+

=

More efficient work schedule and production

Wide range of expertise allows to better project design, shortening production and testing times, as well as reducing the number and/or severity of failures.

Risk: Individual responsibility increase and individual failures could block the system!! However, low risk low profit!!

Main “tasks” of 2024

DL+MW

- DL
  - BrainPET
  - Sealed RPC
  - Neutron RPC
  - PPCs
  - ATLAS HGTD
  - SparkChambers
  - All other internal requests
  - Significant number of external requests

MW

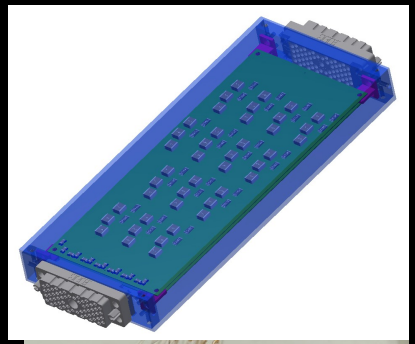
- BrainPET
- Sealed RPC
- Neutron RPC
- PPCs
- ATLAS HGTD
- ProtoDune
- All other internal requests
- Significant number of external requests

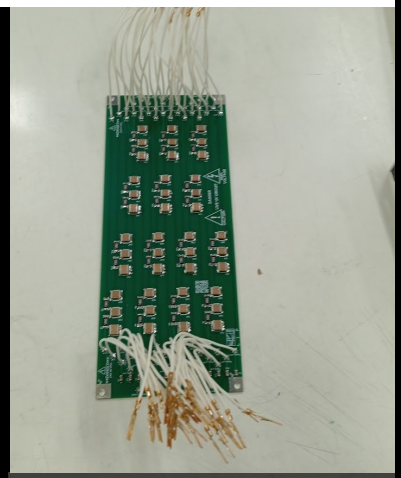
2024 Highlights

Luis Lopes

LIP-Groups

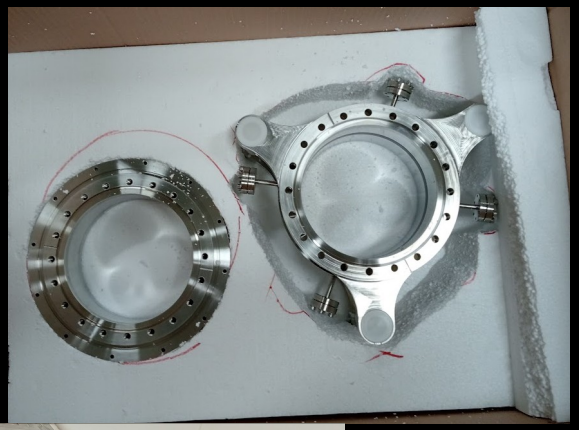
ATLAS HGTD

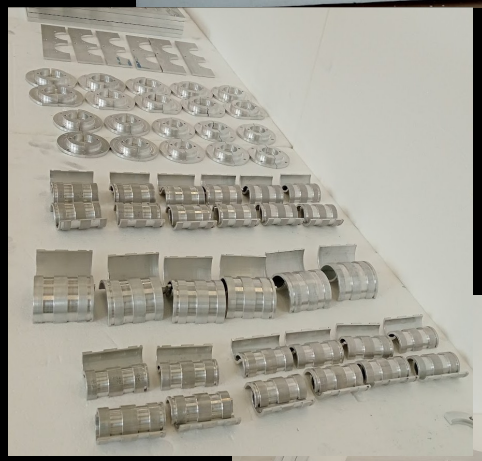


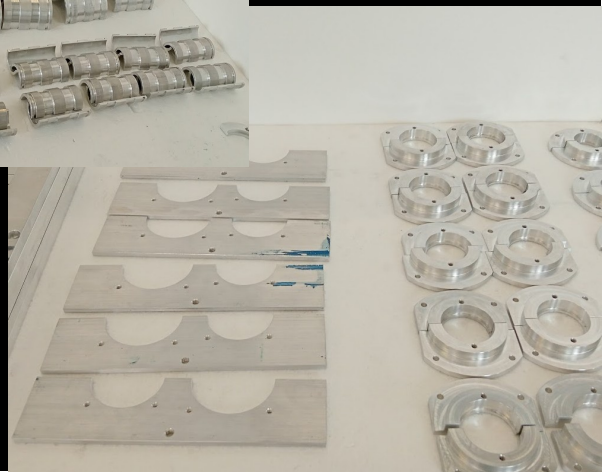


SND

ProtoDUNE





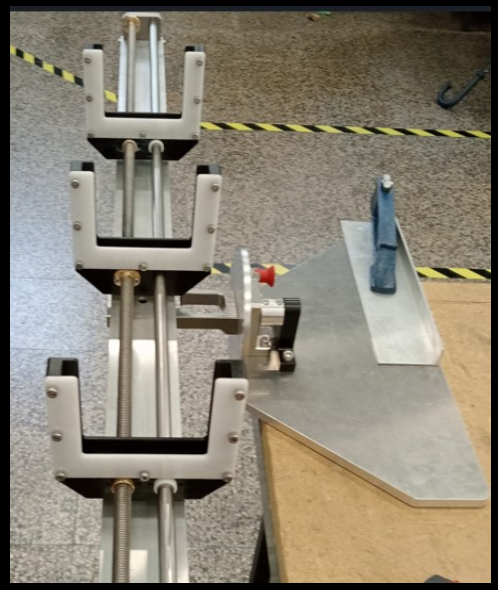


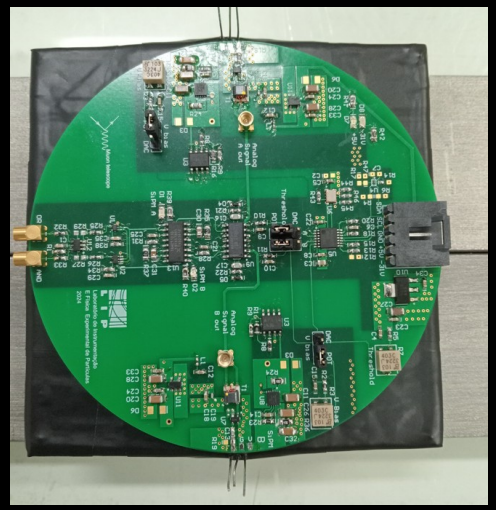
2024 Highlights

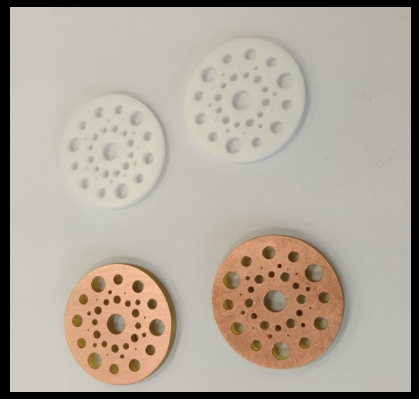
Luis Lopes

LIP-Groups

