

Timing

Andrea Grossutti, mat. 1237344

Alessandro Lovo, mat. 1236048

Leonardo Zampieri, mat. 1237351

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1 Aims

- Energy calibration of the organic scintillators and calculation of the energy resolution from the analysis of the Compton edge;
- Optimization of the external delay of the analogue CFTD to obtain the best time resolution;
- Study of the time resolution behaviour as a function of the energy;
- Comparison between the timing resolutions obtained from analogue and digital treatment of the signals;
- Measurement of the speed of light

2 Experimental setup

The experimental setup consist of two collinear organic scintillators, mounted on a sledge, and a ^{22}Na source collimated between two lead bricks.

Data are collected from the detectors through a electronic chain: a fan-in-fan-out quad module replies the signal of each detector and produces four copies of it; then, through a CFD, a trigger signal is produced. The CFD trigger threshold has been set so that the background noise is discarded, while the interesting signals produce an output.

3 Apparatus calibration

Both the detectors and the TAC need to be calibrated. Firstly, let's calibrate the detector.

A spectra for each detector is acquired; due to the composition of the detector, the photopeaks are negligible and only the compton effect are detected. Through the position of the compton edge, the calibration can be done.