THE CYGNO EXPERIMENT

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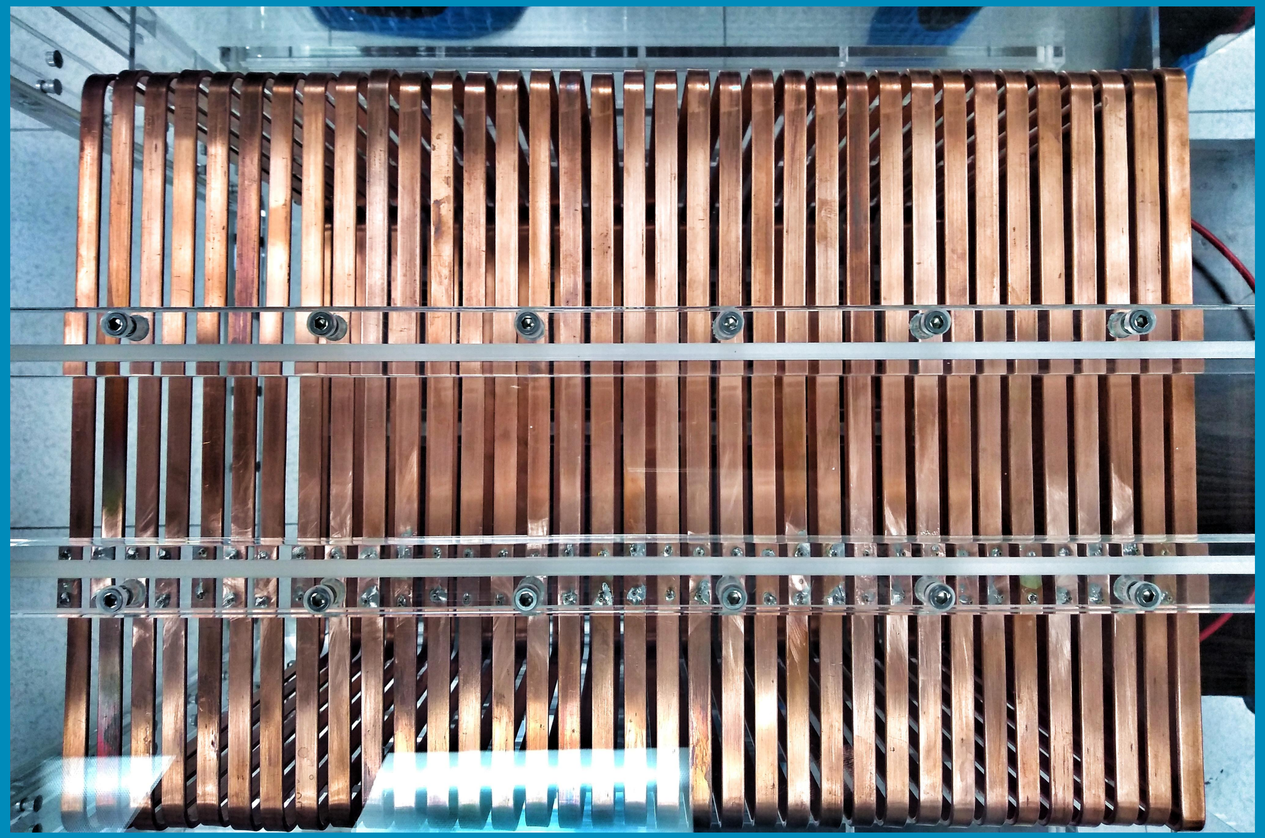
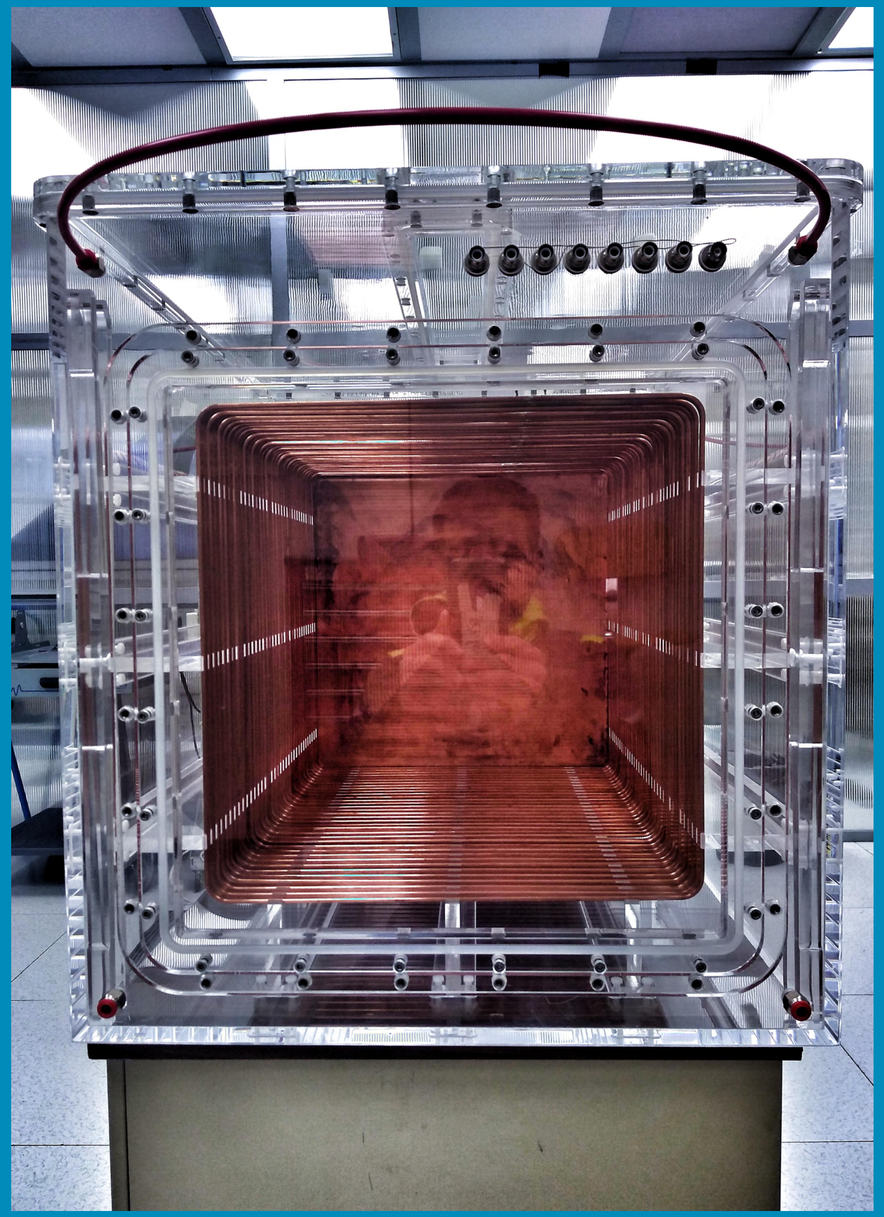
LIME!