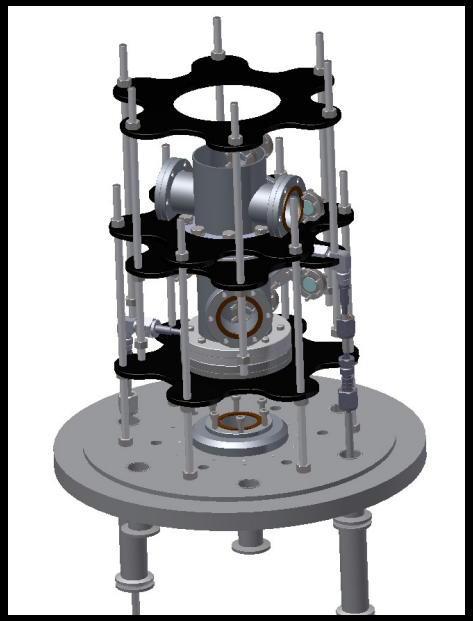
Muon telescope for classes and outreach

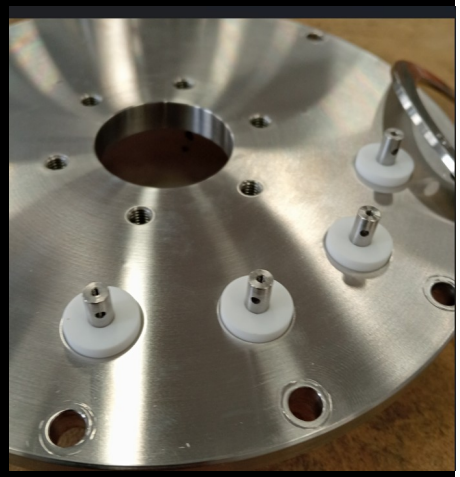


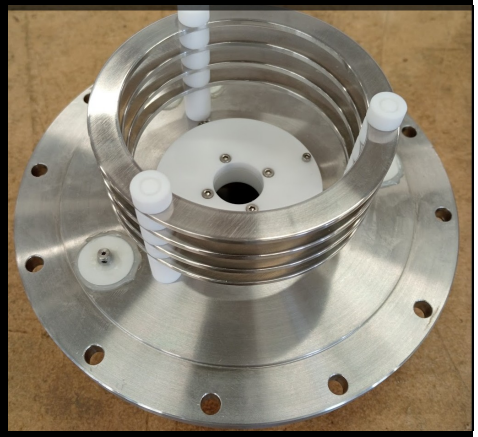




RD51-DRD1





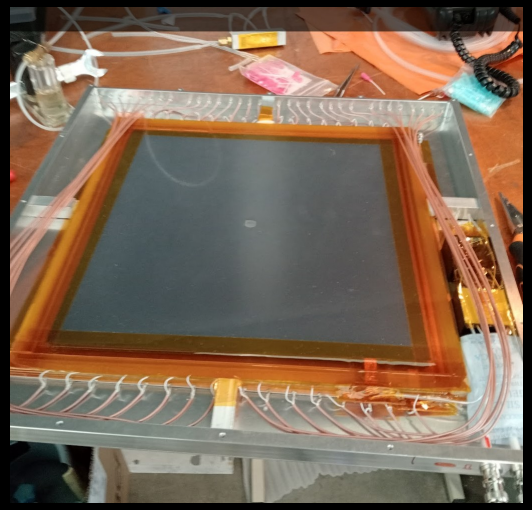


2024 Highlights

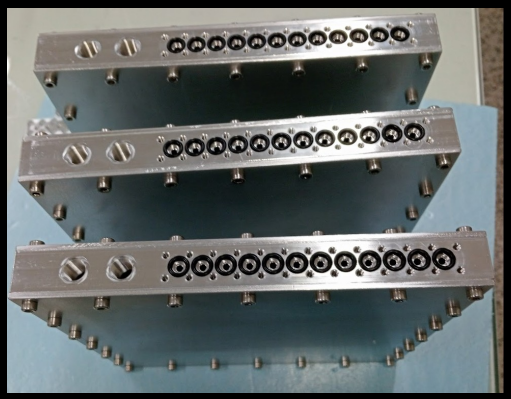
Luis Lopes

LIP-Groups - RPCs

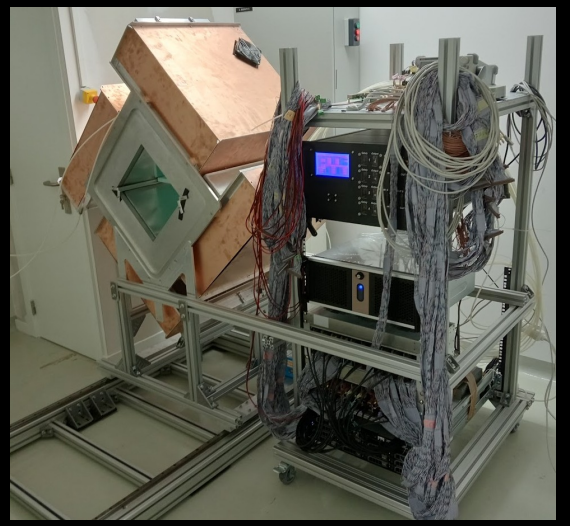
Sealed RPC
telescope @ CERN

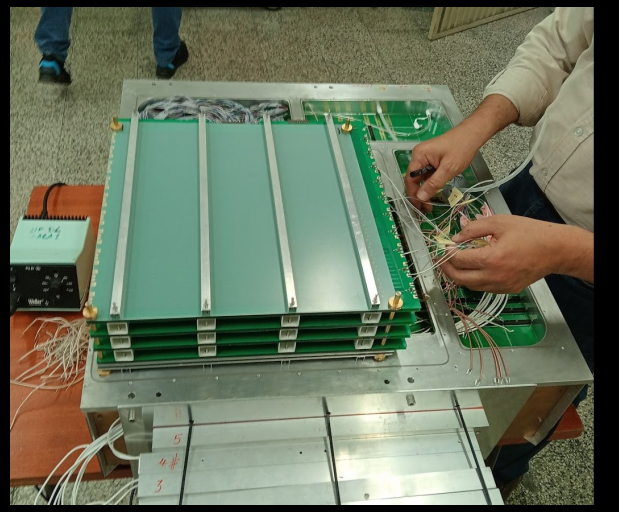


RPC for Neutrons



HiResBrainPET

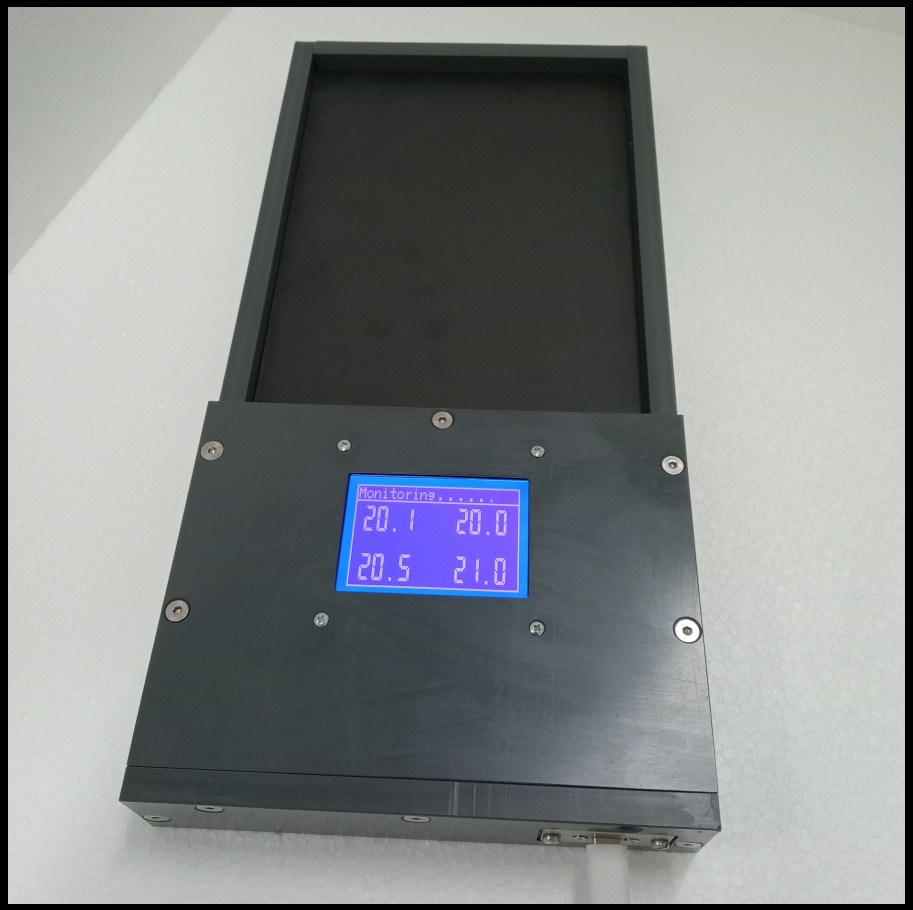




2024 Highlights

Luis Lopes

