

Jornadas científicas

LIP

PARTÍCULAS & TECNOLOGIA



LABORATÓRIO DE INSTRUMENTAÇÃO
E FÍSICA EXPERIMENTAL DE PARTÍCULAS
partículas e tecnologia

// INFRAESTRUTURAS

LABORATÓRIO DE DETETORES

// INFRAESTRUTURAS

OFICINA DE MECÂNICA

Luis Lopes

Outlook

DL 2020

MW 2020

DL&MW 2021

DL&MW Present-2022 and Future-2023

Detector Laboratory 2020

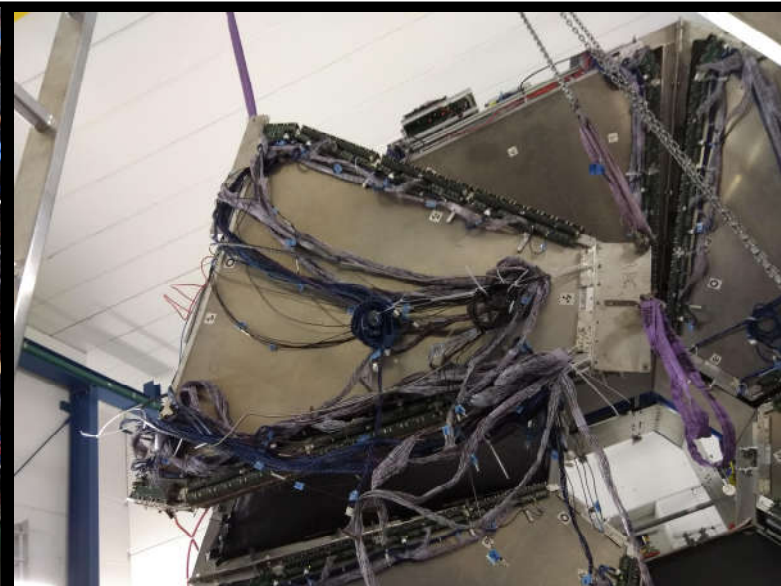
Large Area 3000x2000 mm² CNC

- Installation in DL
- To be manage by MW



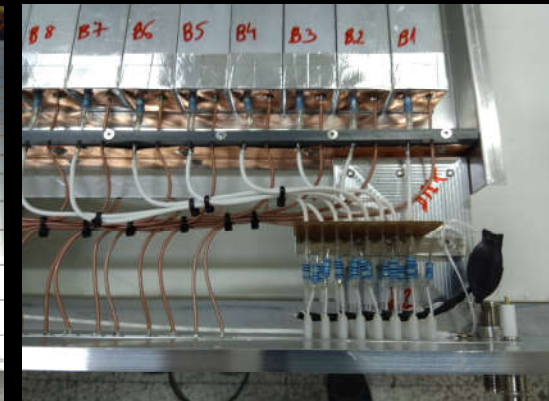
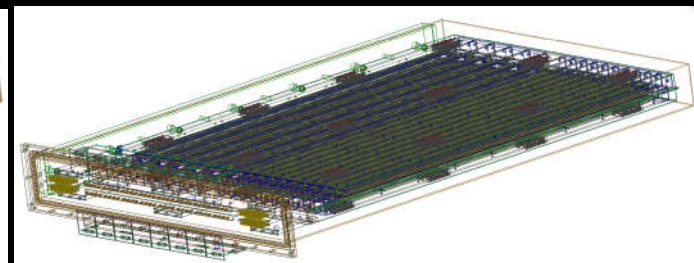
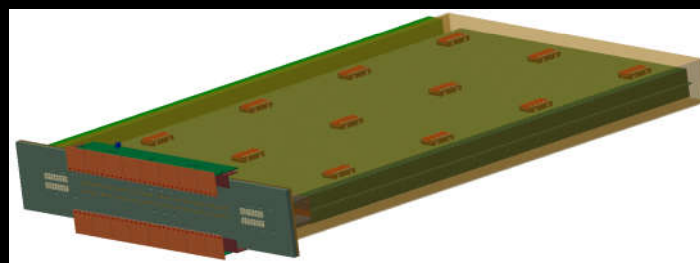
HADES - TOF - RPC

- Remove sectors from the Spectrometer
- Checking gas system
- Run faster from Germany due to COVID 19



HADES - FD – RPC - MW

- Detector Design
- Assembly first 2 modules.
- Gas distribution system



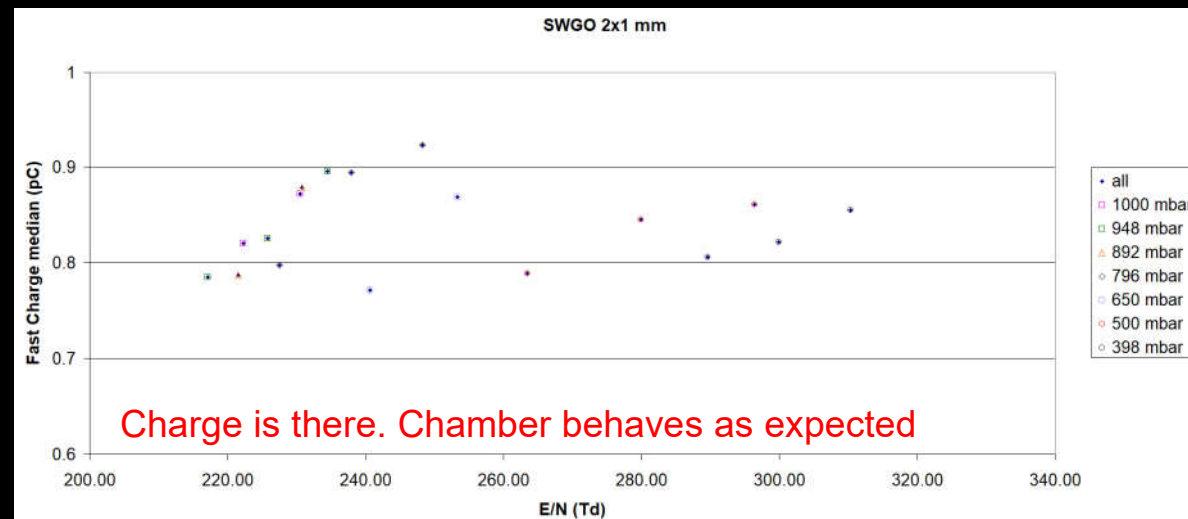
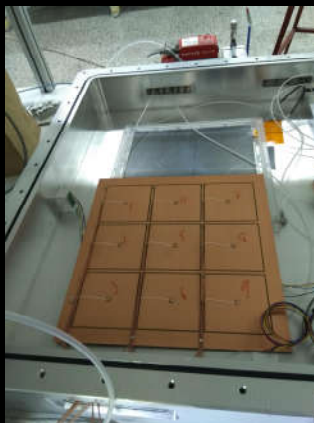
STRATOS - RPC

