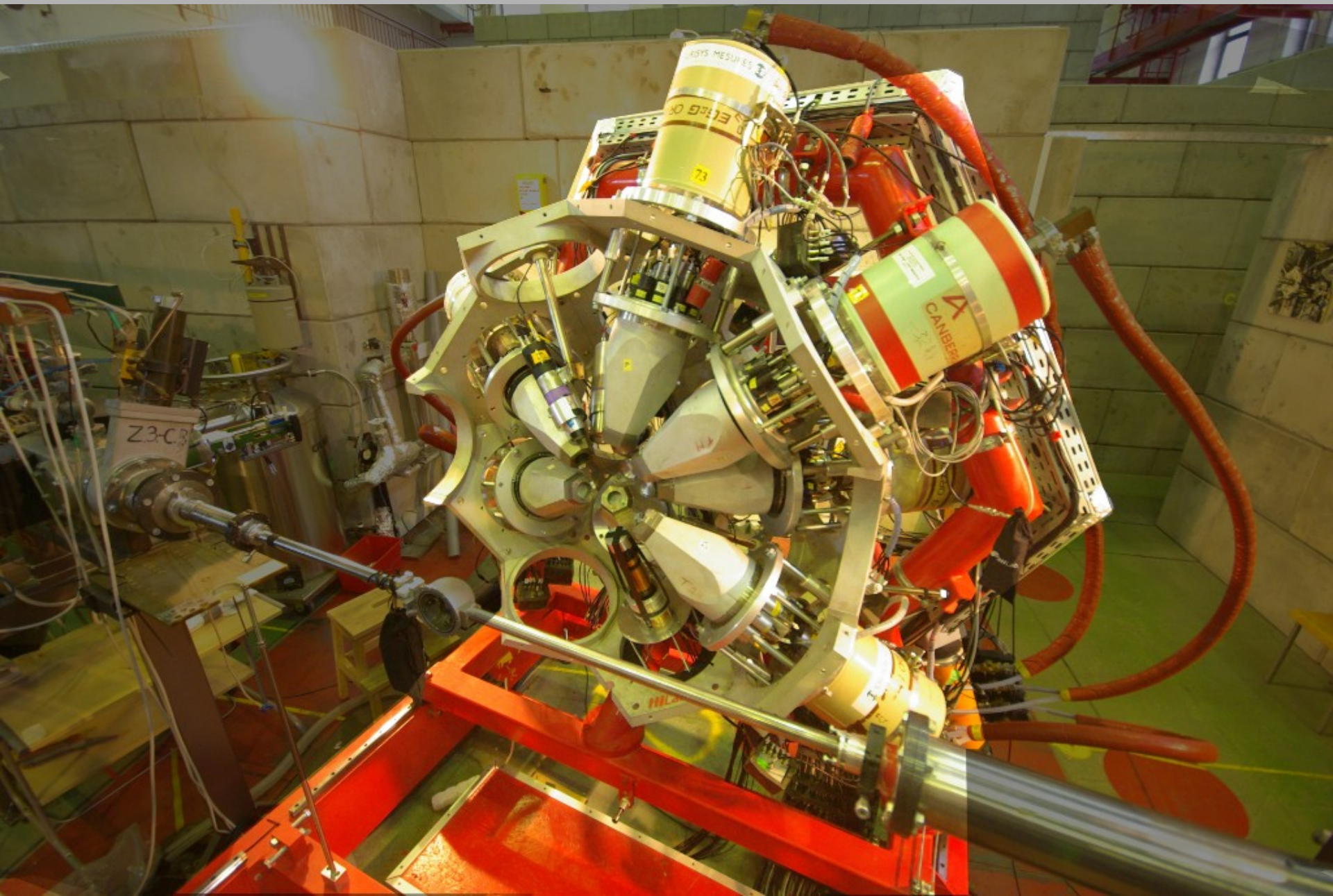

Ge
gate
stop
start
counts
E (keV)
0
1000
2000
3000
4000
0
50
100
150
200
250
300
350