External Work - MARE - Marine and Environmental Sciences Centre



IR photographic table monitoring egg temperature

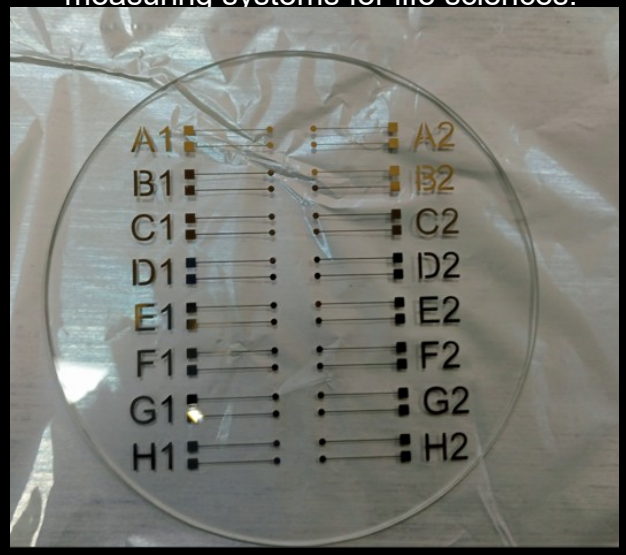
Data logger to

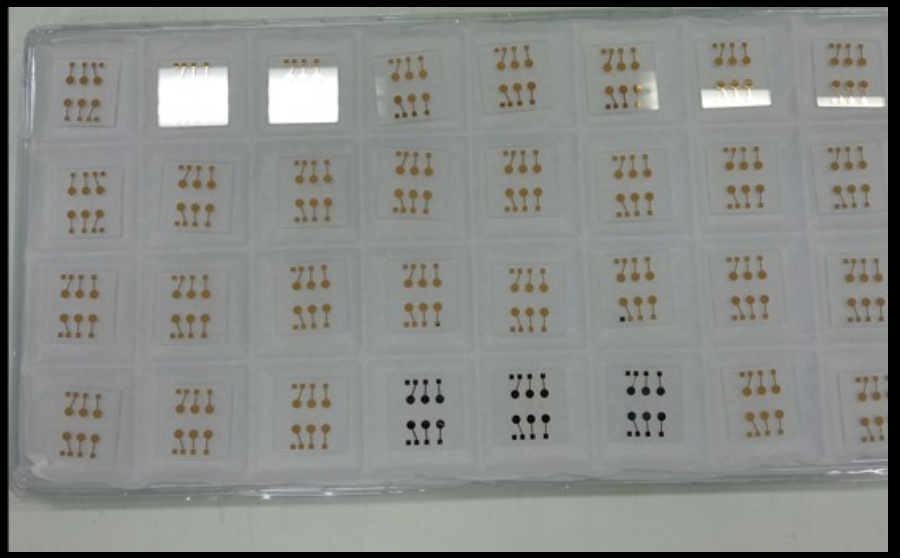
Collaboration with CCMC Competence Center

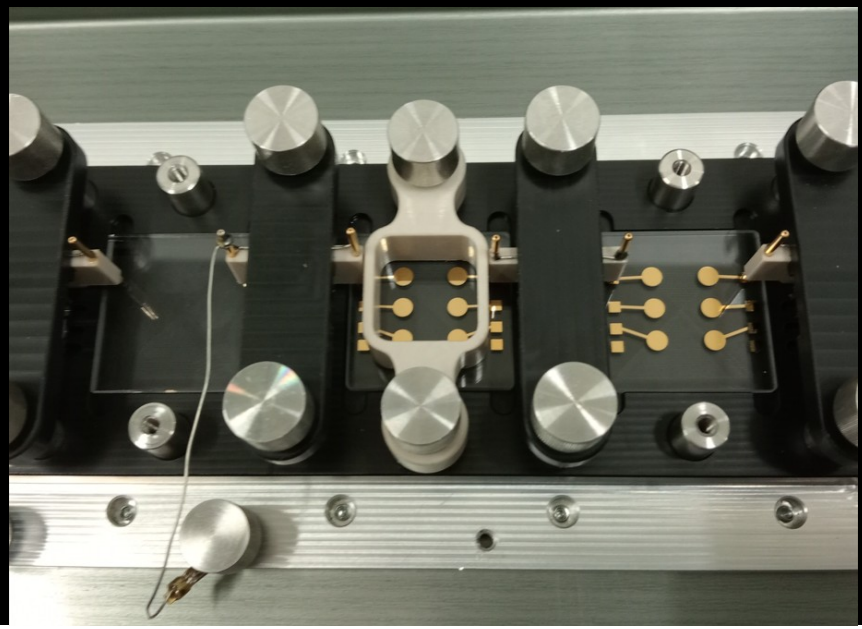
New systems were developed along 2024 and delivery in the last days

External Work – Bioelectronics & Bioenergy Research Lab - UC

Thermal metal evaporation, exploring a very old machine. More than 12k€ profit since 2022. Also large amount of measuring systems for life sciences.