- Sensitive modules assembly and test
- Laser polypropylene welding
- First Muon Telescope assembly
- Gas system



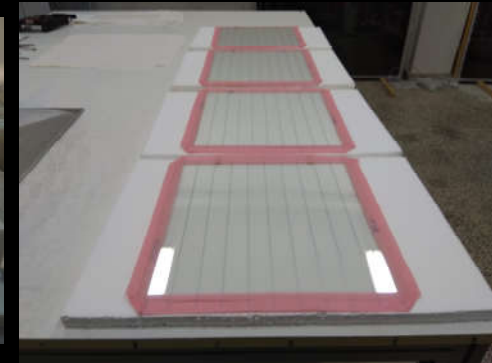
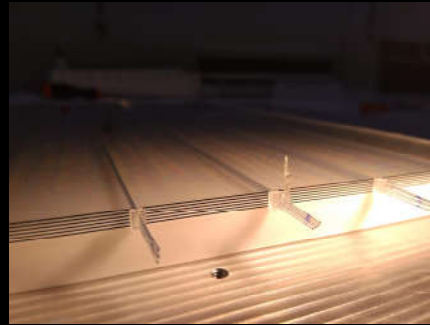
SWGO – RPC - MW

- Sensitive modules design and assembly
- Test operability from 200 to 1000 mbar
- Gas system



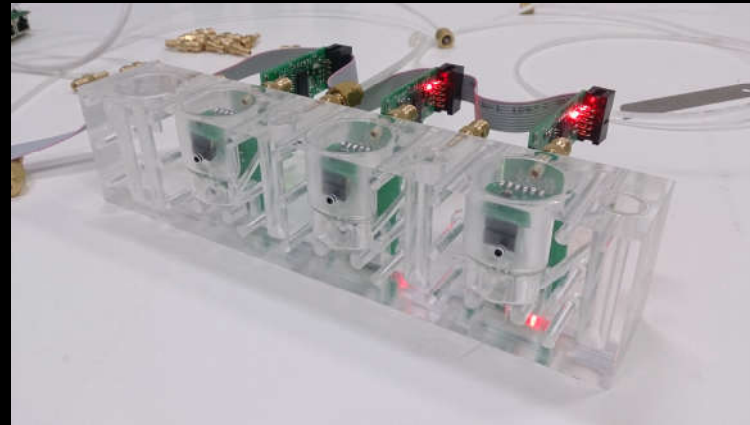
HRBEP - RPC

- Sensitive modules R&D



External Work

- 2 Gas bubblers fully instrumented, University of Clermont Ferrand
- 2 Vacuum pumps Recovery and Maintenance, MAREFOZ-UC
- Total 3000€



COVID-19 Emergency Ventilators

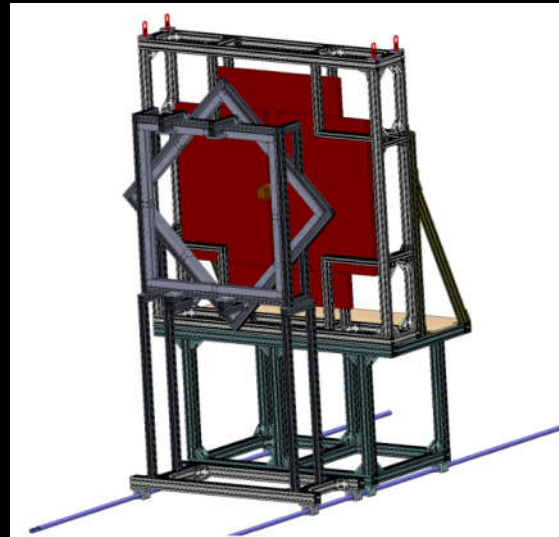
- OpenAir Project



Mechanical Workshop 2020

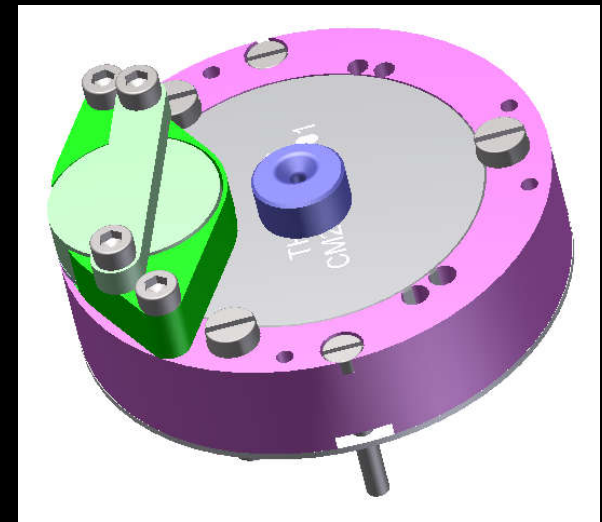
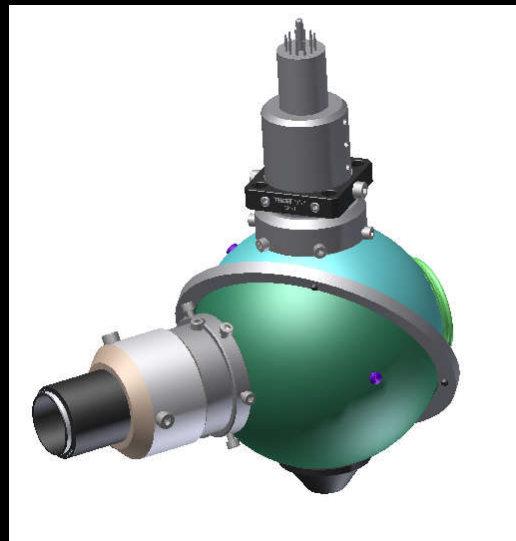
HADES - RPC

- Mechanical structures for Straw Tubes and RPC-FD, design and production
- Production of the parts for 2 FD modules



