# General information

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## Targeted topics

| | | |
|---|---|---|
| SU-INFRA01-2018-2019-2020 | detection | IA |

CCI LYON

Sécurité
PCN - Horizon2020

# Competencies

- *Research group leader, Steering Board chairman of an international R&D collaboration (CALICE), Institution Board chairman of an LHC experiment subgroup (RPC-CMS), coordinator of an ANR project (DHCAL)*
  *Head of the Subatomic Physics Master of Lyon university.*

- *Co-convener of one of the important WP of the* ***AIDA2020 European project*** *(more than 25 groups in this WP)*

- *Expertise in the elementary-particles detection field and organization of research and formation structure*

- ***My group/institute has expertise in electronics, DAQ and Mechanics as well as instrumentation domains.***

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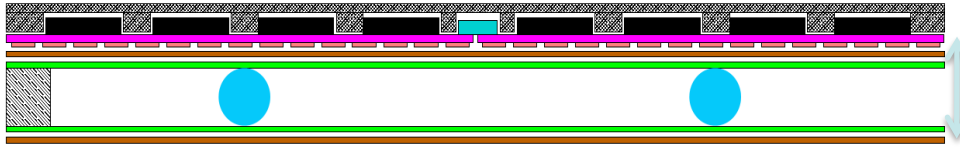
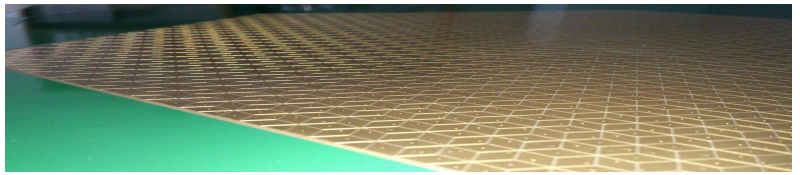
# Project idea

- *We developed **large, thin** and precise **detectors** as well as a sophisticated readout **electronics** (low noise, **low power consumption**).*





- *The detectors are rather simple**, cheap** and provide excellent space and time resolutions. A genuine electronic readout scheme is proposed to reduce the electronics cost (up to a factor 100)*
- *Our study showed that, using **cosmic rays**, our detectors can reveal hidden dense objects in rather a short time and more particularly in cases where X-Rays scan is not efficient*

***We think this could be very useful to detect dangerous hidden objects in containers of different sizes***

- ***List of the complementary skills needed :** Developers of an acquisition system to be used easily by custom officers…*

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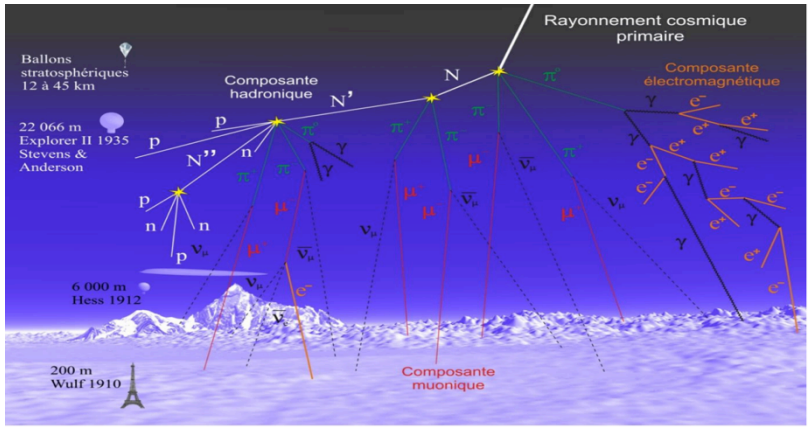
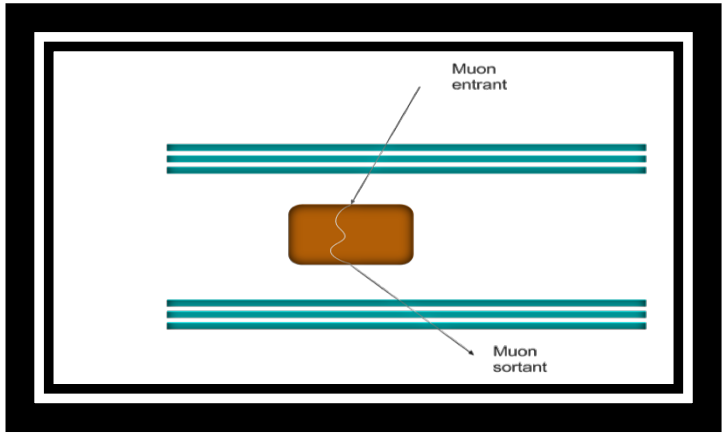
# Summary

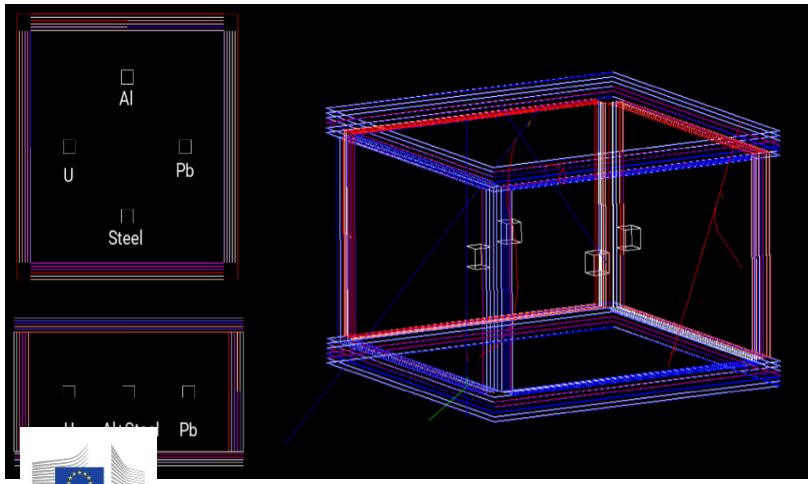
Cosmic rays : natural, free and harmless source



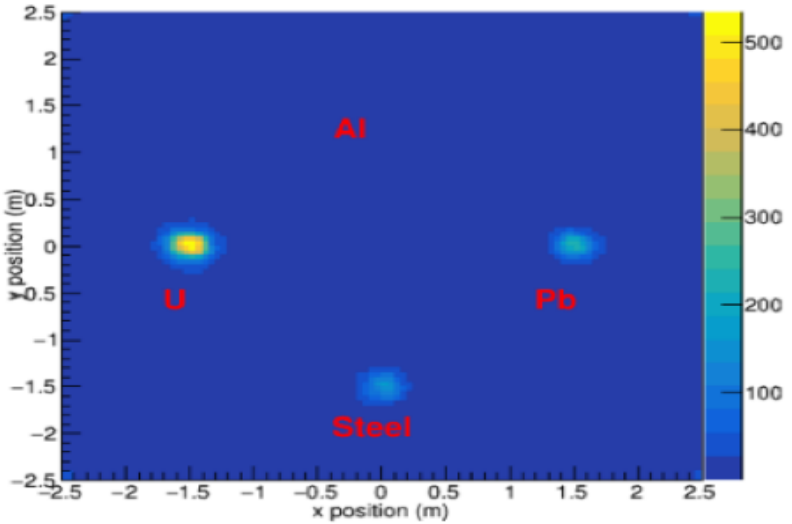

Detection setup




Simulation based on Geant4 code.




Output of the simulation study
Both diffusion and absorption modes are used

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