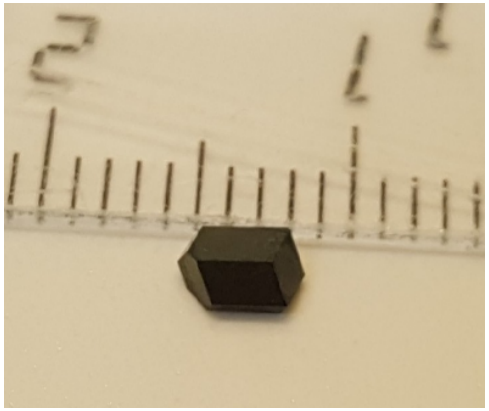
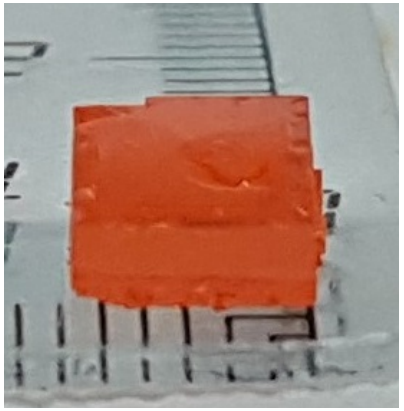
IFAE

Neutrino's Group Meeting

From ZPro to AdvanZe





November 30, 2017

ZPro's Summary

The first phase of the IGNITE grant will end up in December.

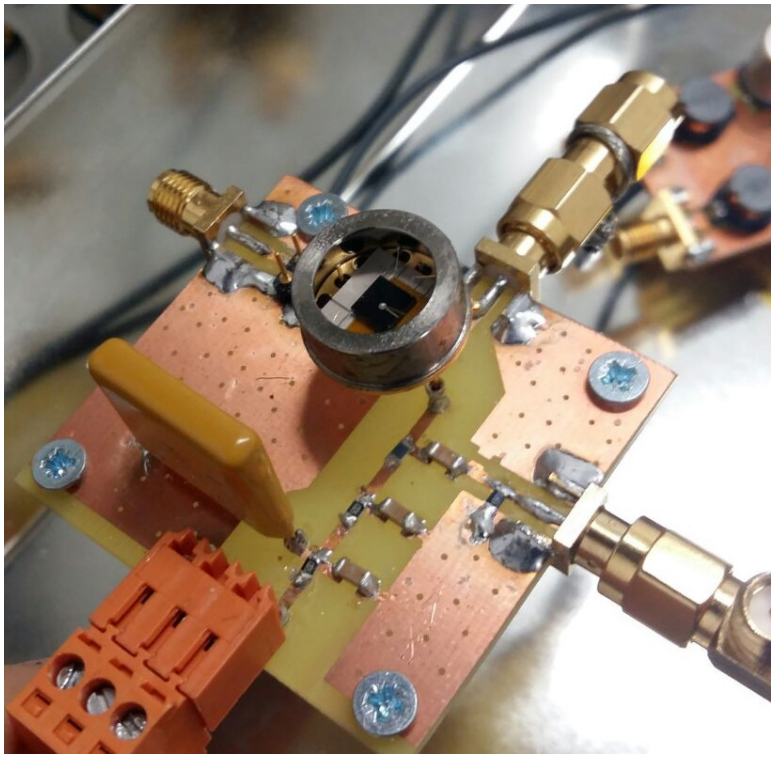
$\longrightarrow$ Tomorrow, we are appliying for the IGNITE's second phase call.

ZPro activities during its first 6 months:

- **In my first presentation:** Xrays were succesfully detected in solar-cell oriented sensors (500nm-thick).
- **In my second presentation:** Perovskite sensors were crytically upgraded, we have single crystals of several mm made with Iodine or Bromine.
- **Today:** A new setup has been designed and tested using CdTe.
  - $\longrightarrow$ It will allow to measure systematically thick perovskites using a guard ring.
  - $\longrightarrow$ It succesfully demonstrates the capability of the electronics designed and built by JG.

The new setup

A new PCB allows to use a large sensor 4x4x2 mm^3, with guard ring, operated at HV (up to 500V). It also includes a TP entrance through the sensor.