Study of Optical Properties for Particle Physics

- Design and production



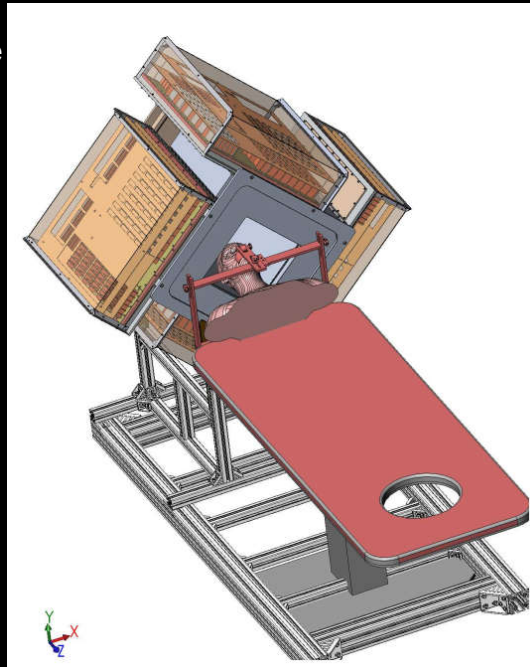
MuTom – RPC - Astro

- Design and production of the mechanical structure



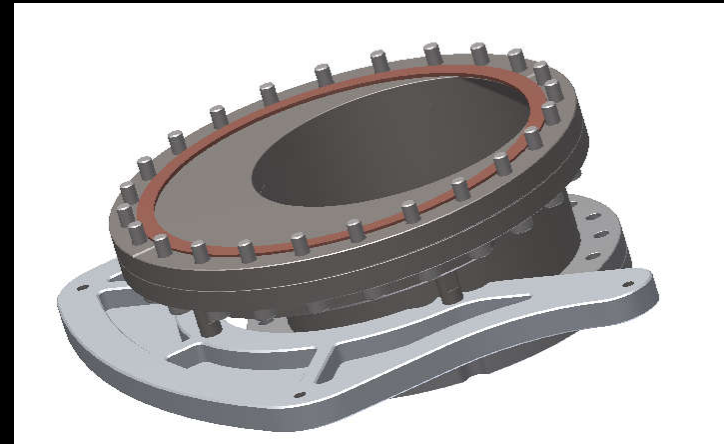
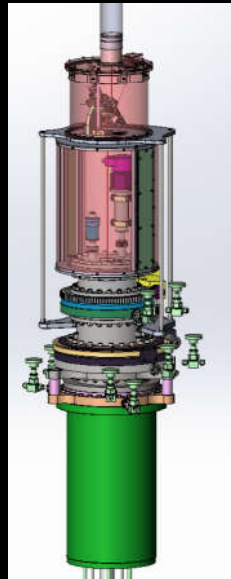
HRBEP - RPC

- Mechanical design and production of the prototype head and all parts for sensitive module



DUNE

- High contribution in project design
- Start production



Miscellaneous

- Many contributions for internal and external collaborators and clients

- COVID – 19 Protection systems and face masks
- Several parts for openAir Project
- Low pressure box, UC-Medicine
- Styrofoam collimator for microwave guide system
- ICNAS
- Macor Parts for LibPhysUC
- And many others

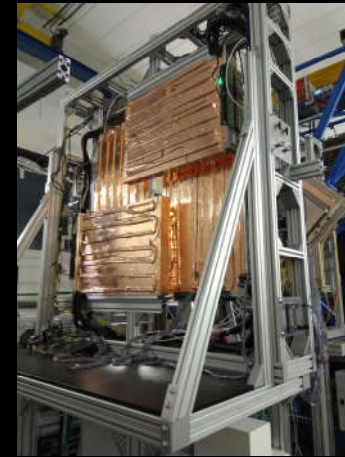
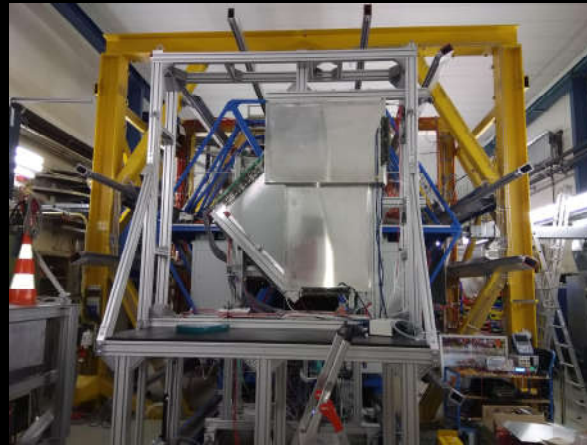
Detector Laboratory
&
Mechanical Workshop
2021

HADES - FD – RPC

- 2 modules production and test
- Full in site installation

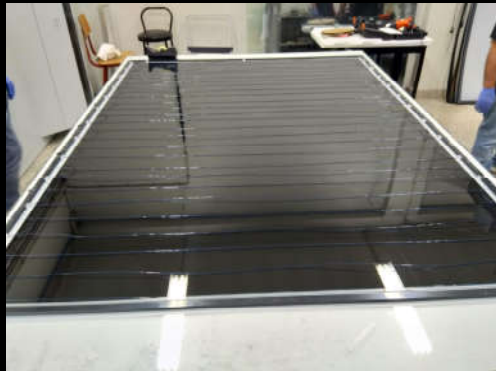
January

November



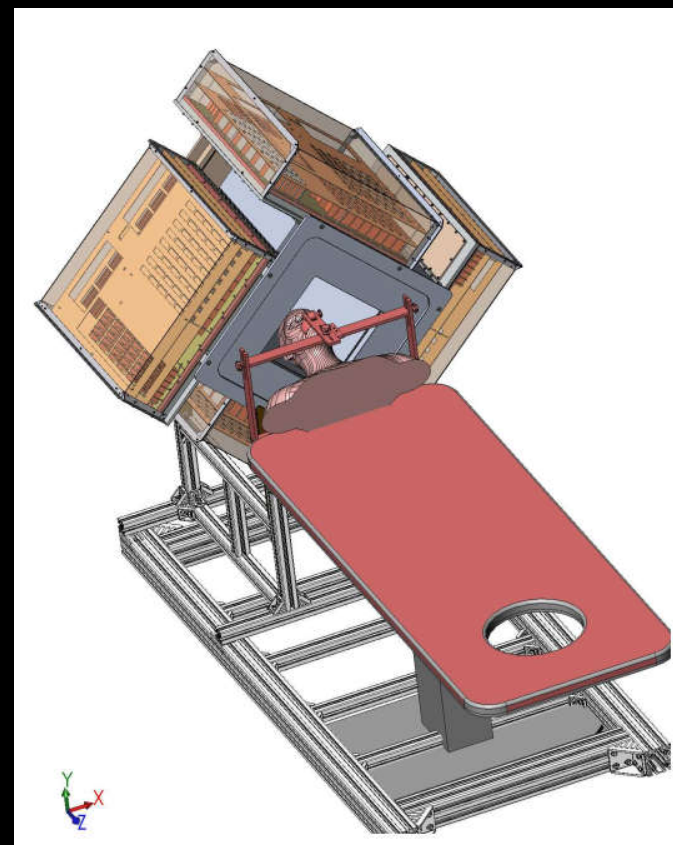
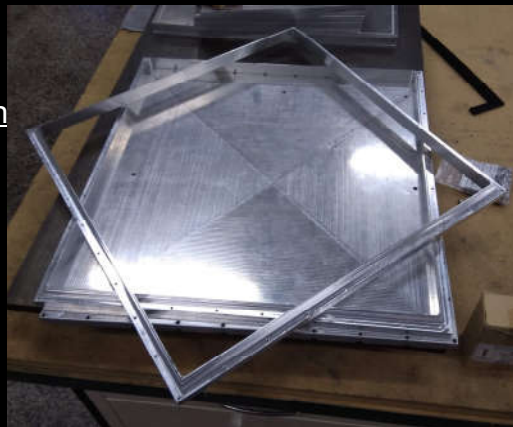
STRATOS - RPC

