

## **A particle detector for educational purposes**

designed, build, tested by high-school teachers & students (& physicists)



# Objectives

- **Experimental research:** Not just data analysis
- **STEM education:** physics & electronics & programming
- Engage the students in the scientific process
- Interdisciplinary working group



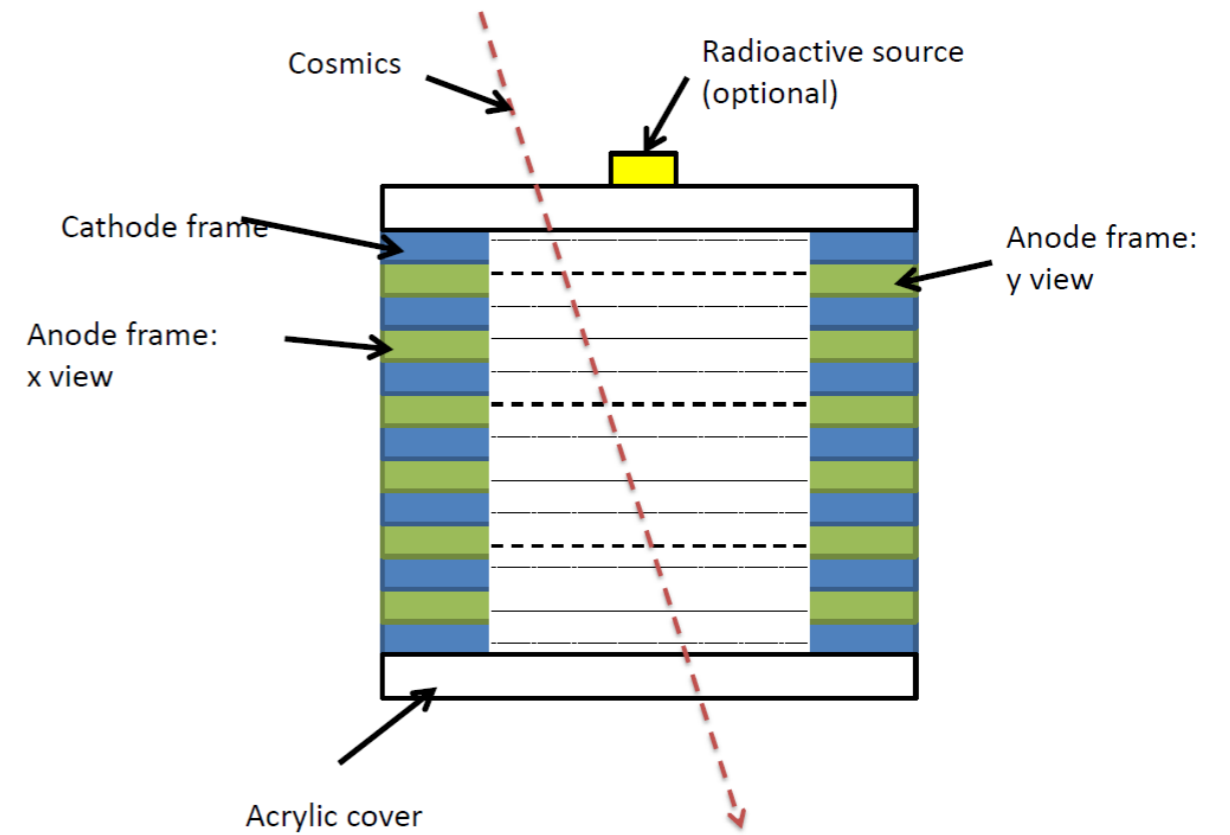
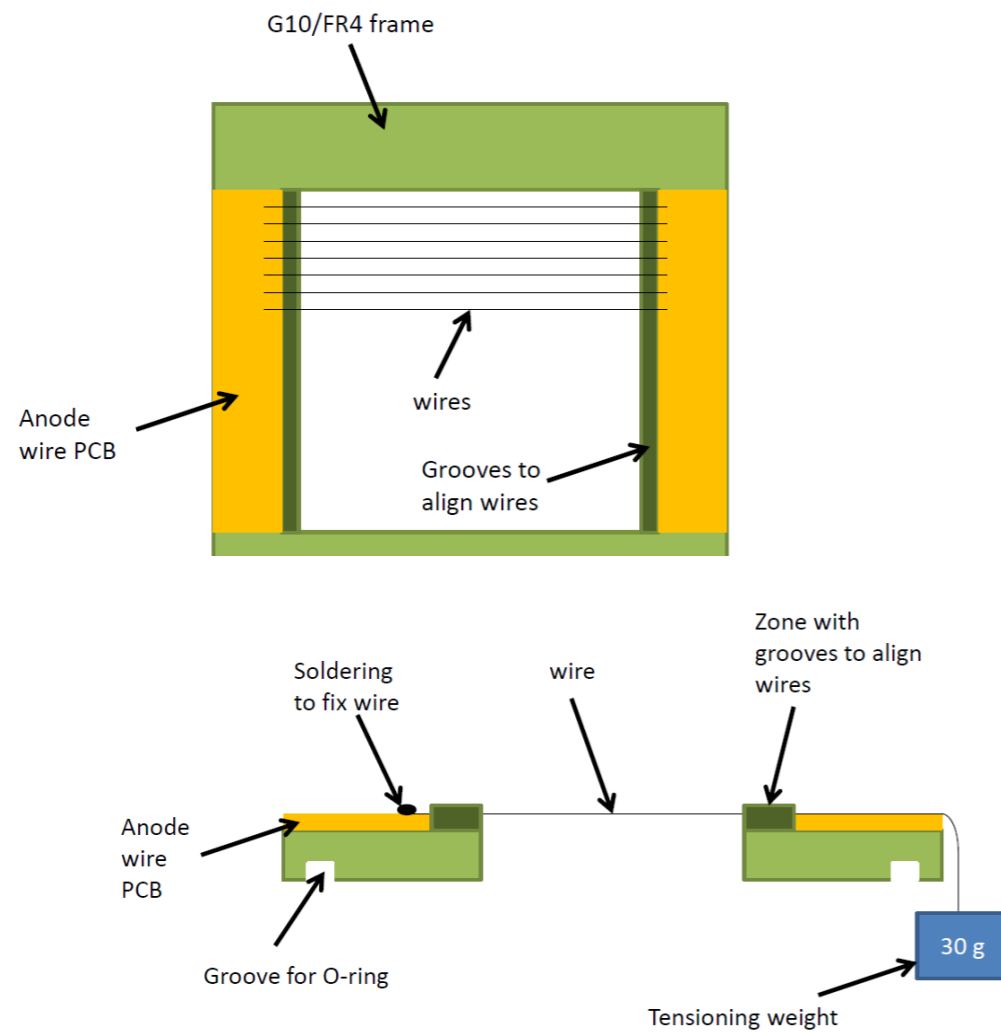
# The project