50 litre sensitive volume:

- **33 x 33 ~ 1000 cm²** GEM surface;
- **50 cm** drift path;

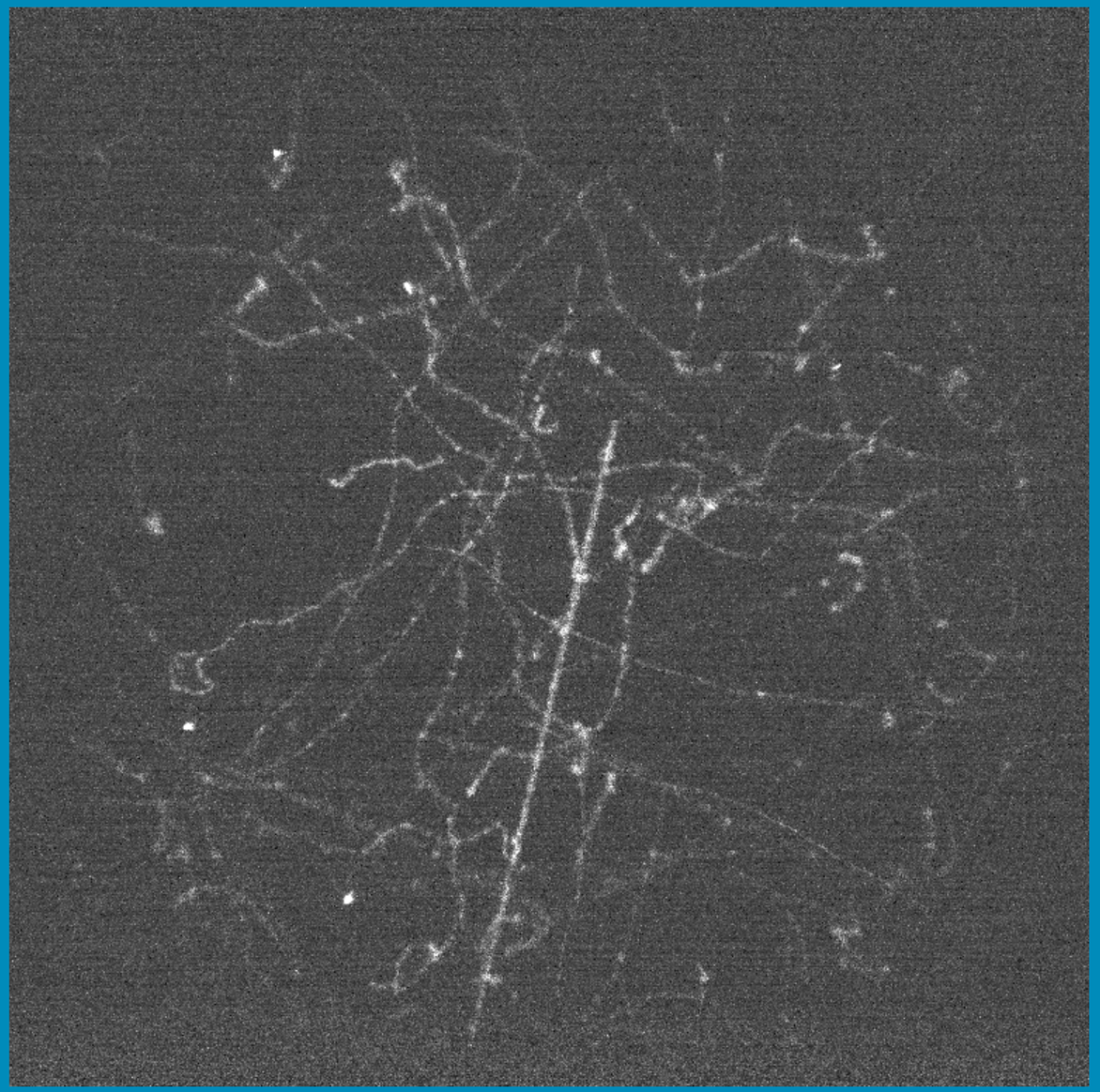


Copper ring field cage

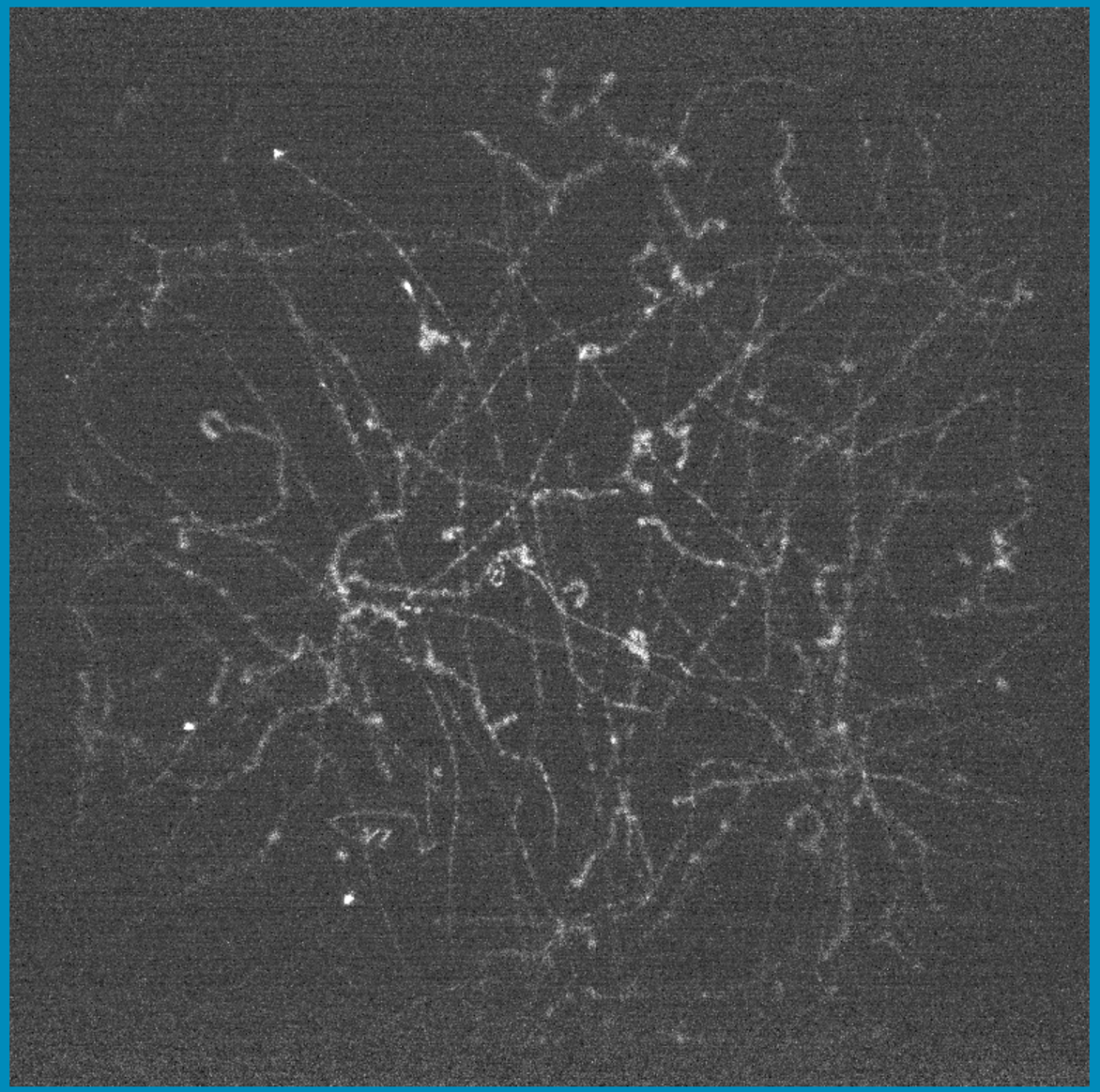


Acrylic gas vessel

LIME: IMAGES

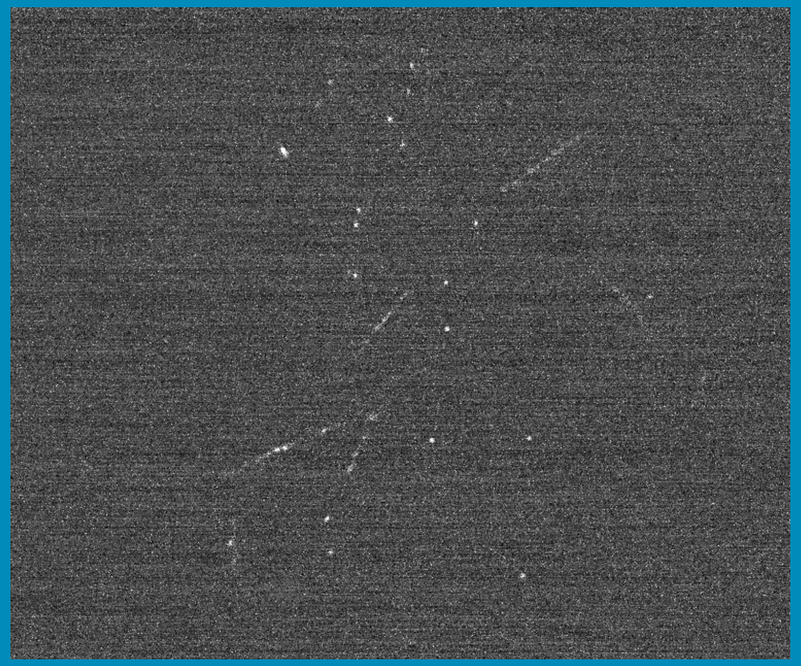