- Second Muon Telescope assembly
- In situ installation of the first



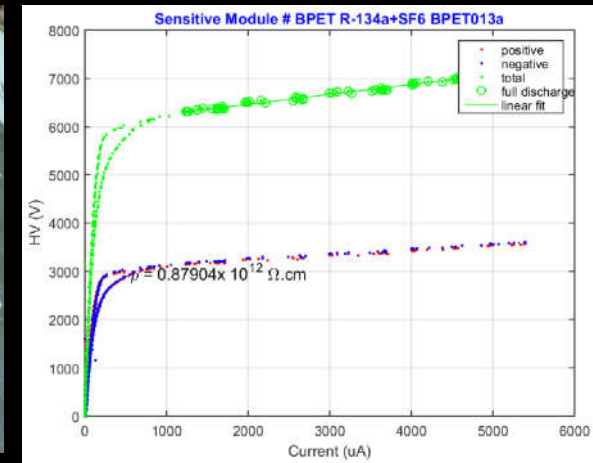
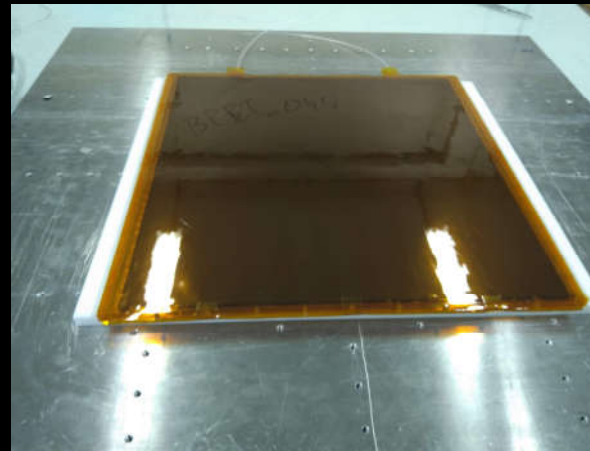
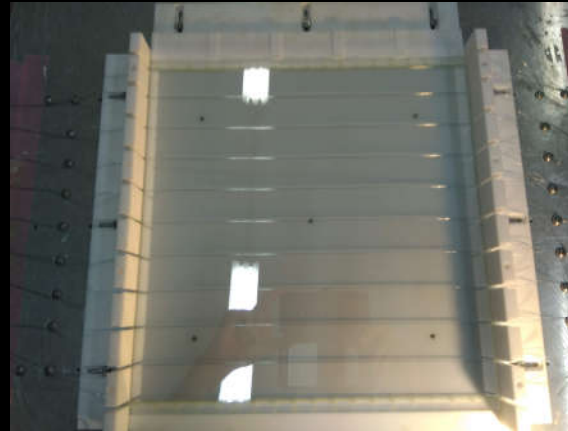
HRBEP - RPC

- Complete mechanics production, assembly and test, also some design
- Complete detectors R&D, design, production and test
- Complete gas system R&D, design, production and test
- “Full” heads assembly
- In site activities for final installation



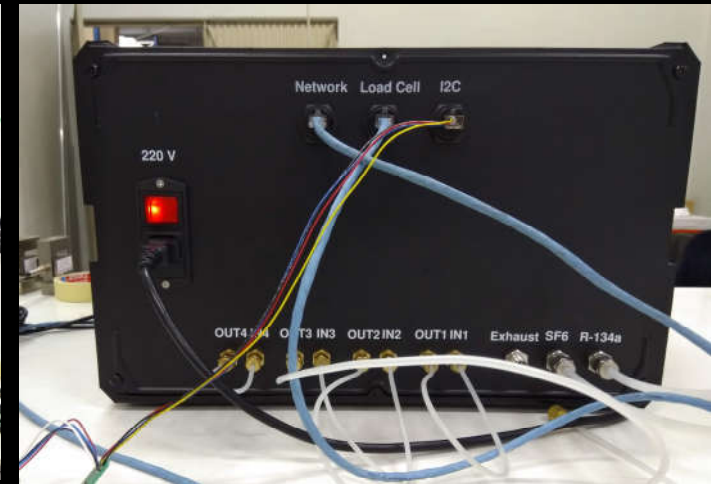
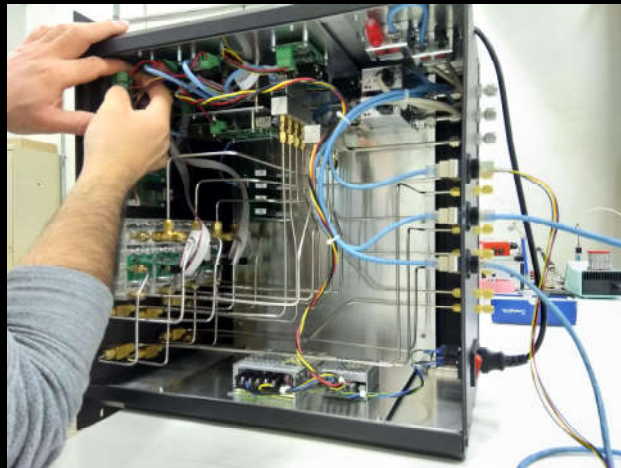
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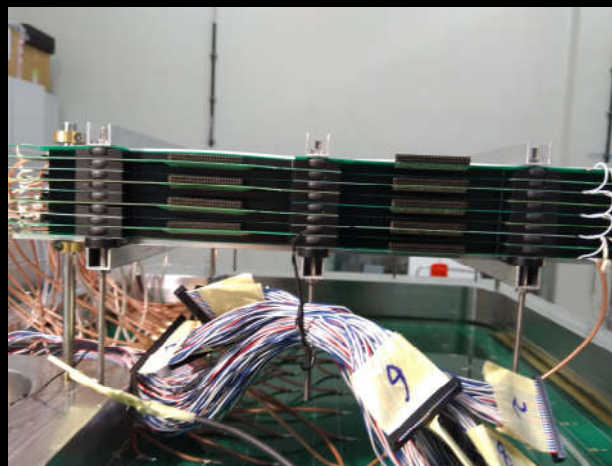
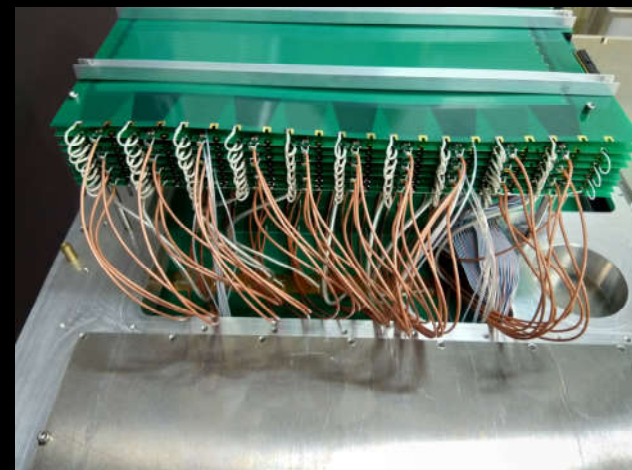
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HRBEP - RPC