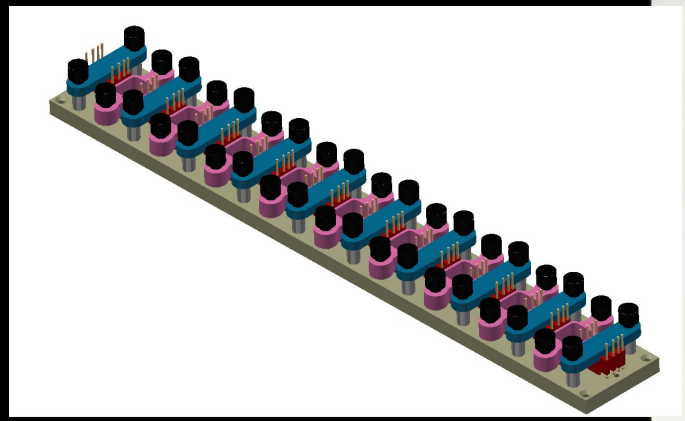


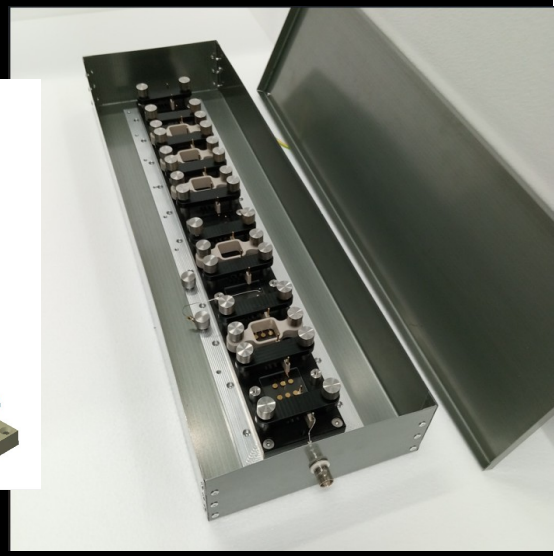
2024 Highlights

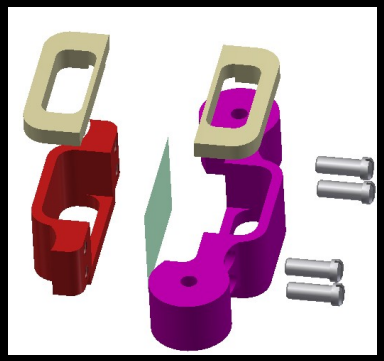
Luis Lopes

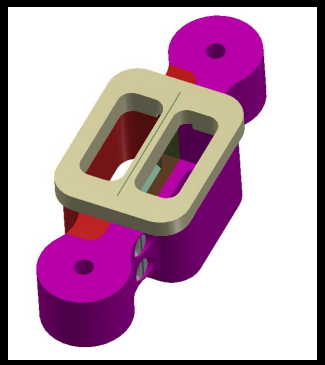
External Work – Bioelectronics & Bioenergy Research Lab - UC

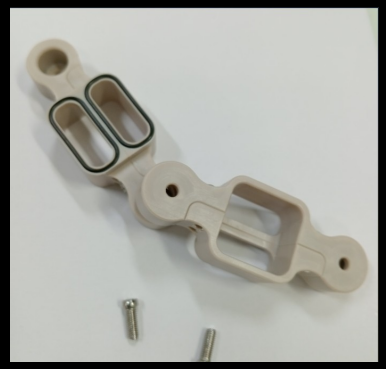
- Upgrade e maintenance of considerable number of instruments and tools
- R&D, design and production of new instruments
- Close collaboration with very important opportunities

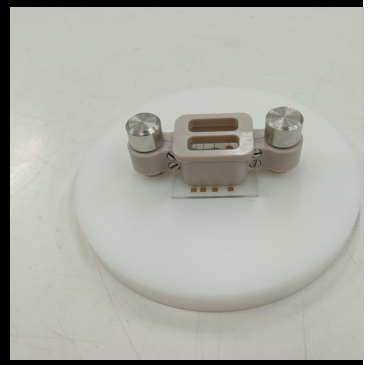


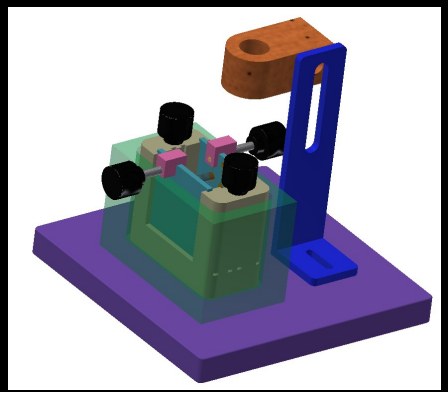


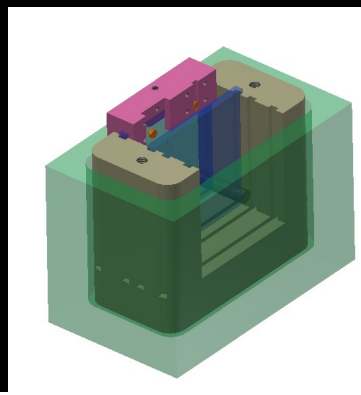










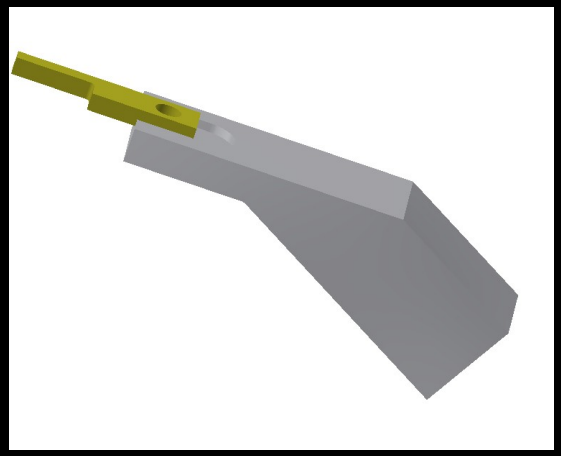


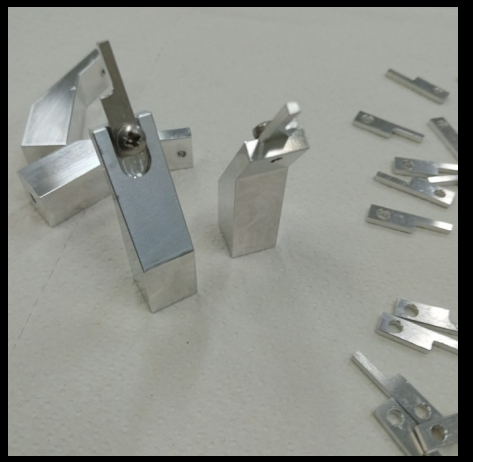
2024 Highlights

Luis Lopes

External Work – Coimbra Institute for Biomedical Imaging and Translational Research (CIBIT)