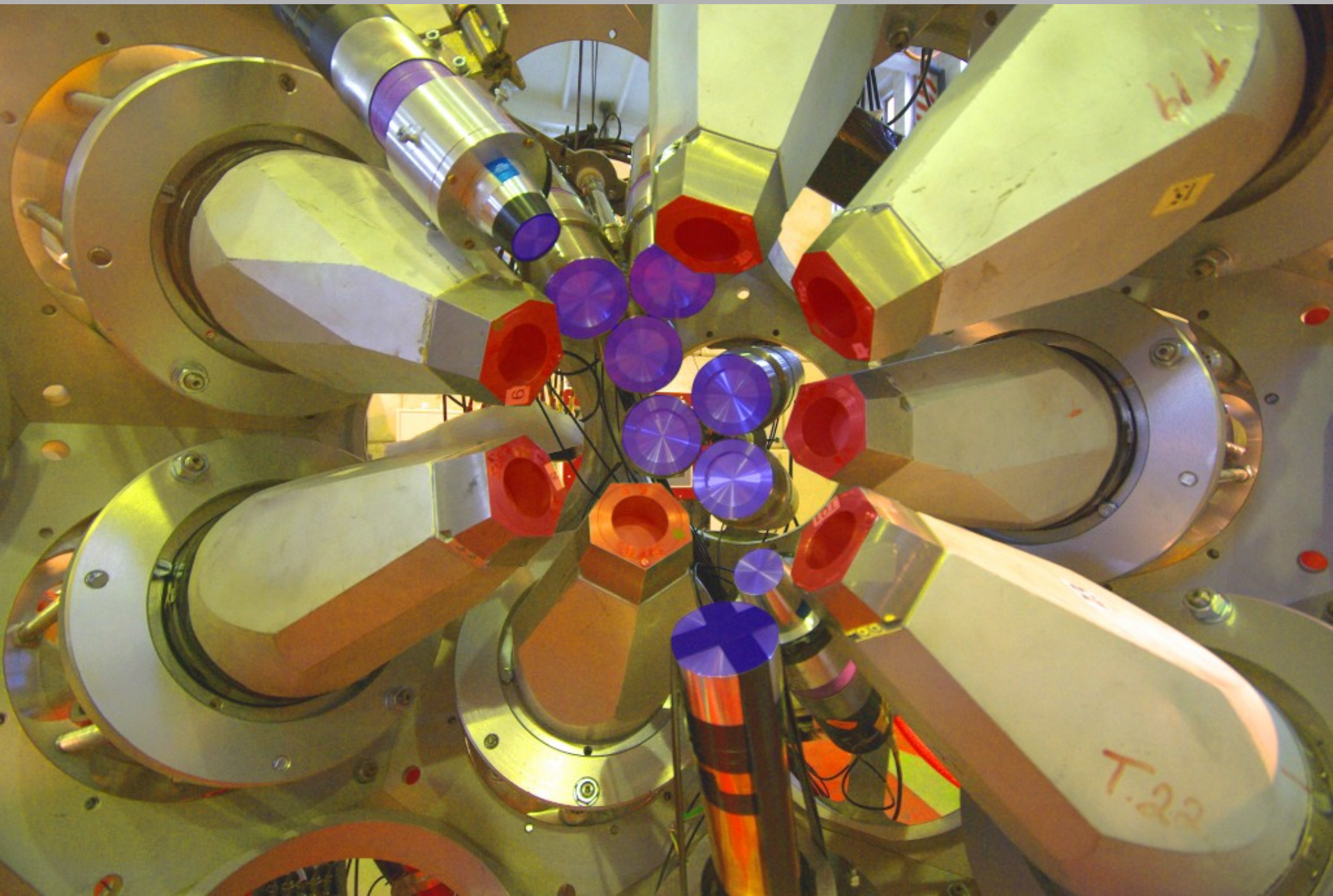

No gate
143
counts
E (keV)
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
0
50
100
150
200