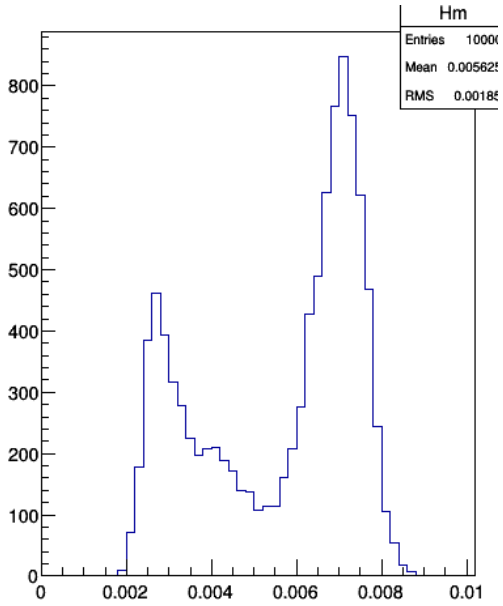
The system operated using a CdTe sensor has been used to test the electronics.

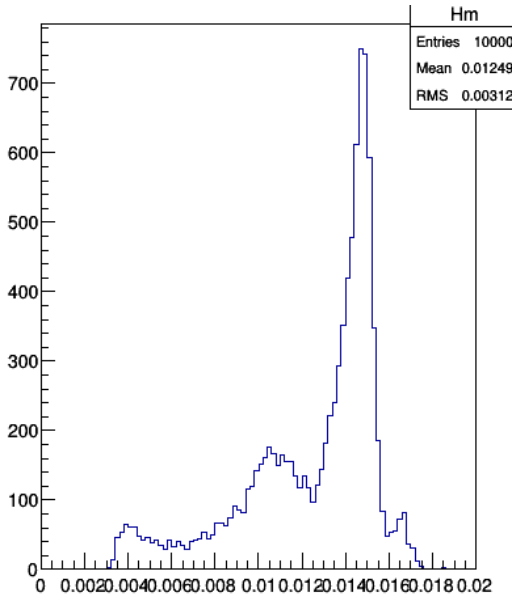
This week, the sensor was irradiated with 241Am and 57Co sources.

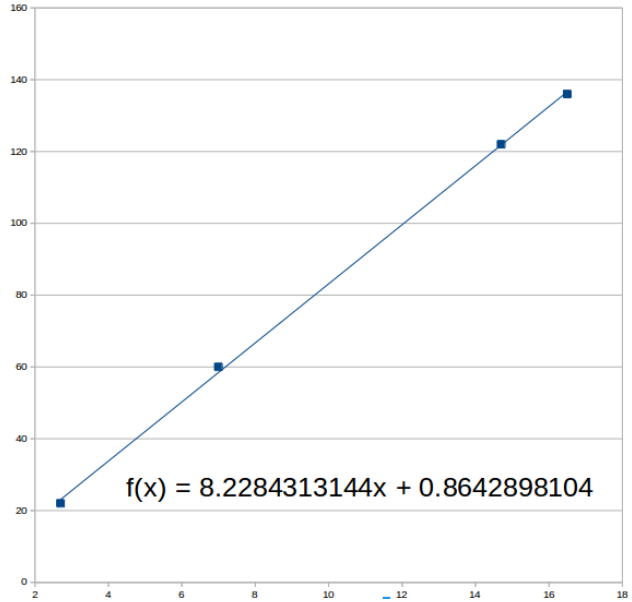
The setup allows to replace "easily" different sensors and accordingly it is ready to test large perovskites made in ICIQ.

Spectroscopic results

We studied the response of the system using 241Am and 57Co.







Resolution:

54% 17% 35% 7.1% 5.6 %

In the future:

- We know that most the noise is coming from the electronics... several upgrades will be made in the future.
- We can now compare CdTe with perovskites with the same size and electronics.
- In the near future we want to test again some solar-cells with different composition to obtain the necessary information to publish.
- AdvanZe will be focused on the enhancement of the current setup and senors to study sistematically chimically different perovskites.
- After AdvanZe the next step will be the sensor pixelization.