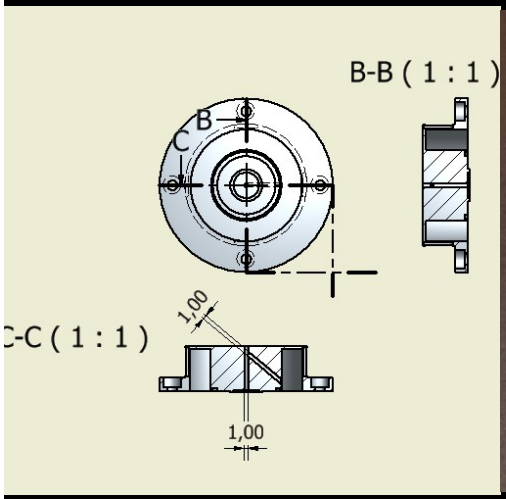
- R&D, design and production of new tools/instruments

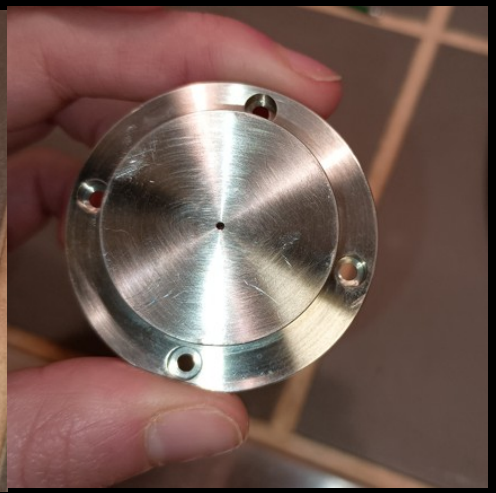




External Work – Physics Department, Coimbra University

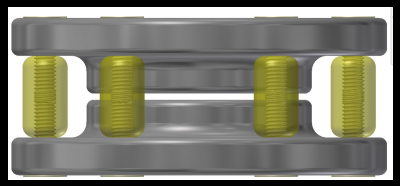
- R&D, design and production of new tools/instruments

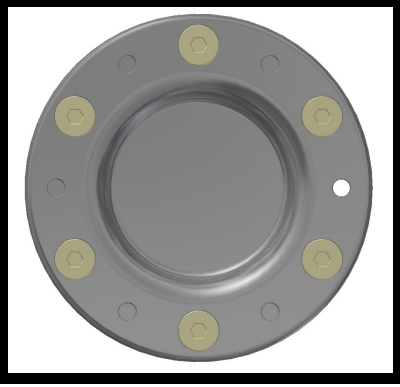


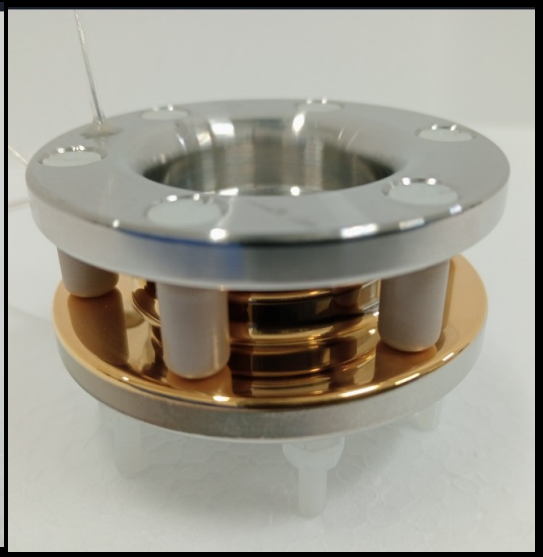


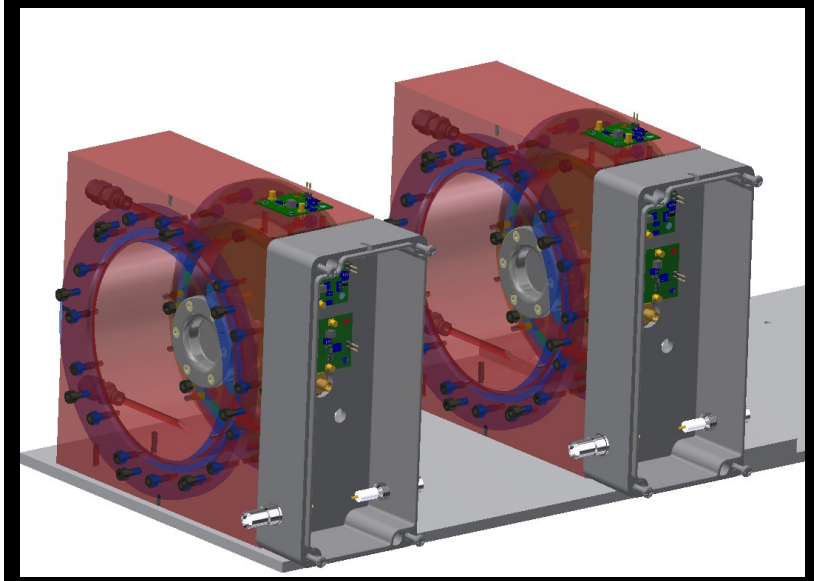
External Work – Yonsei University Heavy Ion Therapy Center, South Korea

