Competence Center in Monitoring and Control (CCMC)

F. Neves

LIP Advisory committee meeting

24 April 2024



Synopsis: Who we are, what we do and activity highlights

LIP Contributors:

Nuno Barros, Paulo Fonte, Francisco Neves (<u>Coord.</u>), Guilherme Pereira, João Silva, Vladimir Solovov, Helmut Wolters.

Master Students:

Leonor Martins, Gil Madeira (LIP Master scholarship).

- Brings together both the expertise and human resources from several LIP groups (RPCs, DUNE, LZ, IT) and uses the accumulated know-how and tools to establish partnerships/contracts with third parties (e.g. other laboratories, industry) where the LIP scientific deliverables can be reused;
- Shares and helps implementing solutions among other LIP groups; Training of human resources.

Highlights from 2024 (-2025):

- ✓ Development of a MCA prototype (135k€, 12 months, 2.4 FTE) for the VITAL Technology Group CO.;
- ✓ Supervision of 2 Master students (1 in collaboration with Industry, 1 LIP master scholarship):
 - ✓ Gil Madeira, "Implementation of digital processing algorithms for real time radiation spectroscopy applications" concluded at September 2024
 - ✓ Leonor Martins, "Application of AI in the steering of an industrial drying system", thesis developed in collaboration with industry (STREAK), ongoing.



Objectives for the future & SWOT

Objectives & Prospects for the future (2025-)

• Partnership with UC and ESAC in a PTDC call (~43k€, 12 months, 1 FTE) – LIP work focuses on using satellite and drone images to monitor invasive plants.

- Development of a low noise pre-amplifier for HPGe detectors for the VITAL Technology Group CO. (~120k€, 12 months, 1 FTE)
- Continue to seek out for **new funding opportunities** with current/new partnerships in industry and academia.
- Continue to invest in the training of human resources and development of dissemination activities;

SWOT

Strengths

✓ A large body of knowledge available (e.g. analysis, software, electronics);

Opportunities

The ability to deploy very high quality and personalized products and services;

Weaknesses

* Difficulty in allocation of FTEs or resources;

Threats

* The ability to ensure the **manpower** required and, consequently, meet **deadlines**;



Extra: MCA results (premiminary)

Data acquired using a HPGe detector from CTN, Lisbon



Linearity better than the 250 ppm requirement

Energy resolution slighlty better than the commercial setup installed at CTN (~0.8% FWHM @ 662 keV)