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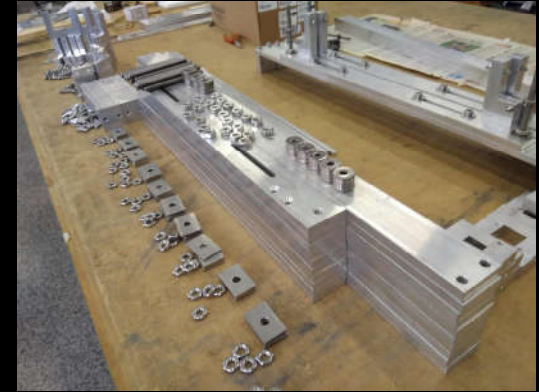
SND

- Complete mechanics for US stream and DS stream cad evaluation

Introduce changes in both to reduce milling time and consequently costs

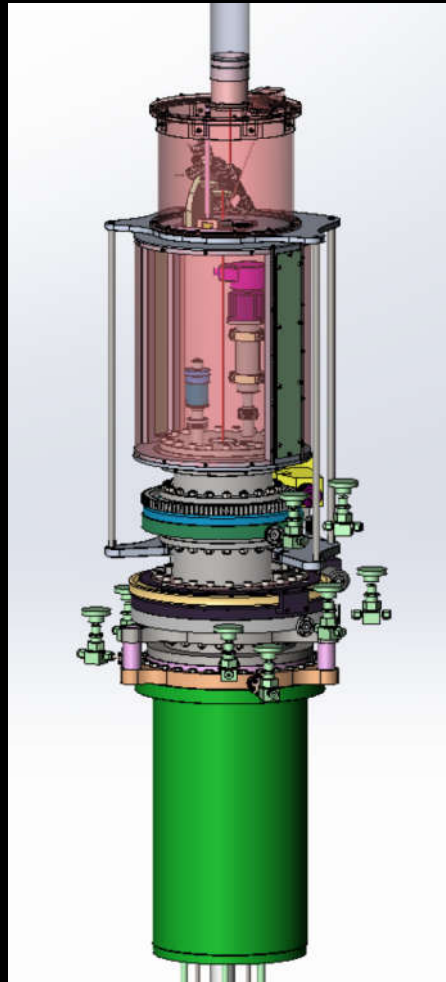
Work with external companies for delivery within requested time

- “Full” production, 5 US and 4 DS
- Work not schedule for 2021
- Considerable money profits



