

Special Run Summary

Dung and Will

Modified Collimator Running

Brandon prepared steel plates and braces to narrow our downstream collimator.

With Jason, he has been simulating the change in our observed momentum spectrum that these plates would give.

Observing this change in our momentum spectrum would test both our beamline simulation and momentum reconstruction.



Modified Collimator Running

We installed these plates on Friday and took a few hours of data.

Brandon will follow-up on the analysis of this run.



No Target Running

Friday night: 8 pm. to 12 pm. (beam shutdown)

Source Running

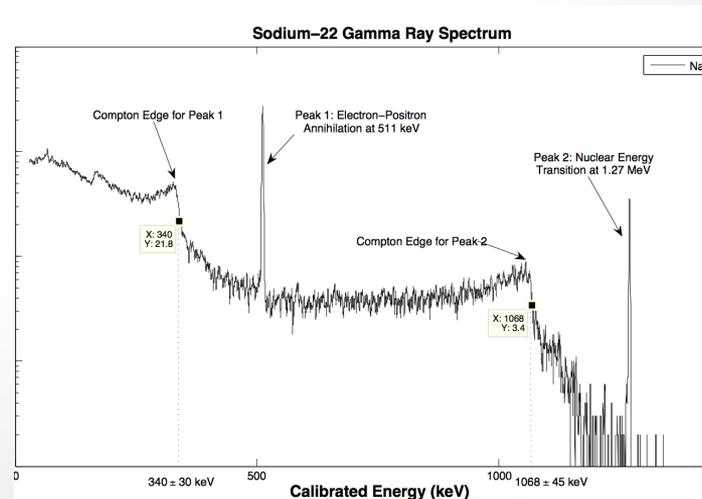
- From early Saturday morning (1:30) to Monday morning (7 am): with Gamma source Na-22.
- Monday morning (~9 am) to Monday afternoon (3 pm): Neutron Cf-252.
- Monday afternoon (~5 pm) to Tuesday morning (9 am): Gamma source Co-60.



Source Running (Na-22)

Na-22: decays by EC (10%) or P-to-N transition (90%). The beta particle annihilates shortly after, gives back-to-back pair of photons: $E \sim 1.02 \text{ MeV}$.

→ How to trigger?



Source Running (Na-22)

The source is attached to the scint. paddle. The paddle was then put in front of the window.

Signal from the scint. paddle is then used as a trigger input: GAMMASOURCE.

Source Running (Na-22)

Run #6380: GAMMASOURCE + LARSCINT:
see mostly cosmic events.

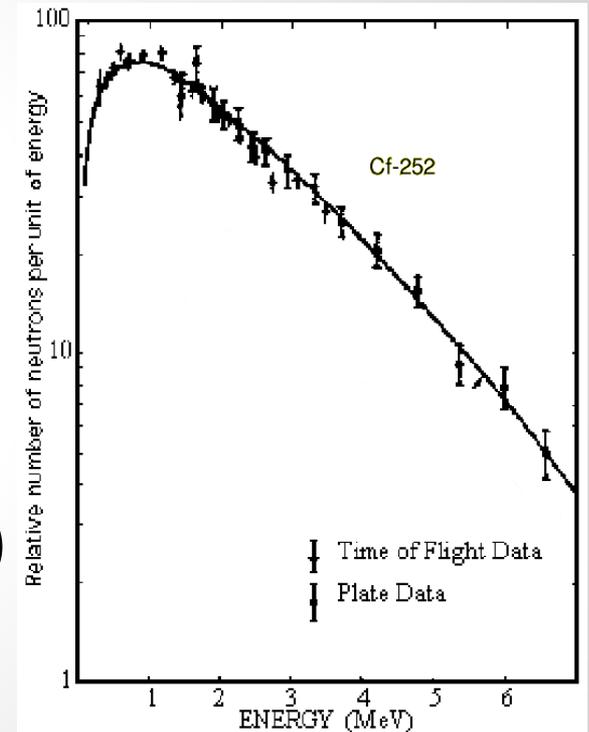
Run #6382: GAMMASOURCE + DSTOF: wish
to select the “more direct” gammas.

Source Running (Cf-252)

Neutron Source:

Cf-252: decays by alpha decay (~97%), fission (~3%).

Neutron energy: 2.1 MeV (avrg.)
(0.7MeV most probable).



Source Running (Cf-252)

Trigger with LARSCINT.

Study is in progress.

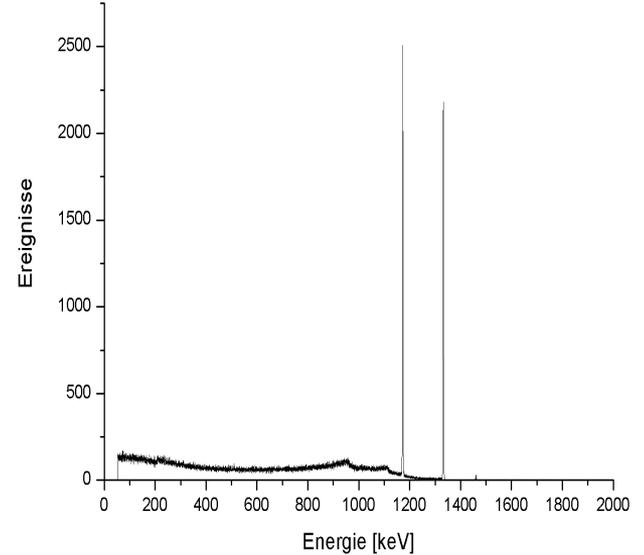
Source Running (Co-60)

Basically, the same setup
as the run with Na-22.

Co-60 is also di-photon, but higher
energy (Rob's suggestion).

We made a mistake and did not
connect the high voltage and the
data cables into the scint. paddle.

(We wasted a night of LAr for
nothing!)



Events in Source Runs

Typically, cosmic and dots like this...
(taken from Na-22 run)

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Sample number: 128 μs per sample; 393.216 μs total