Gate at 152 keV in Ge
143
counts
E (keV)
0
50
100
150
200
250
300


Ge
stop
start
counts
E (keV)
0
1000
2000
3000
4000
0
50
100
150
200
250
300
350



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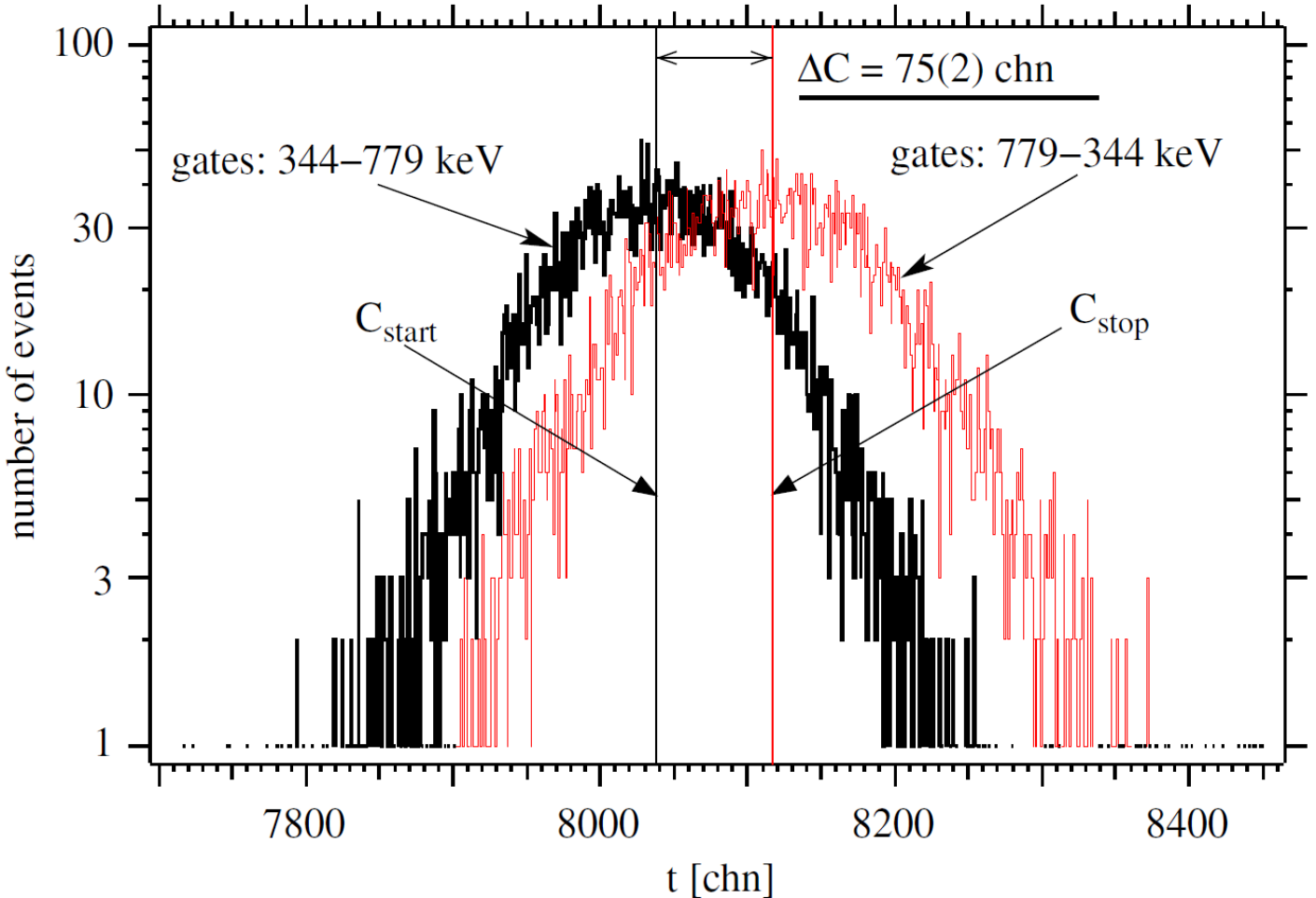
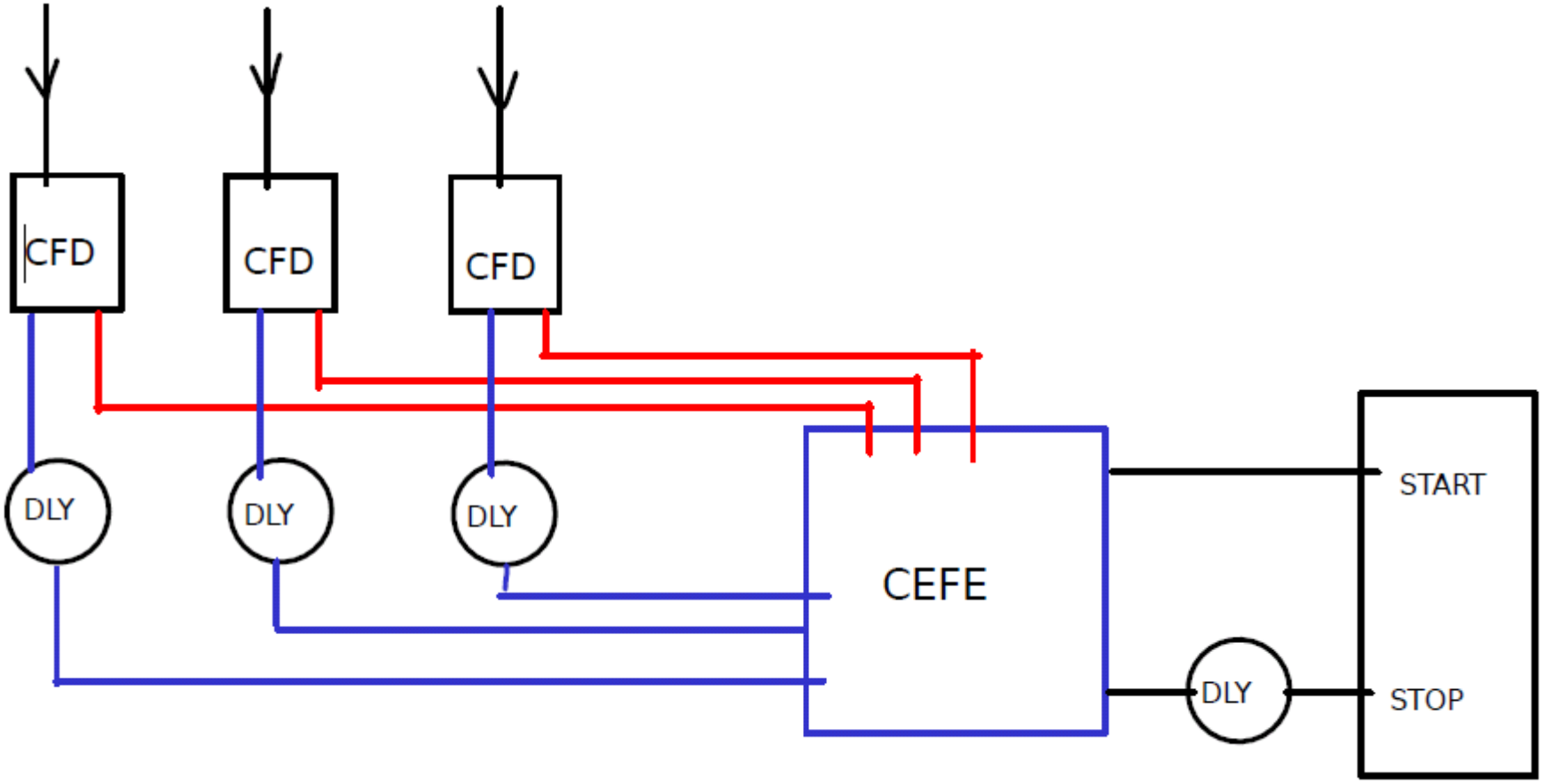
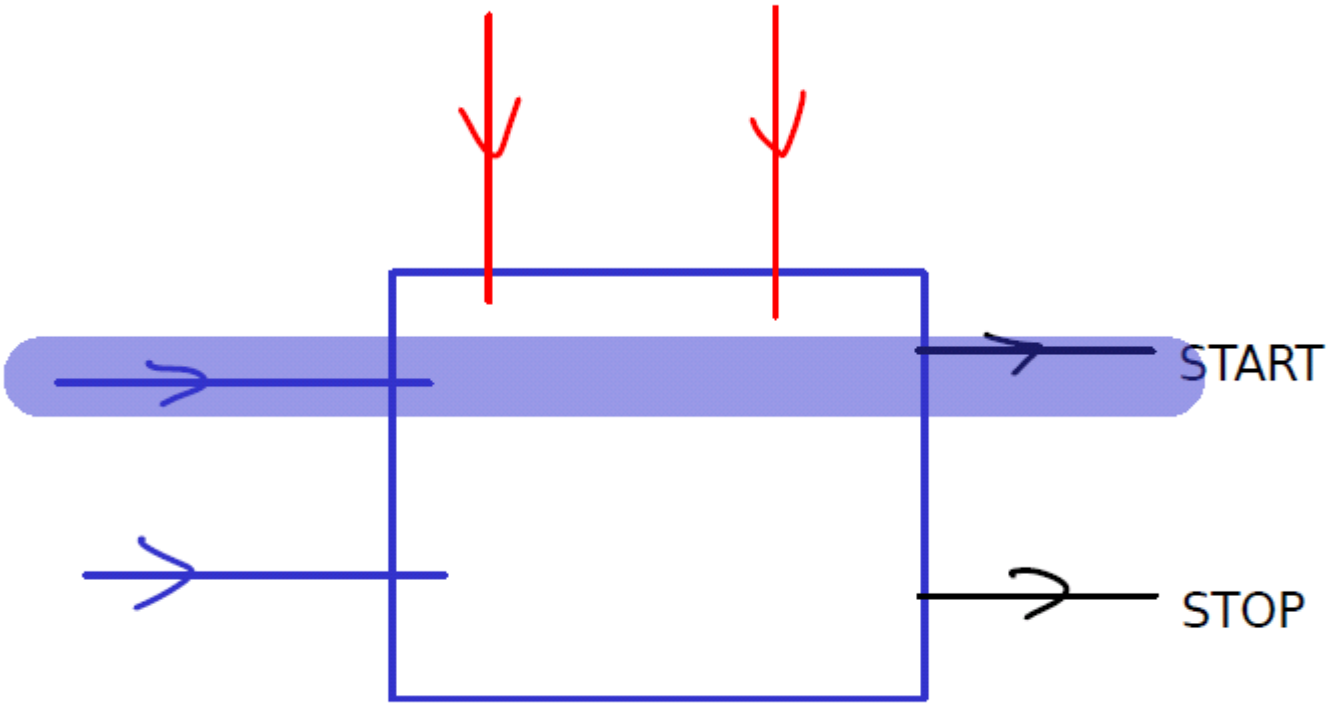
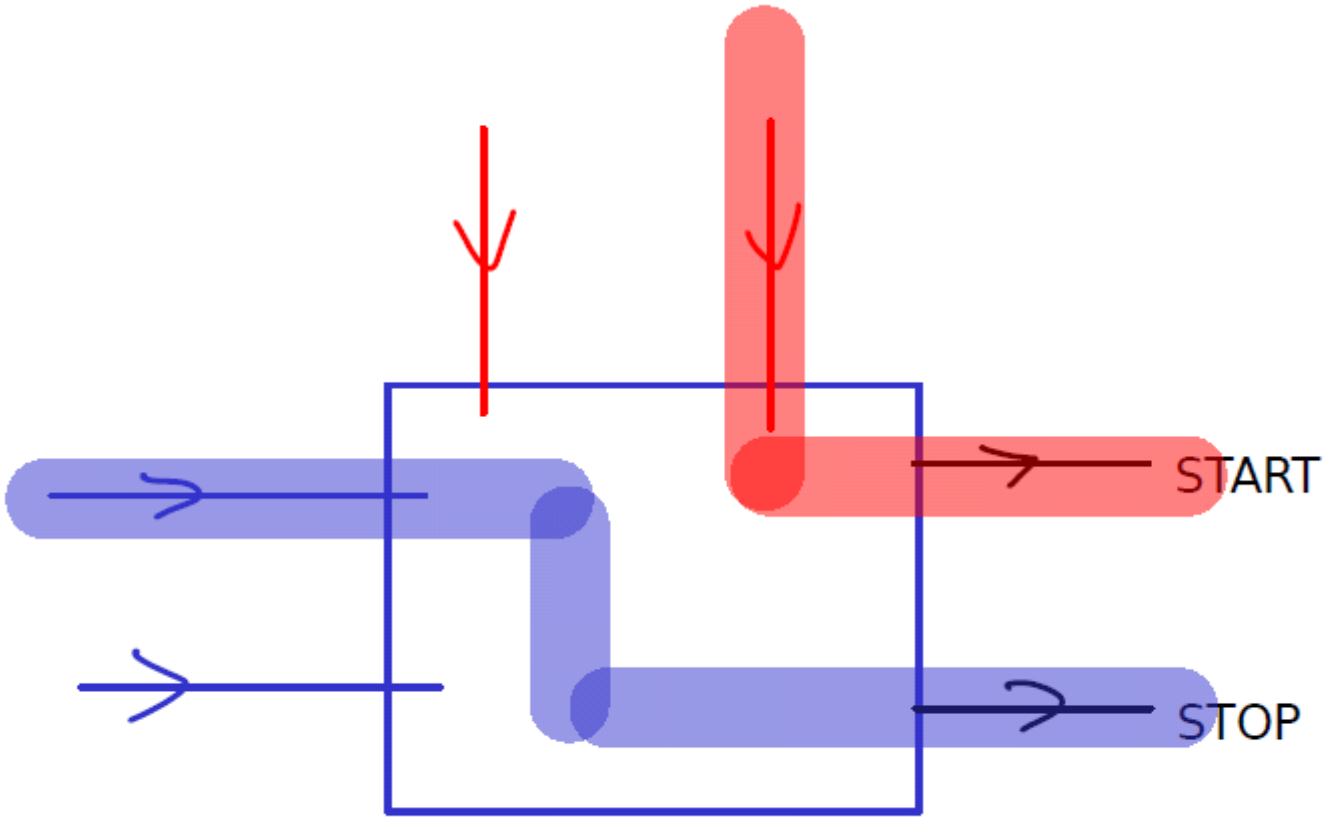
LaBr FAST-TIMING MEASUREMENT