- R&D, design and production of new tools/instruments. PPC for proton beam measurements





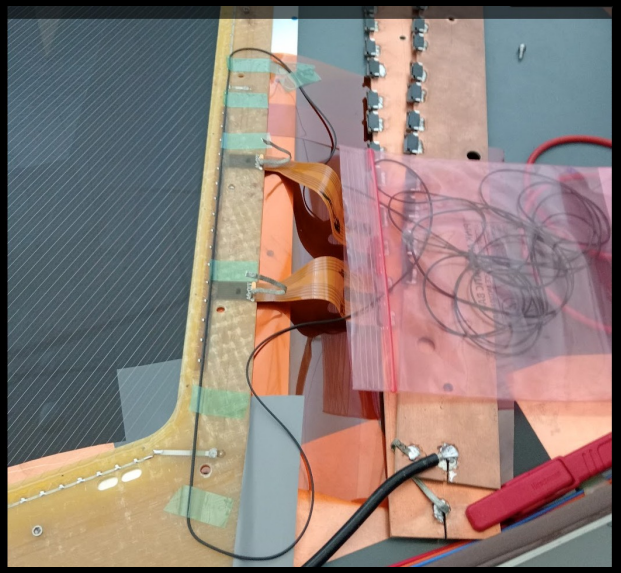


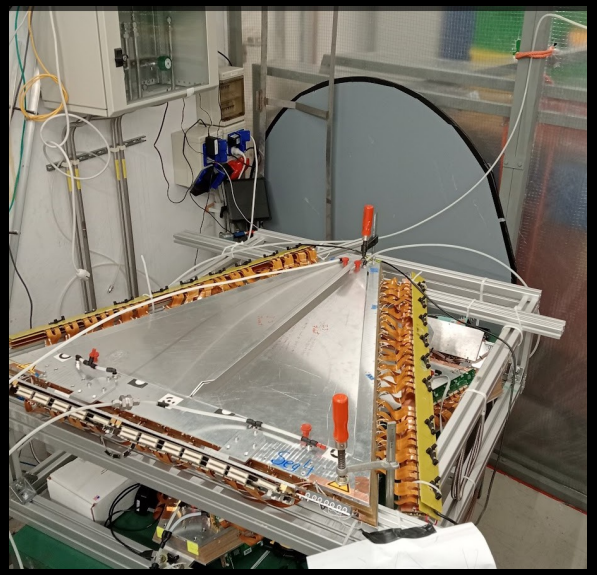


2024 Highlights

Luis Lopes

External Work – MultiDrift Wire Chambers @ HADES/GSI, Repair Chamber from HV internal leak





Internal/External Work – Spark Chamber, 2 units sold to Brazilian Institutes

2024 Highlights

Luis Lopes

External Work –

- Unmanned aerial biosensors for ultra sensitive detection of biological agents
- Direct financing
- Additional income from work required from other project partners

SPS G6305 COLLABORATION AGREEMENT

This **AGREEMENT** made the date of last signature below **BETWEEN**:

(1) **THE UNIVERSITY OF BATH**, an exempt charity established by Royal Charter under number RC000644, whose principal offices are at Claverton Down, Bath BA2 7AY, England ("**Lead**"); and

(2) **ETH ZÜRICH**, a research institution and university subject to Swiss public law, whose principal offices are at Rämistrasse 101, CH-8092 Zurich ("**ETH Zürich**"); and

(3) **THE UNIVERSITY OF COIMBRA**, Calçada Martim de Freitas, 3000-456 Coimbra ("**Coimbra**");

(4) **LABORATÓRIO DE INSTRUMENTAÇÃO E FÍSICA EXPERIMENTAL DE PARTÍCULAS**, a national independent laboratory under the sponsorship of the National Foundation for Science of the Portuguese Ministry of Science, Technology and Higher Education. With a principal address at the Departamento de Física da Universidade de Coimbra, Rua Larga, 3004-516 Coimbra ("**LIP**");

BACKGROUND

A. The Lead has been awarded a grant from the North Atlantic Treaty Organisation (NATO) (the "**Funder**") in respect of a project titled "Unmanned aerial biosensors for ultrasensitive detection of biological agents" (the "**Project**"), the terms of which are attached as Schedule 1 to this Agreement (the "**Head Terms**"). The primary investigator is Dr Nuno Reis at Lead and the Co-investigator(s) are Professor Andrew deMello at ETH Zürich; Dr Paulo Roberto Ferreira da Rocha at Coimbra and Dr Luis Lopes at LIP.

B. This Agreement and its Schedules sets out the terms and conditions under which the Lead will pass on the funds allocated to the Collaborator(s) under the Head Terms and under which the Parties will collaborate on the work to be conducted on the Project.

Lopes / Portugal						
Equipment	3,000	6,500				9,500
Training						
Communication & Publication						
Travel	1,350		2,450		2,450	6,250
Consumables	2,000	2,000	2,000			6,000
Other						
Stipends						
Subtotal Lopes	**6,350**	**8,500**	**4,450**		**2,450**	**21,750**

External Work – Publications

Contents lists available at ScienceDirect

Chemical Engineering Journal

journal homepage: www.elsevier.com/locate/cej

Porous PU/PEDOT:PSS electrodes for probing bioelectricity in *Oscillatoria* sp. Cohorts

Francisco C. Cotta [a], Diogo Correia [a], Raquel Amaral [a], Felipe L. Bacellar [a], Damiano Duci [b], Luís Lopes [c], Luísa Cortes [d], Peter Zalar [e], Rupert Perkins [f], Paulo R.F. Rocha [a,*]