33 cm

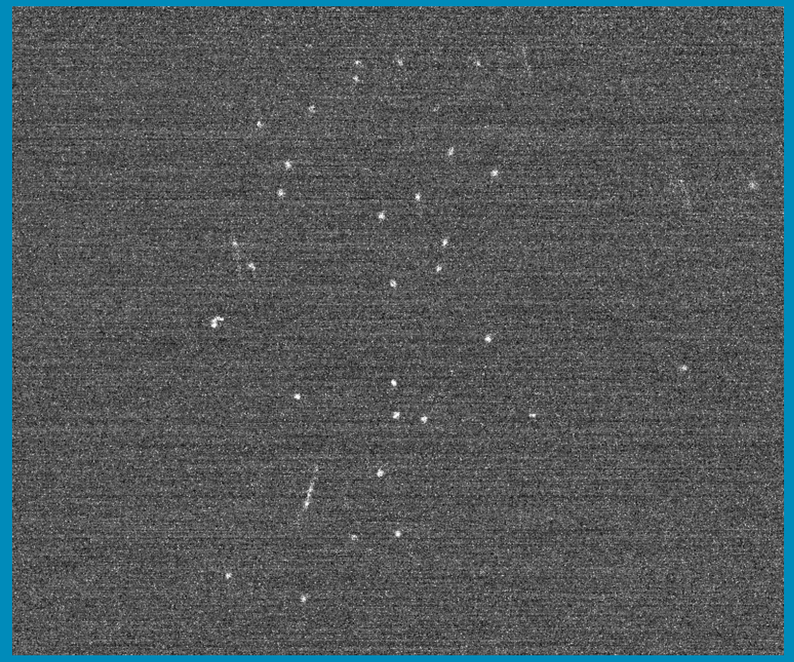


LIME - ^{55}FE SPOTS

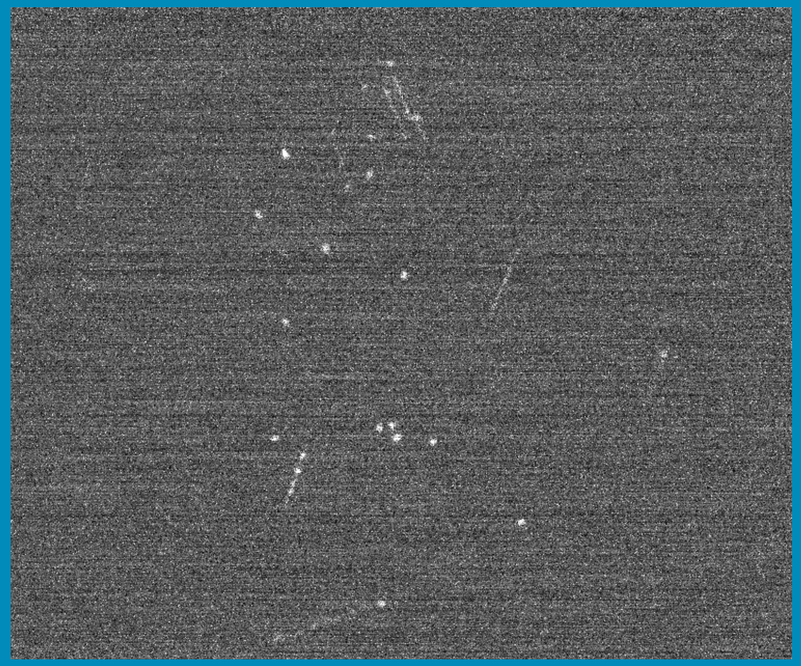
- 5 cm from GEMs



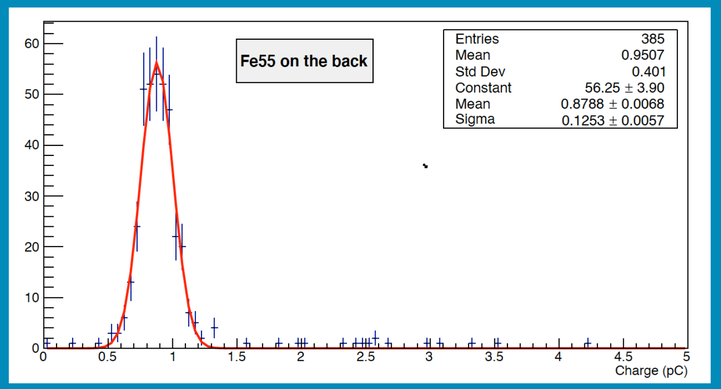
- 20 cm from GEMs



- 45 cm from GEMs



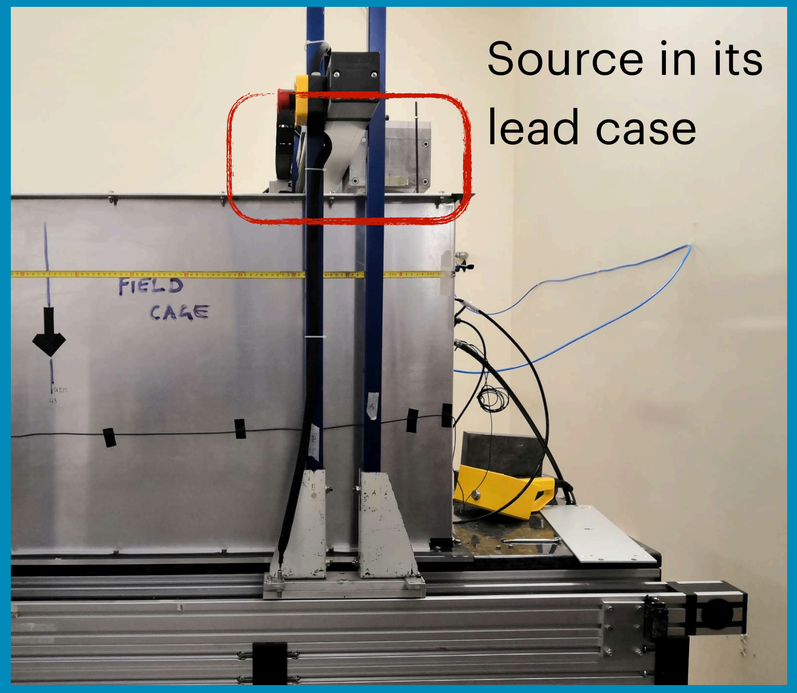