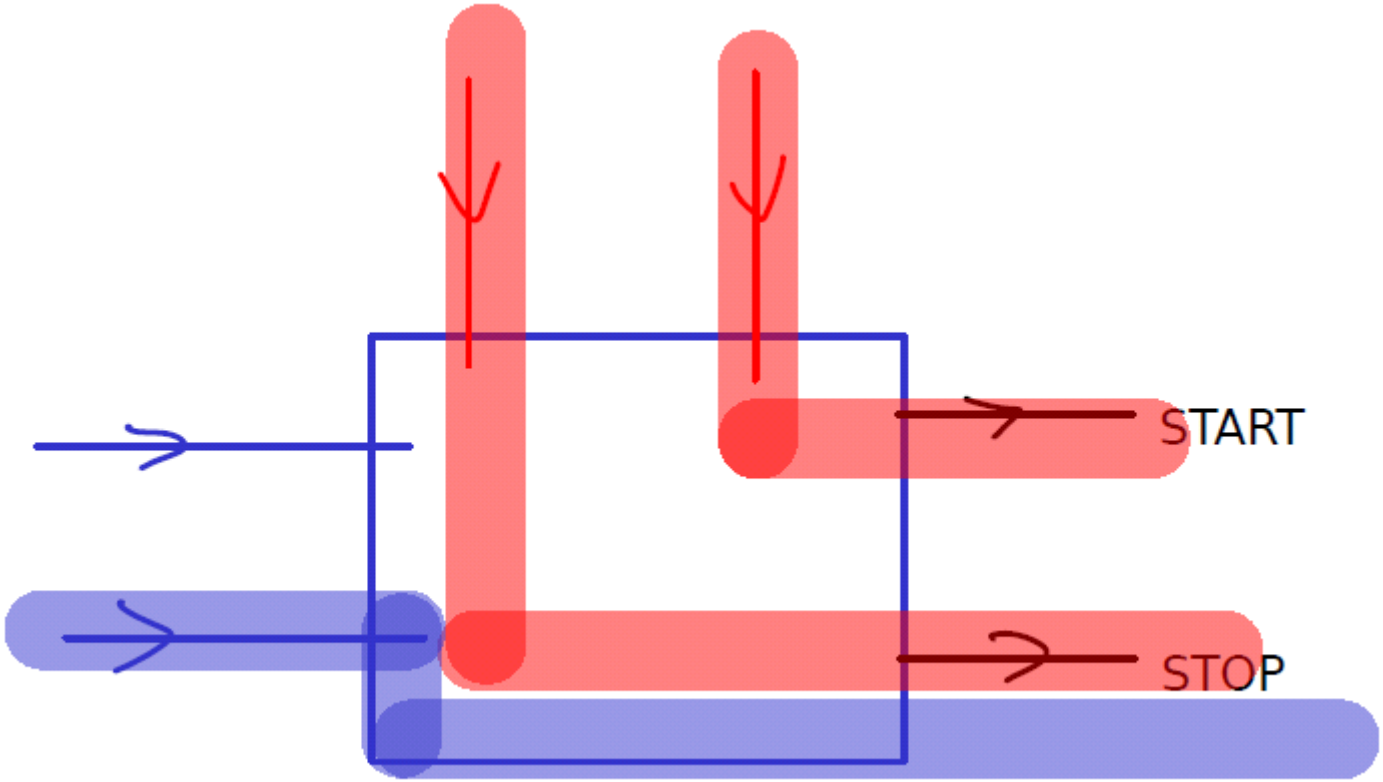
Mirror Symmetric Centroid Difference (MSCD) method