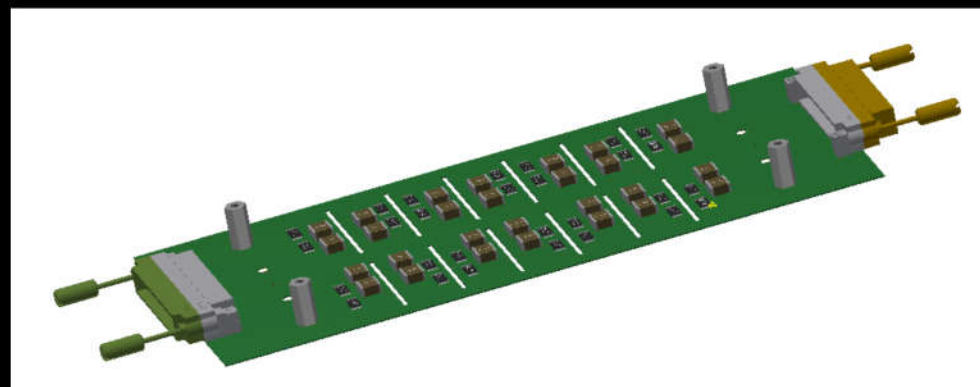
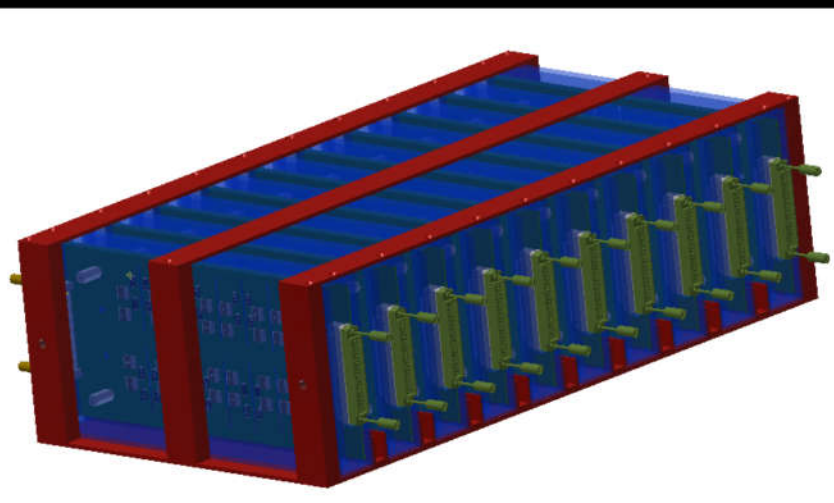
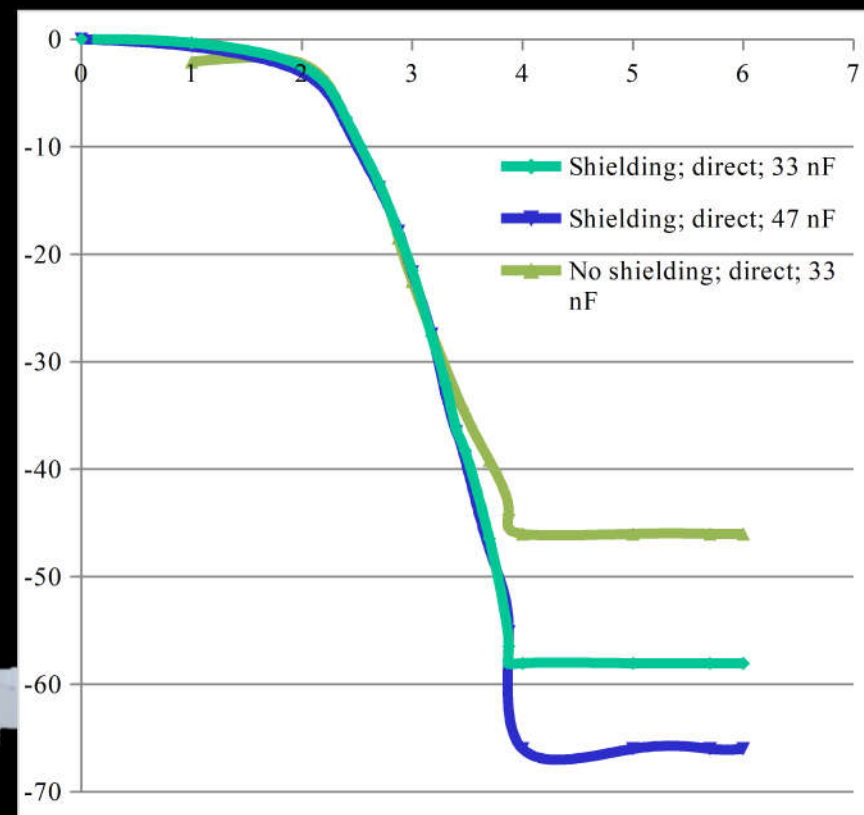
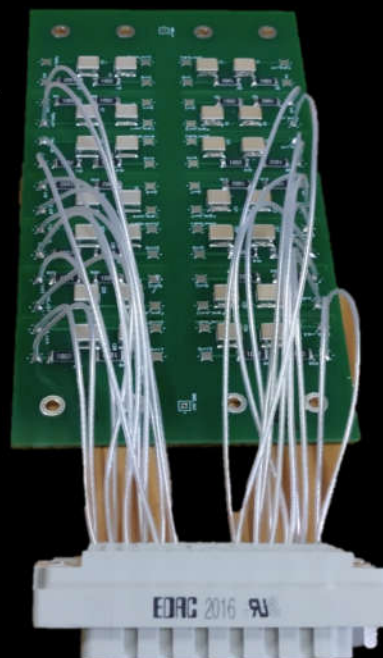
DUNE

- High contribution in project design
- Large amount of parts and mechanisms fully produced and tested
- Increased contribution considered initially



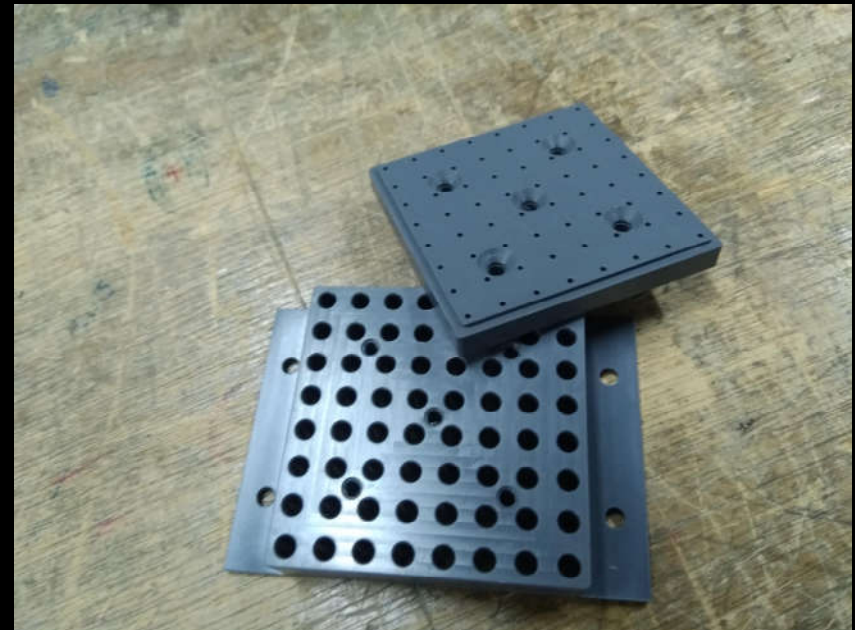
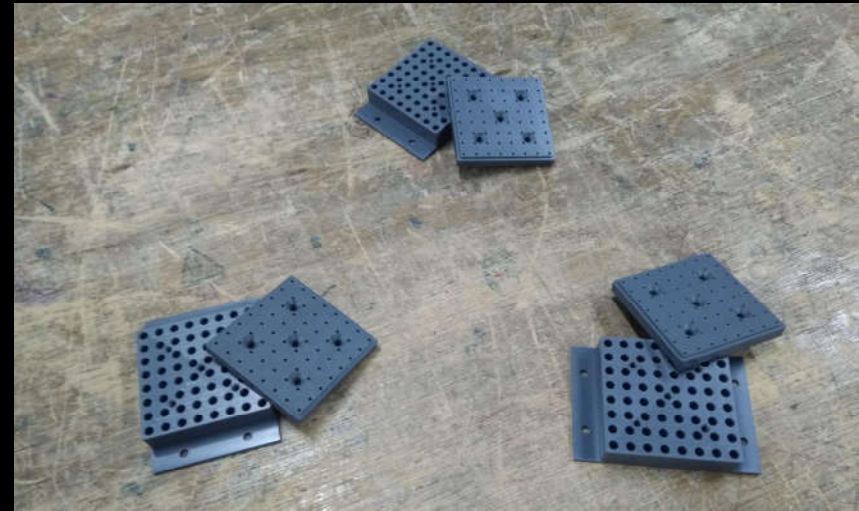
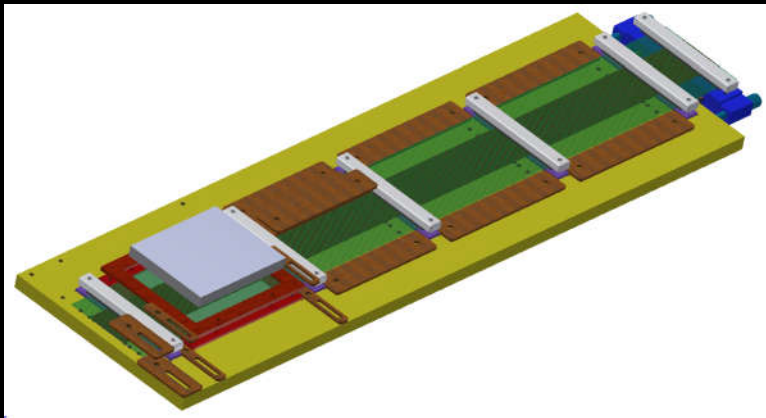
ATLAS – HGTD HV Filter

- PCB design, test and production
- Mechanical box with modular filter integration. First suggestions, under discussion.