Spectra of charge on the last GEM shows an **Energy resolution** of **15%** in the whole volume



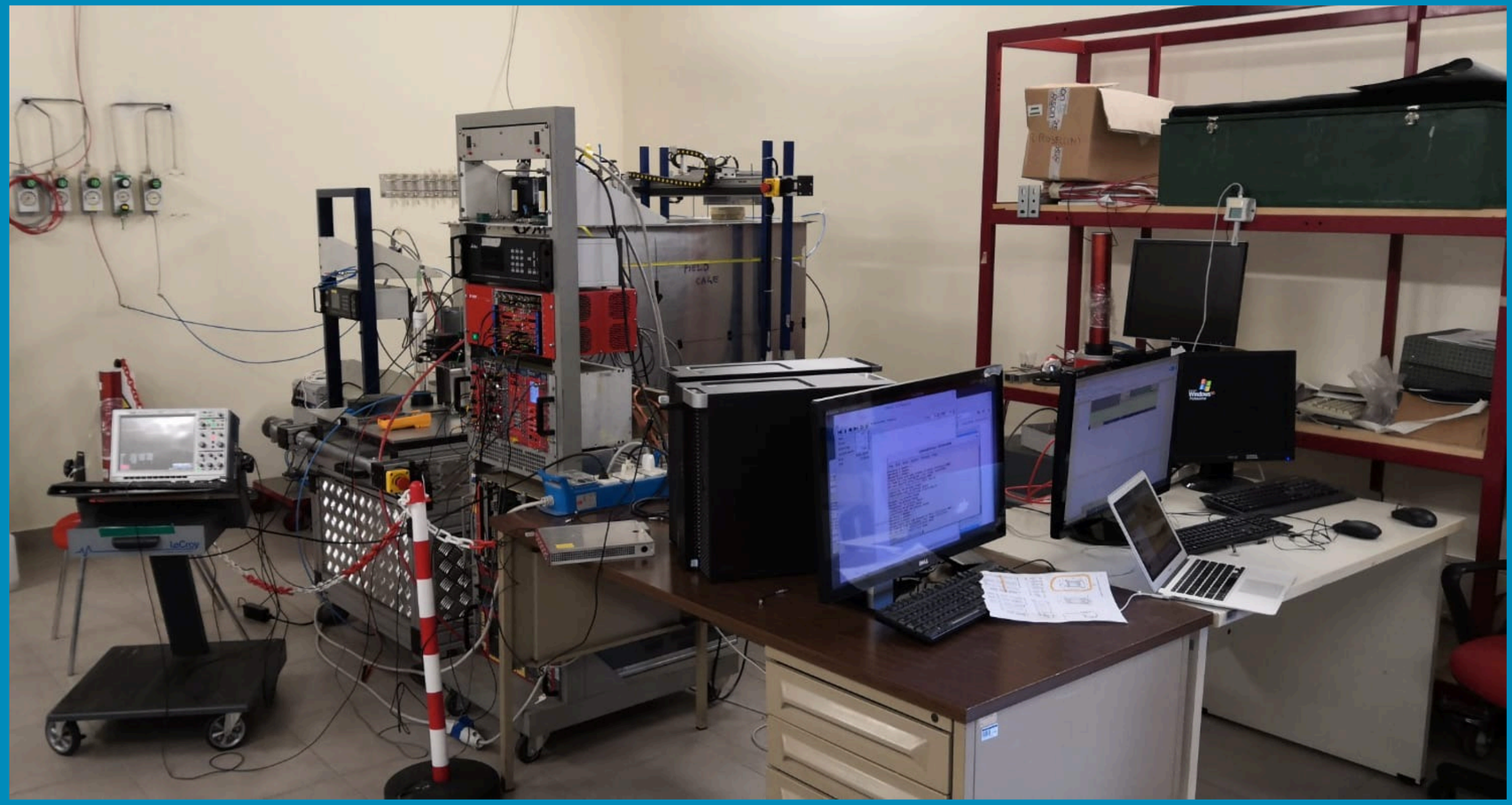
No evidence of large efficiency drop

TEST WITH ^{137}CS

An table (developed for LHCb experiment) for automated source movement was upgraded to host LIME