- Design a particle detector versatile, modular
- Testing and characterisation by students
- Teachers involvement in the process
- Education & Outreach material
- Analysis proposed & performed by students



# The Detector

- Multi-Wire Proportional Counter (MWPC)





# The Detector

- Multi-Wire Proportional Counter (MWPC)
- Ad-hoc electronics Shaper and amplification
- Arduino Electronics Triggering, ADC, Reconstruction
- Software



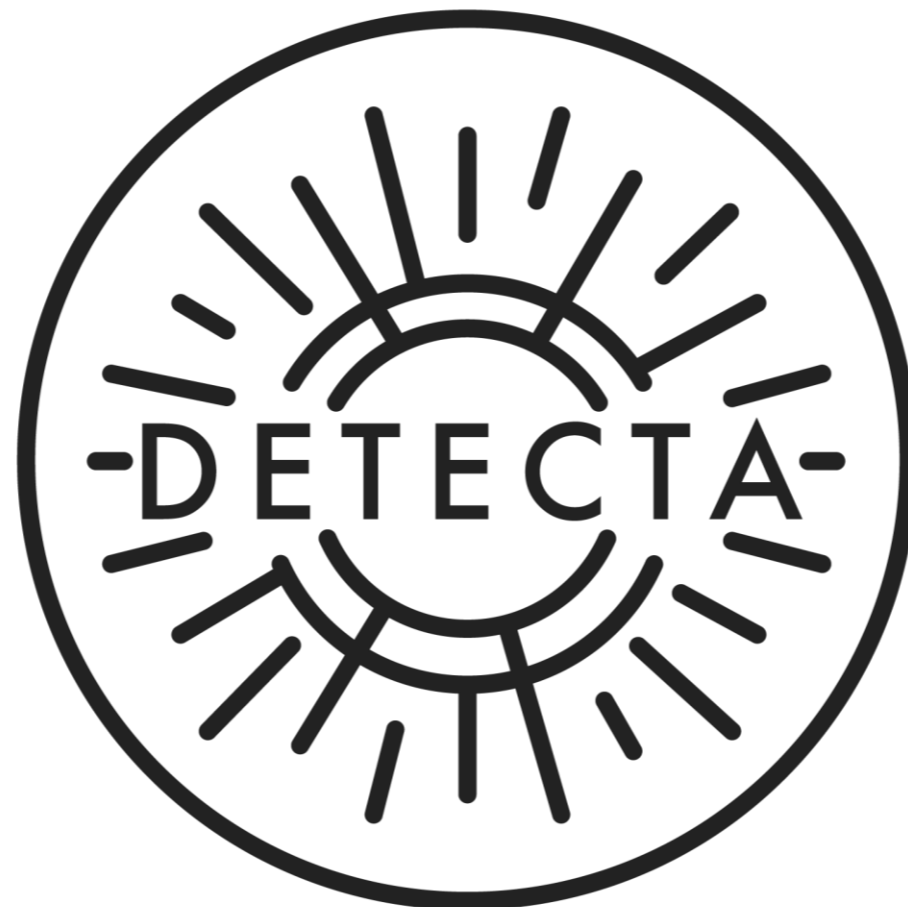
# Measurements

- **Cosmic rays** rate & variations, angular distributions,
- **Fundamental Physics with Gammas, Alphas, & Betas** spectrum, Bragg peak, Landau Distribution, tracks, energy deposition
- **Tomography**,.....



# Scope

- R&D at IFAE's labs with students
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- Experiments in schools by teachers & students
  - Outreach Activities in Science fairs by researchers
  - DETECTA anual conference all together



**Thank you!**

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