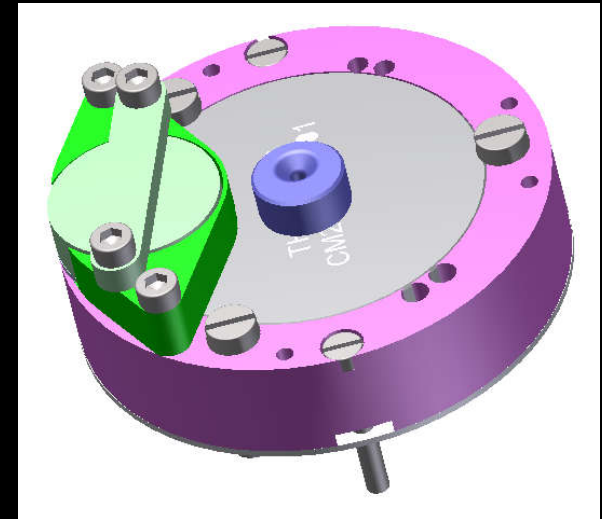
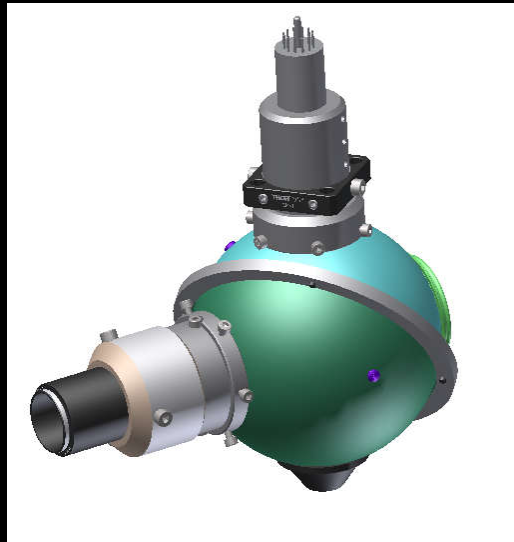
Dosimetry

- Support on design, both tools and detector.
- Production of main tool for fibre align and frame preparation



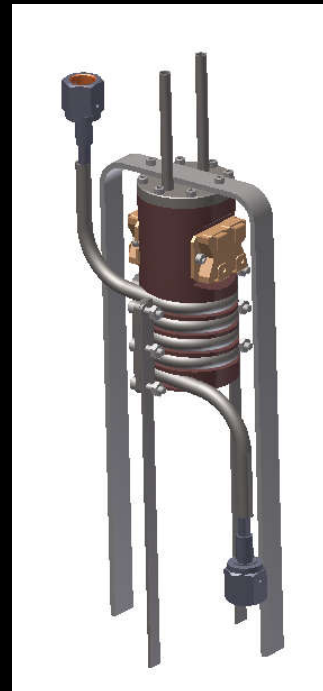
Study of Optical Properties for Particle Physics

- Design and production



RD51

- Design Xenon Condenser
- Small parts production



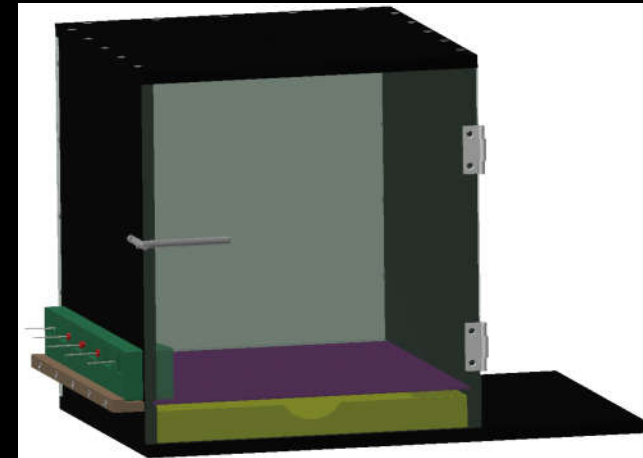
External Work

- Lot of clients, from Mechanical parts only to project design and full system R&D, test and production
- Considerable money profits

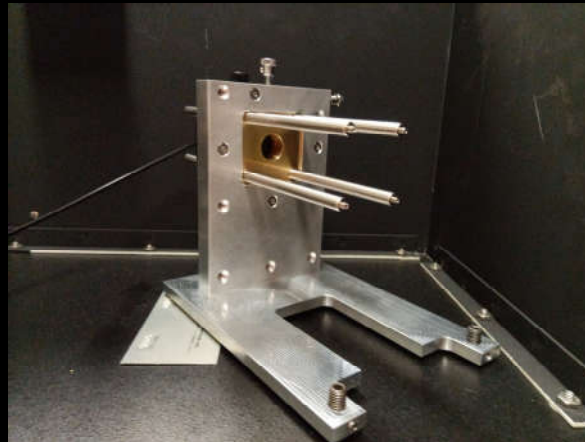
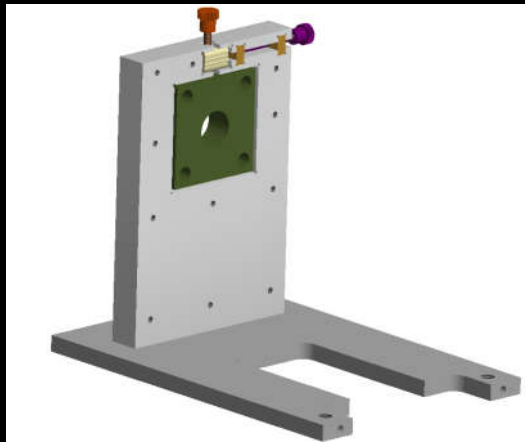
Connector adapter for RMI-ICNAS