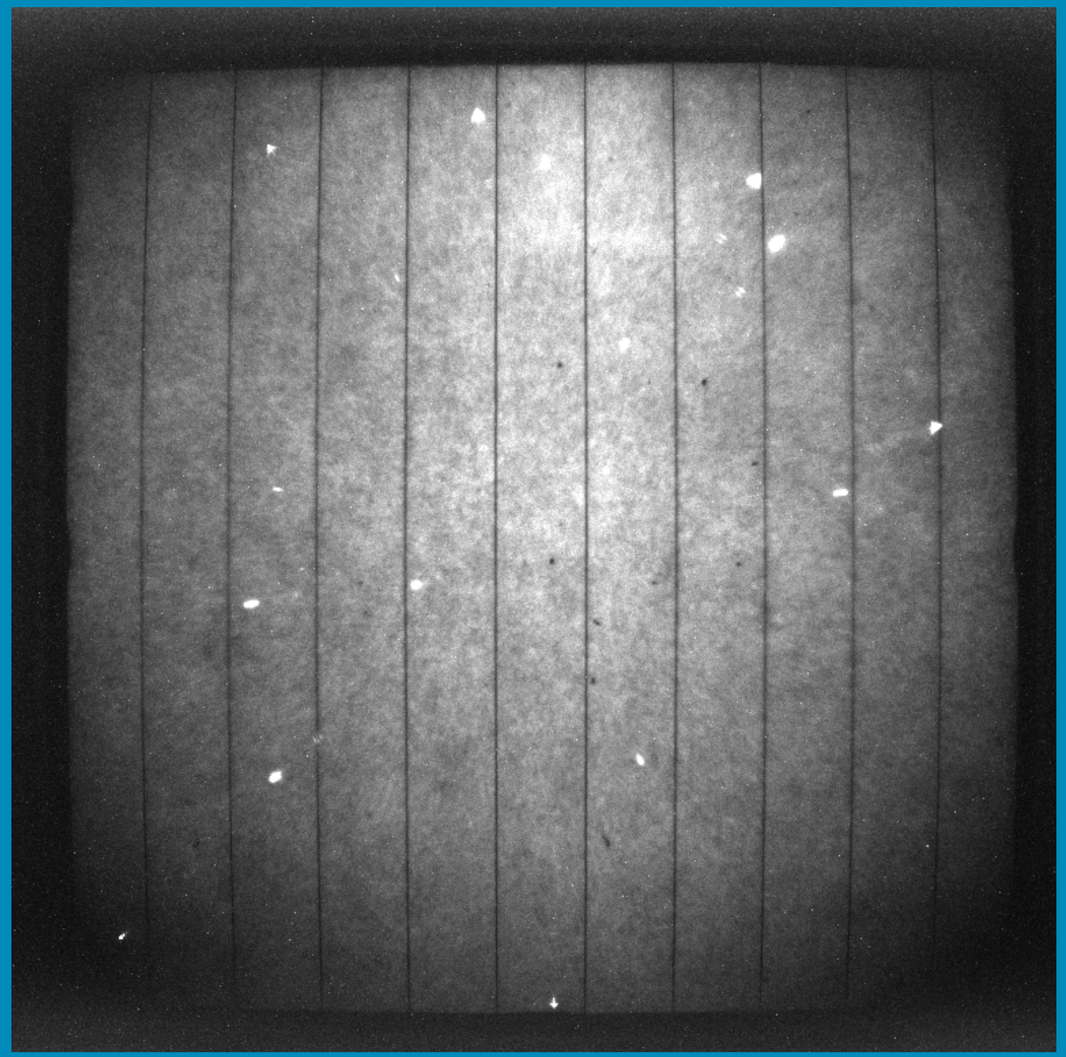


Source in its lead case



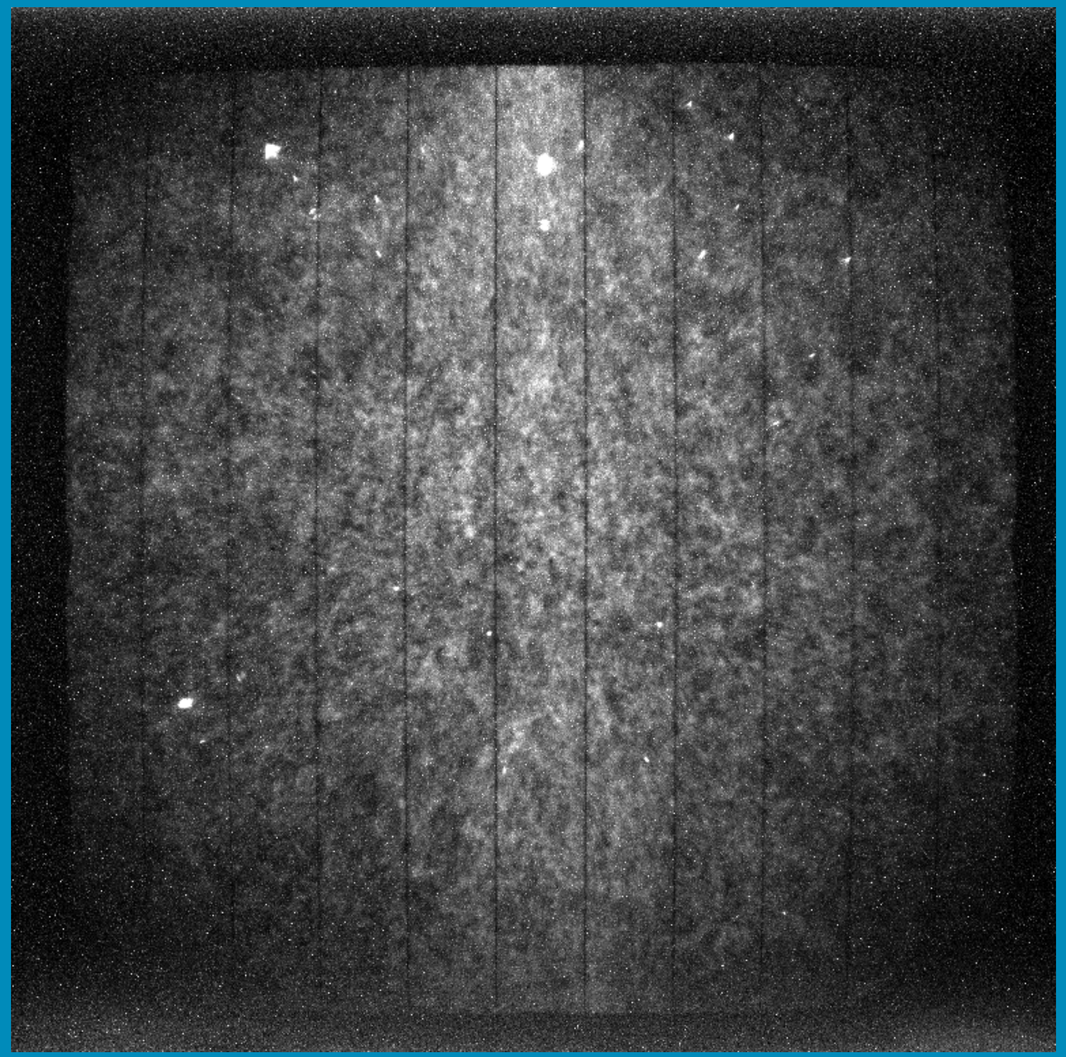
Same setup will be used for AmBe tests

LIME: ^{137}CS



Long exposure

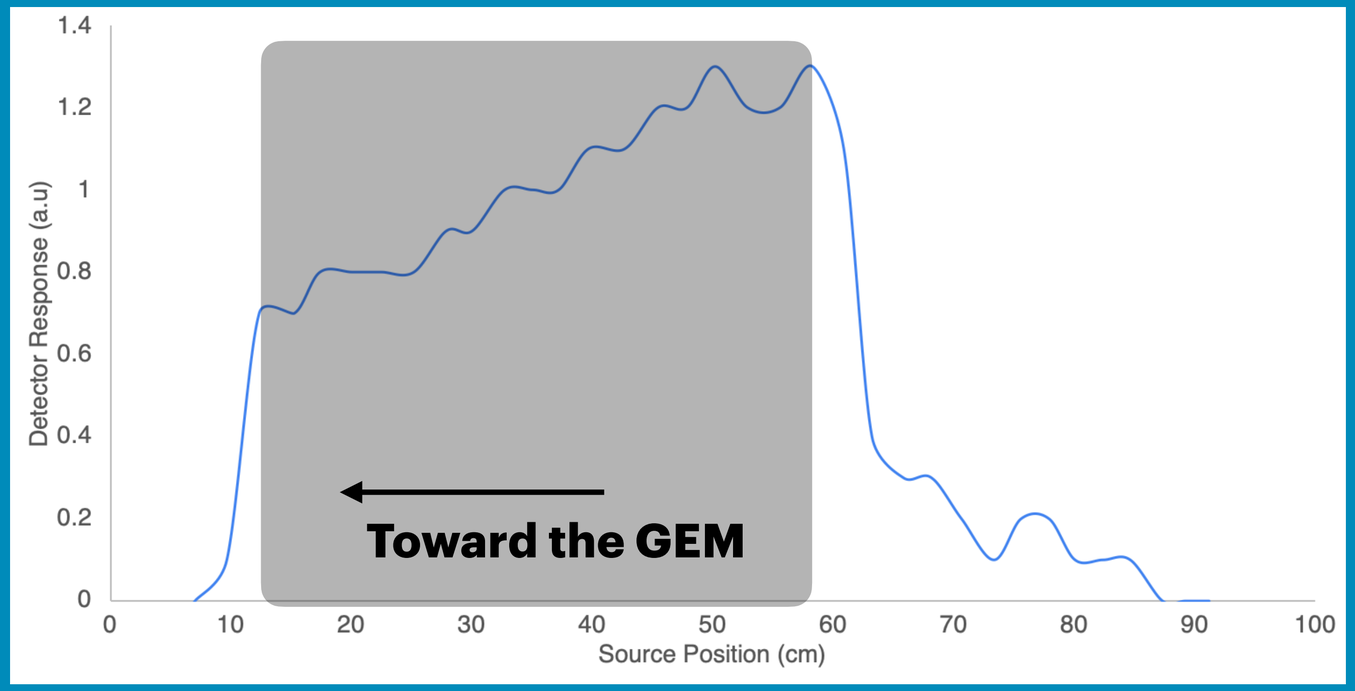
33 cm

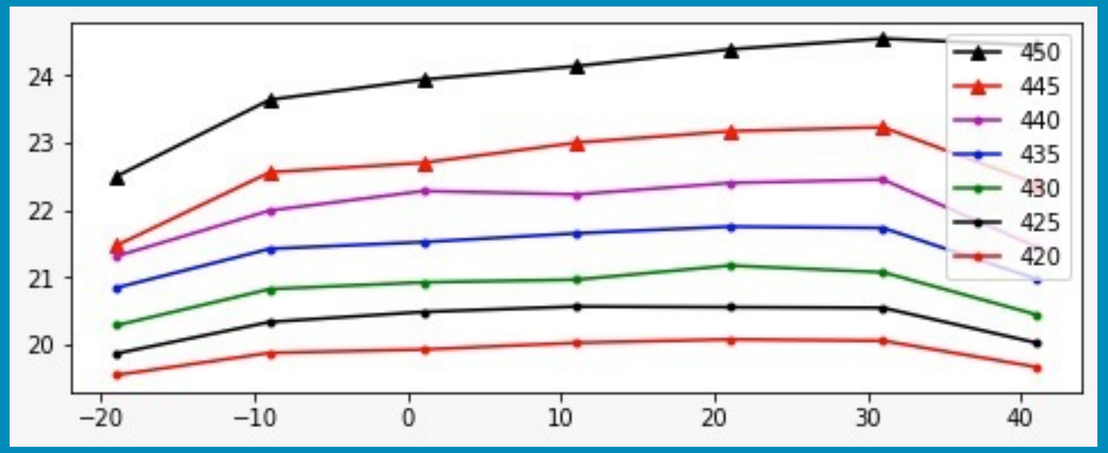