[a] Bioelectronics & Biosensors Research Lab, Centre for Functional Ecology-Science for People & the Planet, Associate Laboratory TERRA, Department of Life Sciences University of Coimbra, Coimbra 3000-456, Portugal
[b] Department of Architecture and Civil Engineering, University of Bath, Bath BA2 7AY, UK
[c] Laboratory of Instrumentation and Experimental Particle Physics, Coimbra 3000-456, Portugal
[d] Center for Neuroscience and Cell Biology (CNC) and Institute of Interdisciplinary Research of the University of Coimbra (III-UC), University of Coimbra, Rua Larga, Coimbra, Portugal
[e] Holst Centre/TNO, High Tech Campus 31, 5656AE, Eindhoven, the Netherlands
[f] School of Earth and Ocean Sciences, Cardiff University, Cardiff CF10 3AT, UK

Recovery of HADES drift chambers suffering from Malter-like effects

Christian Wendisch[c,e], Christian Müntz[a], Luis Lopes[b], Erwin Schwab[c], and Joachim Stroth[c,a,d]

[a] Goethe University Frankfurt Institute for Nuclear Physics, Frankfurt Germany
[b] LIP Laboratory of Instrumentation and Experimental Particle Physics, Coimbra Portugal
[c] GSI Helmholtz Center for Heavy Ion Research, Darmstadt Germany
[d] Helmholtz Res. Acad. Hesse for FAIR
[e] corresponding author

Abstract

The central tracking system of the HADES detector, installed at the SIS-18 synchrotron at GSI/Darmstadt (Germany), employs large-area, low-mass drift chambers, featuring Aluminum potential wires and small cell sizes. The chambers in front of the magnetic field, closest to the interaction point, have developed significant self-sustained currents and discharges during operation, most probably triggered by isobutane-based gas mixtures. Only both, (i) replacing isobutane by CO_2 and (ii) adding 1000 to 3500 ppmv of water into the Ar/CO_2 counting gas mixture, individually optimized for a given chamber, allowed to recover the chambers, enabling stable operation in several production runs since then, e.g. with high-intensity heavy-ion induced reactions. The origin of the instability was found to be deposits on the cathode wires, provoking the Malter-like effects, by visual inspection and energy-dispersive X-ray spectroscopy. The charge on the wires accumulated during their lifetime does not point to so-called classical aging, but presumably the interaction of isobutane with materials in the gas flow, residual impurities, and reaction products formed in plasma, e.g., built by discharges.

Development and assessment of a new multichannel electrocutaneous device for non-invasive somatosensory stimulation for magnetic resonance applications

Carolina Travassos, Alexandre Sayal, Paulo Fonte, Nuno Carolino, Bruno Direito, Luis Lopes, Sonia Afonso, Tania Lopes, Teresa Sousa, Miguel Castelo-Branco

doi: https://doi.org/10.1101/2024.05.27.595320

This article is a preprint and has not been certified by peer review [what does this mean?].

Abstract Full Text Info/History Metrics Preview

Home > Progress in Pattern Recognition, Image Analysis, Computer Vision, and Applications >
Conference paper

Development and Testing of an MRI-Compatible Immobilization Device for Head and Neck Imaging

Conference paper | First Online: 27 November 2023
pp 617–629 | Cite this conference paper

Progress in Pattern Recognition, Image Analysis, Computer Vision, and Applications
(CIARP 2023)

Francisco Zagalo, Susete Fetal, Paulo Fonte, Antero Abrunhosa, Sónia Afonso, Luís Lopes & Miguel Castelo-Branco

Access this chapter

Log in via an institution →

Balance External work and Spark Chambers

		2021	2022	2023	2024	Jan 2021 a Dez 2024
Conta	Descrição	Saldo (Acum.)	Saldo (Acum.)	Saldo (Acum.)	Saldo (Acum.)	
9814	**Outros Trabalhos Exteriores**	**1 382,58**	**5 007,49**	**27 820,15**	**19 562,22**	**53 772,44**
981400	Receitas	4 788,98	23 788,58	45 485,90	37 749,17	
981401	Missões	-104,28				
981403	Outras Despesas	-85,90	-1 146,35	-4 129,91	-989,24	
981404	Compra de Materiais	-3 216,22	-17 634,74	-13 535,84	-17 197,71	

Conta	Descrição	2019	2020	2021	2022	2023	2024	Jan 2019 a Dez 2024
9908	**SPARK**	**-3 119,20**	**8 484,73**	**-6 206,43**	**-908,33**	**5 906,47**	**17 585,42**	**21 743 €**
990800	Receitas	2 746,03	13 135,00	0,00	0,00	15 500,00	26 115,00	
990801	Missões		-15,20	0,00	-91,68	0,00	0,00	
99081498	Outras Despesas	-5 865,23	-4 635,07	-6 206,43	-816,65	-9 593,53	-8 529,58	

n/Factura A/1679 (2019)	2 746,03	
n/Factura 1726 Luxembourg Science Center (2020)	13 135,00	
n/Factura A/2598 GSI (Spark) (2023)	15 500,00	
n/Factura A/2628 FAFESP (Spark) (2024)	26 115,00	57 496,03
Gastos 2019	-5 865,23	
Gastos 2020	-4 650,27	
Gastos 2021	-6 206,43	
Gastos 2022	-908,33	
Gastos 2023	-9 593,53	
Gastos 2024 (Jan a Set)	-8 529,58	-35 753,37
	21 742,66	

Considerable amounts of material in stock from 2022 & 2023 investment

2 more in stock and parts for 2 more available