CFD
CFD
CFD
DLY
DLY
DLY
CEFE
START
DLY
STOP

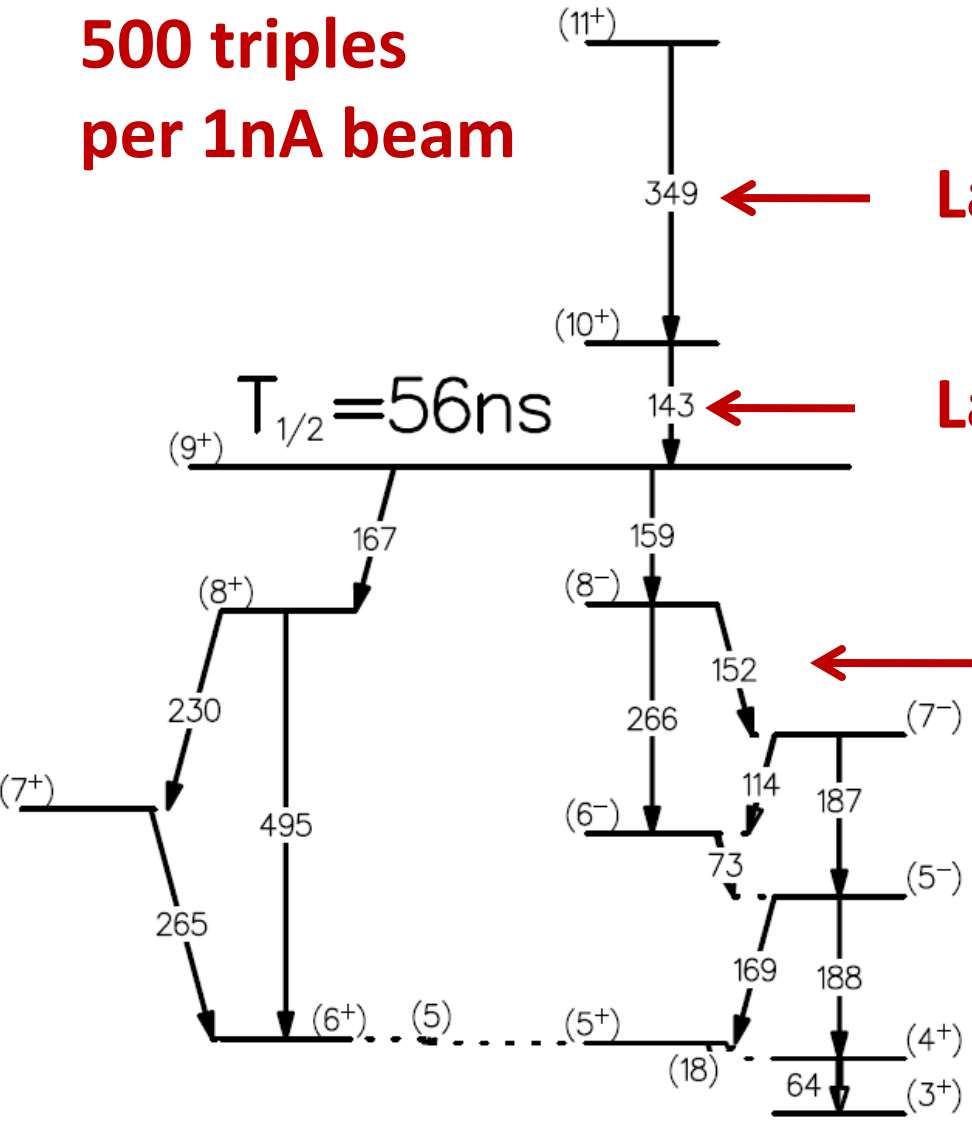

START
STOP


START
STOP


START
STOP

AMOUNT OF TRIPLE GAMMA EVENTS

500 triples per 1nA beam



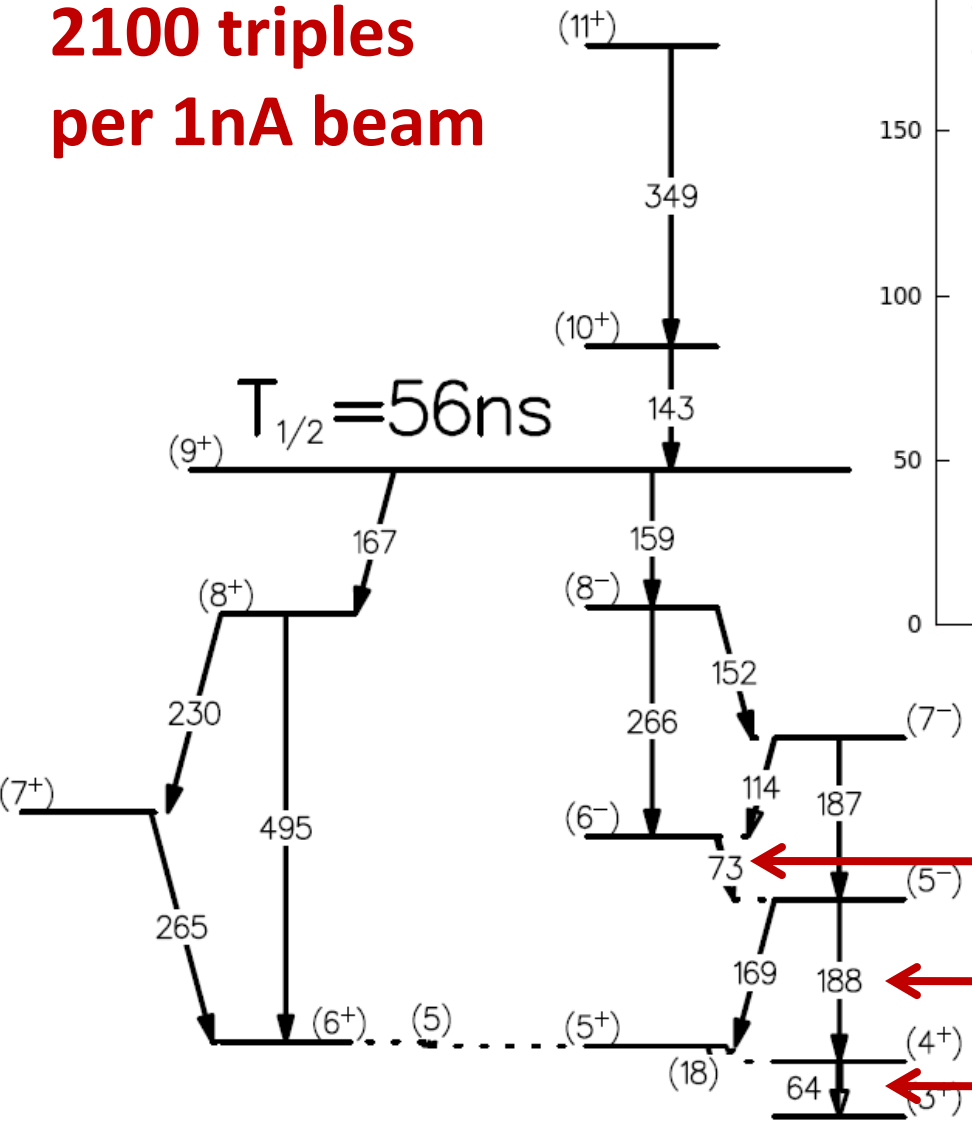
LaBr (start) signal

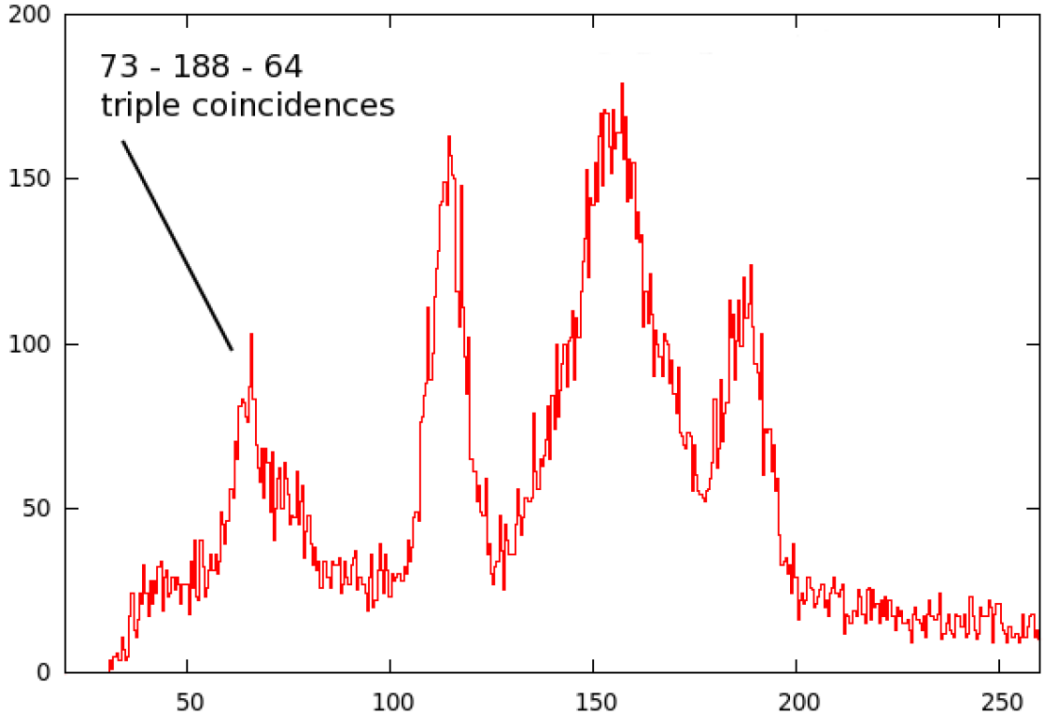
LaBr (stop) signal

EAGLE HPGe gate

AMOUNT OF TRIPLE GAMMA EVENTS

2100 triples per 1nA beam





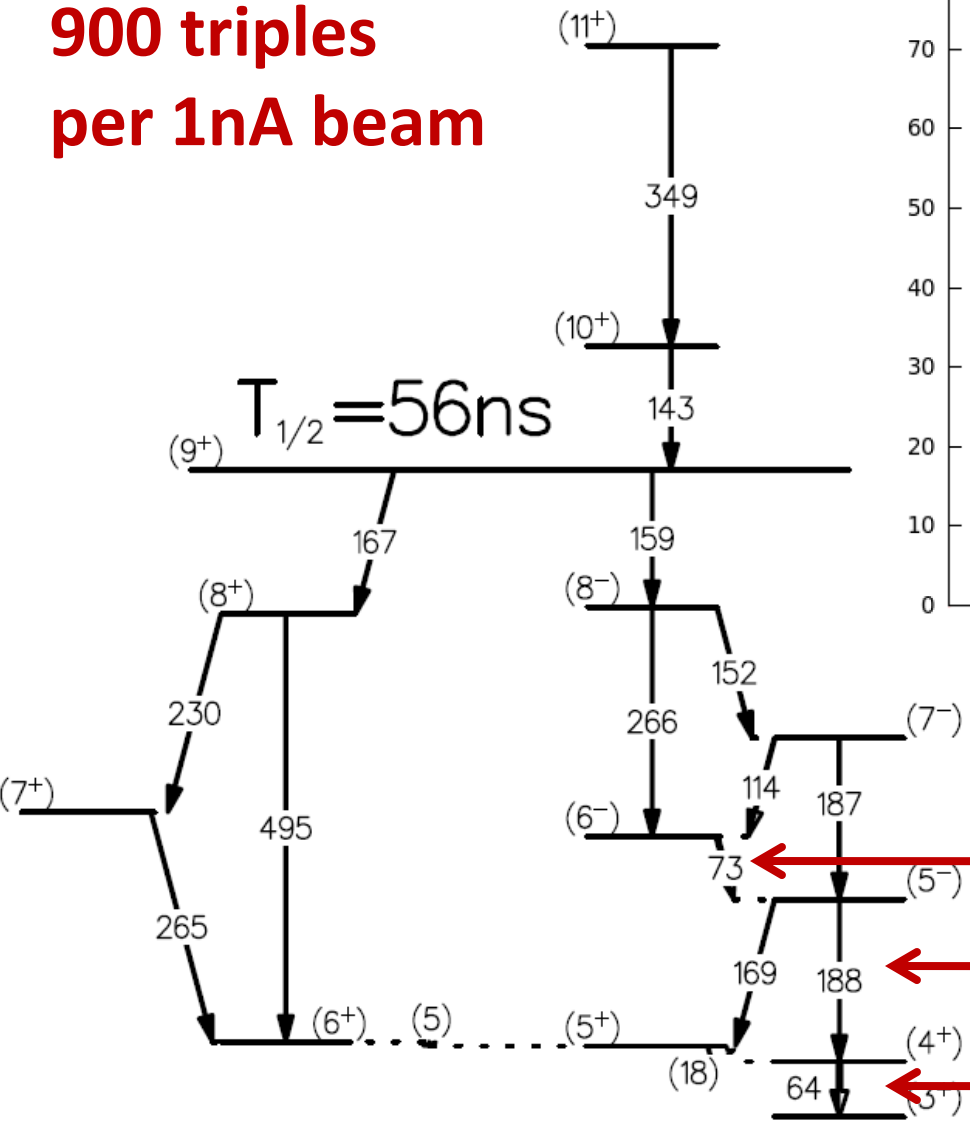