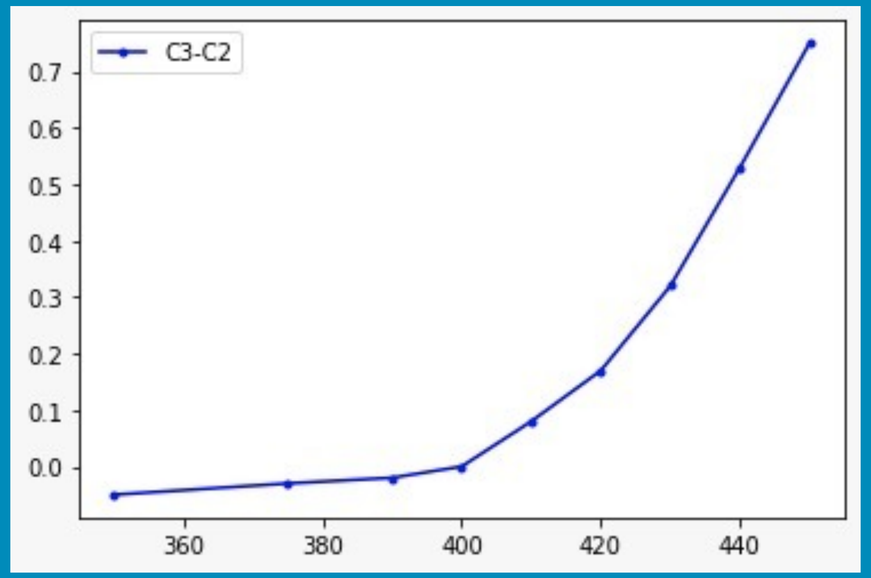
Source was collimated to make a position scan

LIME: ^{137}CS

Detector response non linearity already visible







Source was collimated to make a position scan

(automatic position measure to be re-calibrated)