Operating Chamber for mice behavior study, Neuronal Circuits and Behavior - CNC-UC



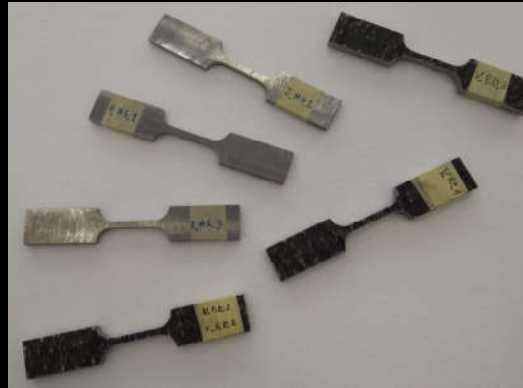
Low cost precise xy position adjust, Research Unit, Molecular Chemistry-Physics - UC



External Work

- Lot of clients, from Mechanical parts only to project design and full system R&D, test and production
- Considerable money profits

Specimens for testing mechanical properties - UC



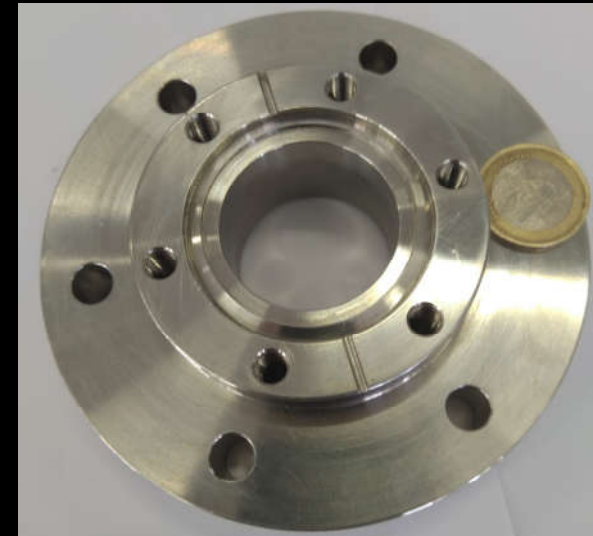
Flanges and other parts for LibPhysLab-UC



Propylene Lens for the Telecommunications Institute of Aveiro

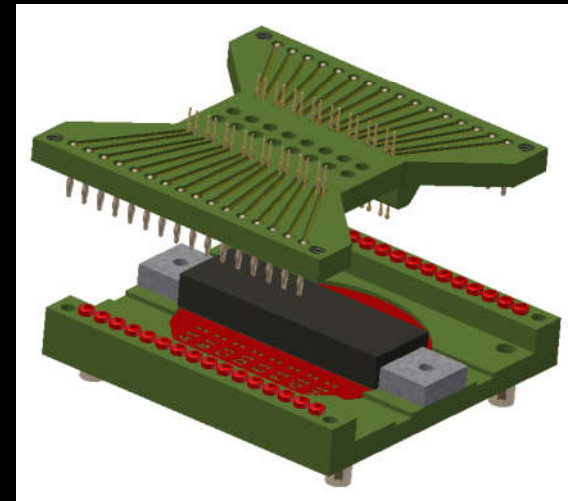
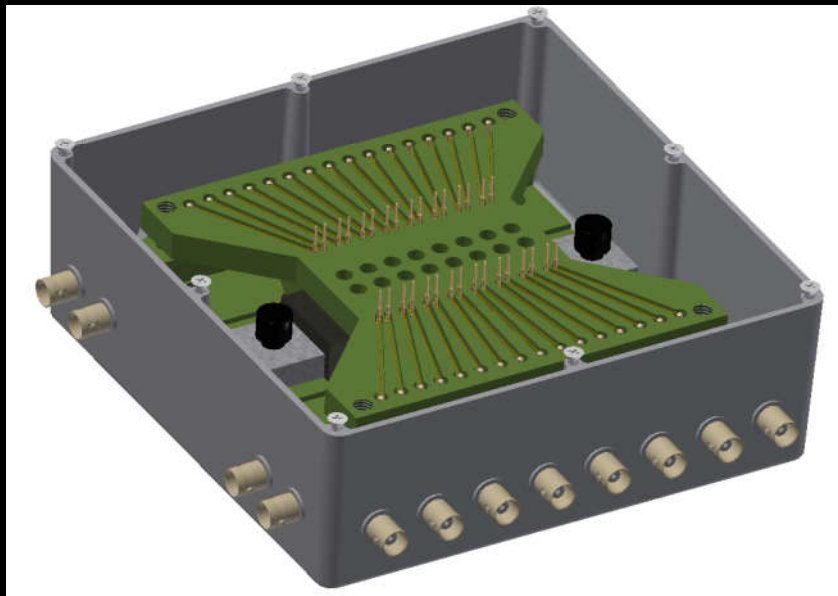
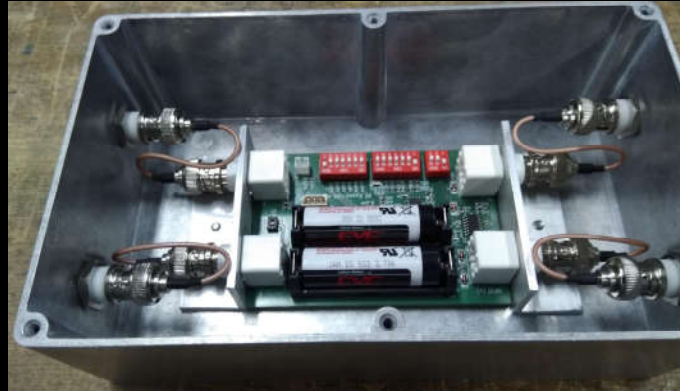


Ø 300 mm



External Work – Bioelectronics & Bioenergy Research Lab - UC

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



Invoicing External Work and sales

2020	17.952 € , one Spark Chamber included
2020	4.757 €, without Spark Chamber
2021	5.872 €, missing DS-SND produced in 2021 but only paid in 2022 the same for other services and products. Considering all done in 2021, should be more than 20.000€.

Also missing are the in kind contribution for the Lip projects and Collaborations. System is suffering some upgrades as some of you already experience in the last year.

Is in the final tuning...

2022

Half is done :)

The other half is 60% booked

2023

Need considerable size projects. Please do your best!!

Please contact us in the earlier stages of your projects, ideas, dreams, hangovers!!

Why?

We have very high level of knowledge, don't say no before ask and see what we can do.!!

We have good capabilities. Don't be afraid of schedules...! If we give you a date, you can take the same as valid.

We have available time in our agenda. Book fast and keep the best time slots for you!! :)

Thanks !!