EAGLE HPGe gate

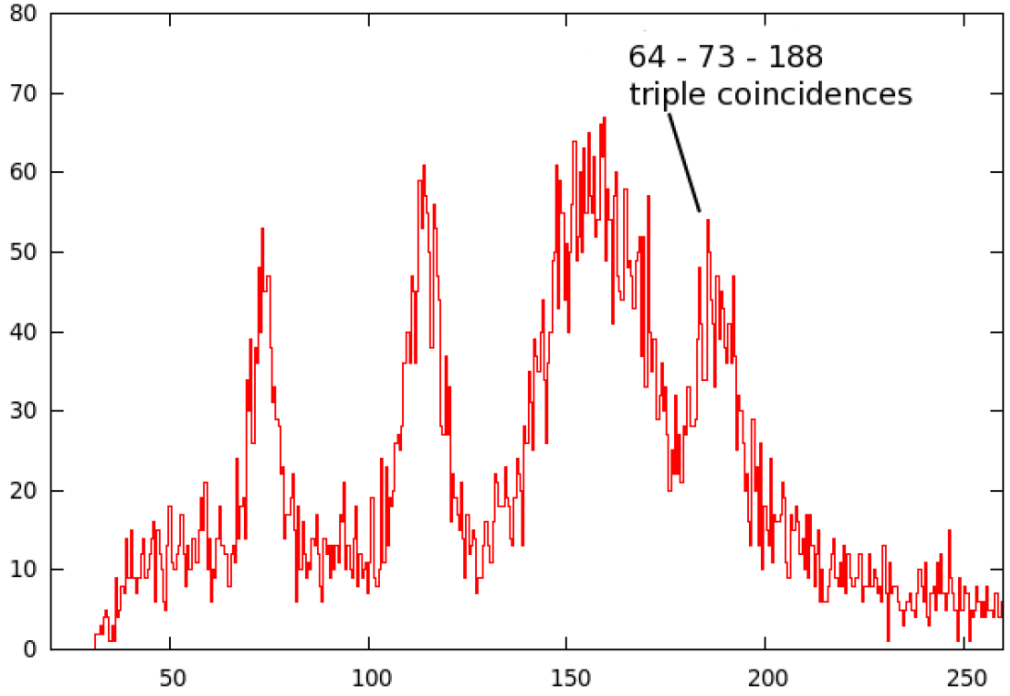
LaBr (start) signal

LaBr (stop) signal

AMOUNT OF TRIPLE GAMMA EVENTS

900 triples per 1nA beam





LaBr (start) signal

LaBr (stop) signal

EAGLE HPGe gate

HPGe-LaBr-LaBr triple gamma coincidences technique in fast-timing experiments.

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EXPERIMENT SUMMARY

^{10}B beam energy	55 MeV
^{122}Sn target thickness	22 mg/cm^2
ACS spectrometers	16 ACS with GAMMAPOOL HPGe
LaBr crystals	4 conical LaBr crystals
LaBr target distance	50 mm
beam time	5 days test experiment
beam time	12 days actual experiment
beam intensity	1nA or higher
^{10}B projectile ionization	2 or less
No. of 152-349-143 triplets	500 per 1nA beam intensity
No. of 73-188-64 triplets	2100 per 1nA beam intensity
No. of 64-73-188 triplets	900 per 1nA beam intensity