LIME GEM SIGNAL ANALYSIS

Luigi Benussi and Davide Piccolo

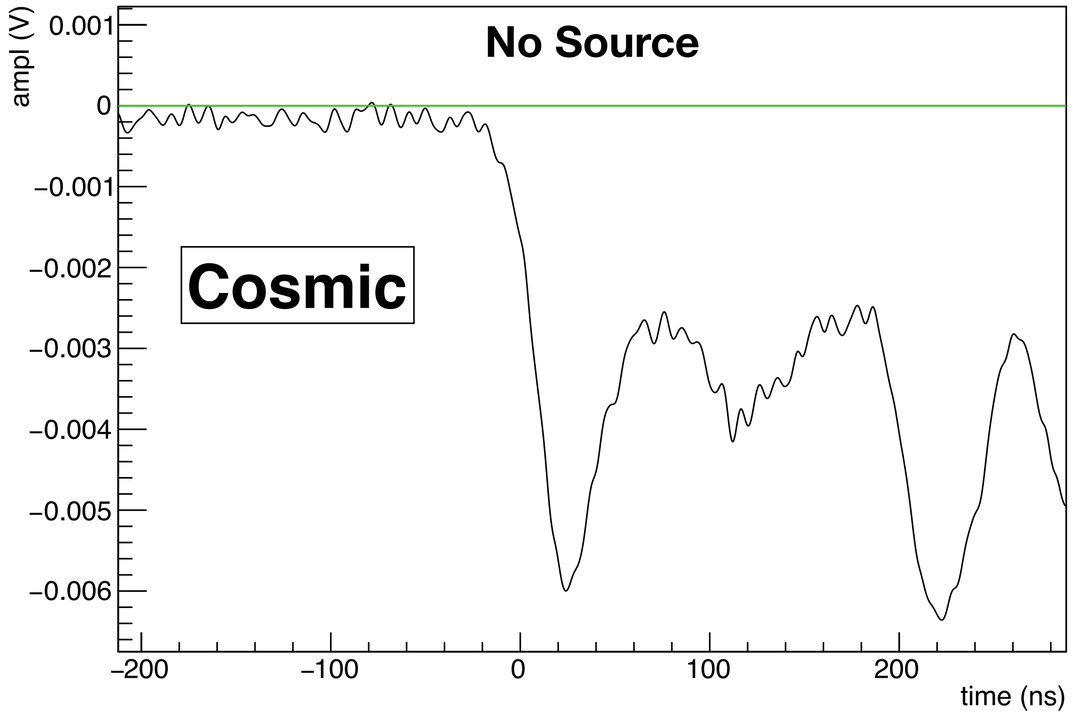
GEM3 SIGNAL

Signal taken on third GEM foil

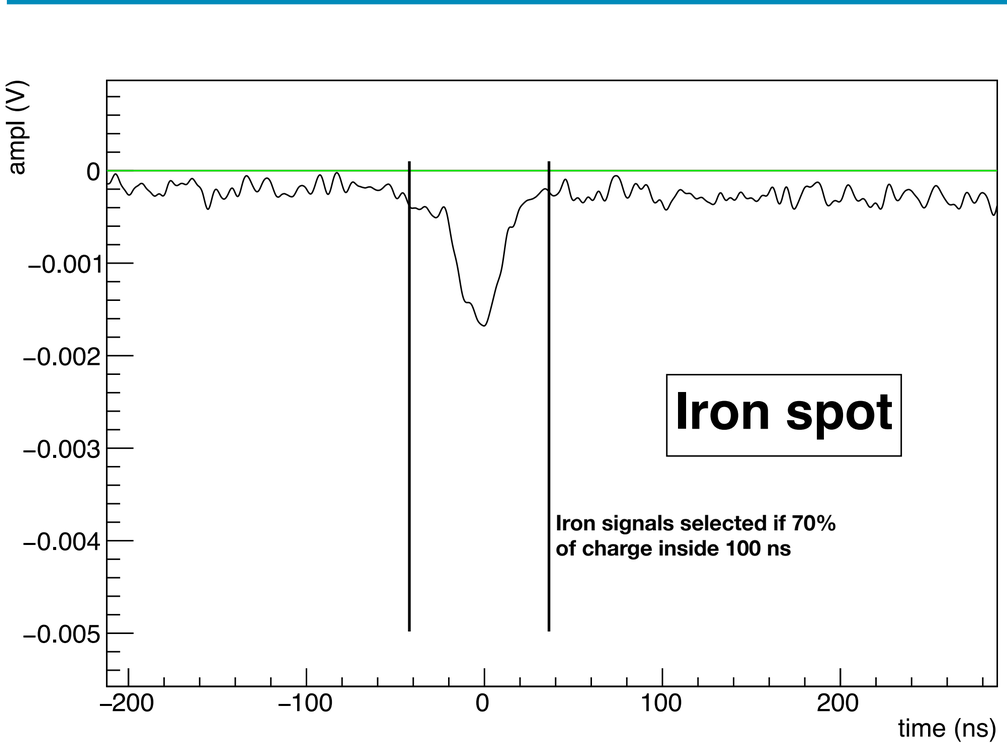
Data taken on June 18

GEM Voltage 440 V

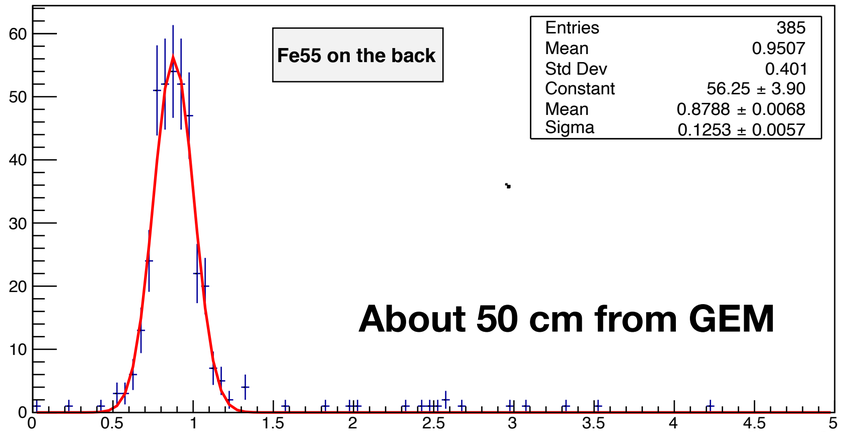
Transfer Field 2.5 kV/cm

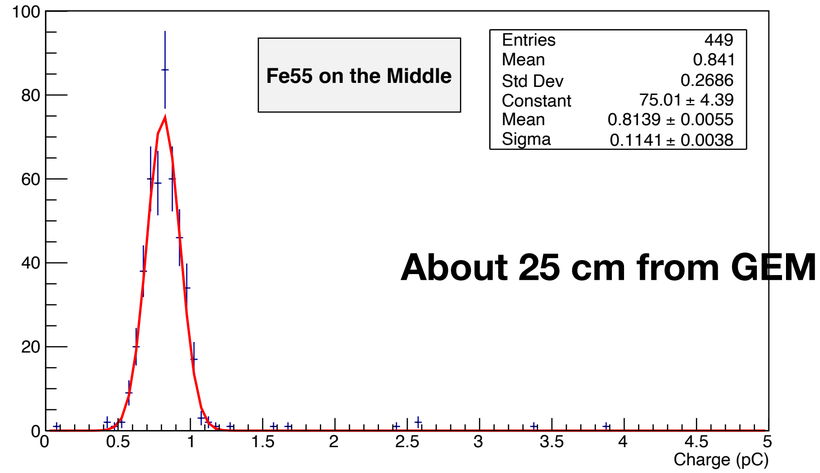


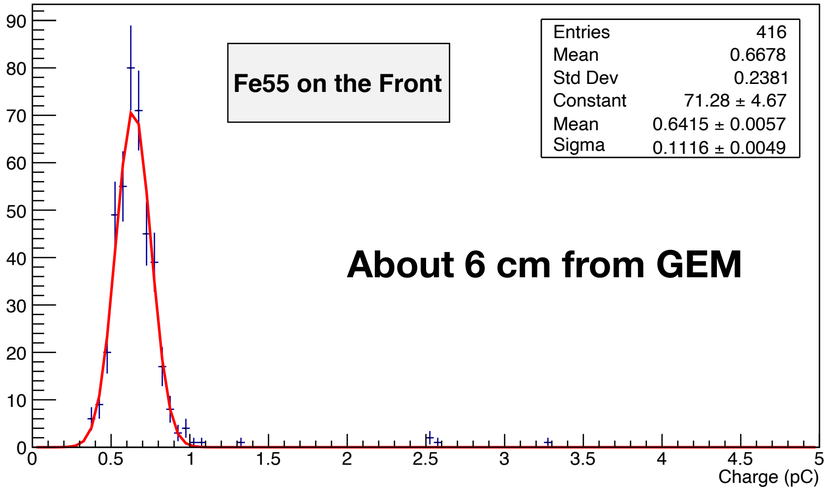
Iron source

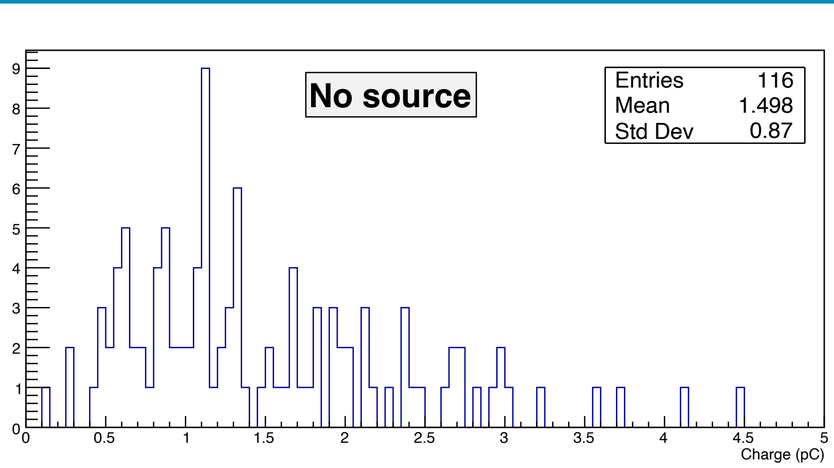


INTEGRAL CHARGE

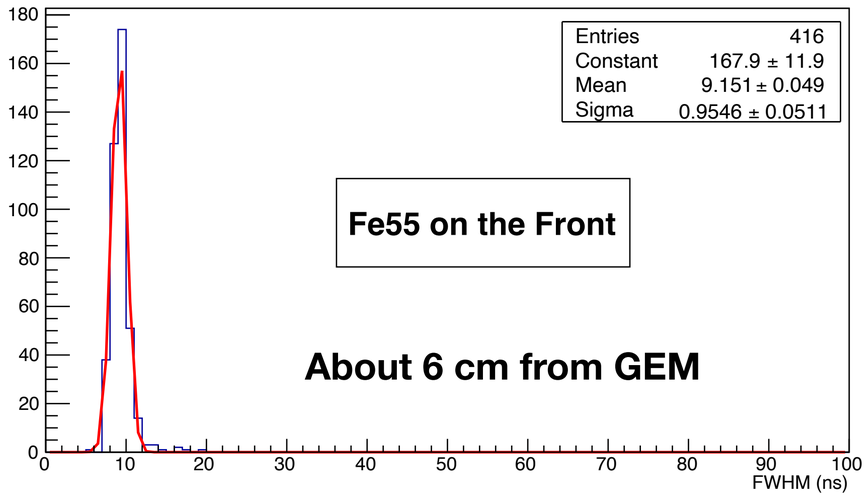


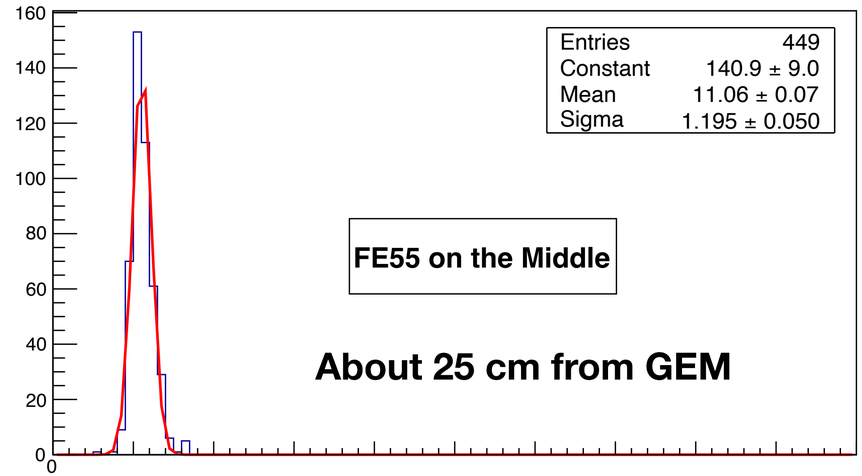


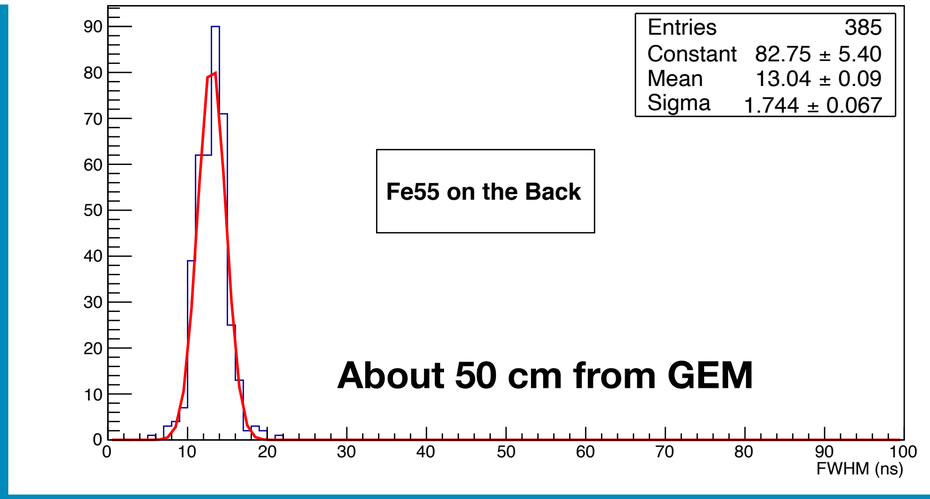




FWHM TIME







Effect of longitudinal diffusion very clear

SUMMARY

	Average Charge (pC)	Sigmas Charge (pC)	Resolution (%)	FWHM (ns)
Front	0.641	0.112	17.5	9.15
Middle	0.814	0.114	14.0	11.06
Back	0.879	0.125	14.2	13.04

THANKS!