



LIP vs COVID

19th IPPOG meeting - videoconference, May 2020

LIP was created in 1986 when Portugal joined CERN



<https://www.lip.pt/>

Today, we are 205 people, including 86 PhD researchers, 26 technicians, 7 administrative staff and 87 graduate students



<https://www.lip.pt/>

WHAT

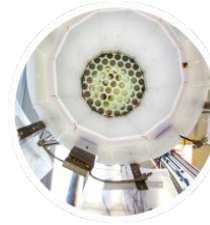
LIP is AND

what we do

The reference institution for
experimental particle
physics in Portugal



**Experimental particle and
astroparticle physics**



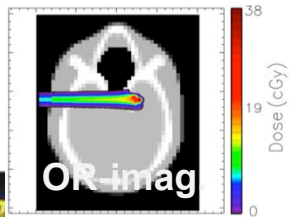
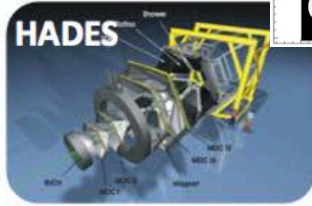
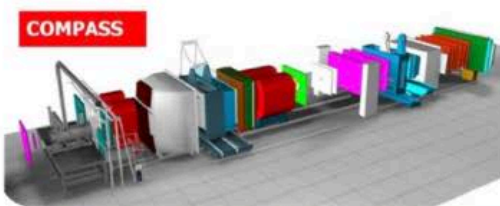
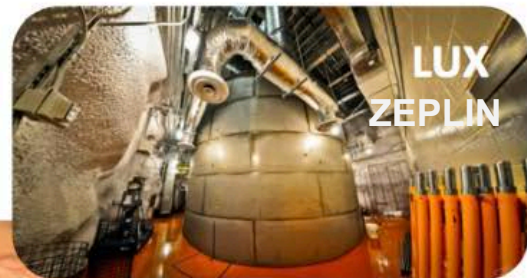
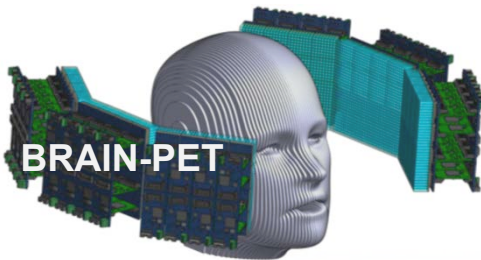
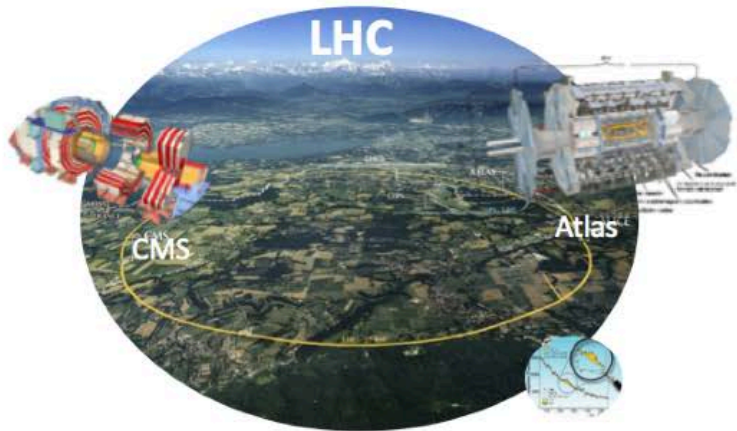
**Development of new
instruments and methods**



Scientific computing



**Knowledge transfer,
education and outreach**

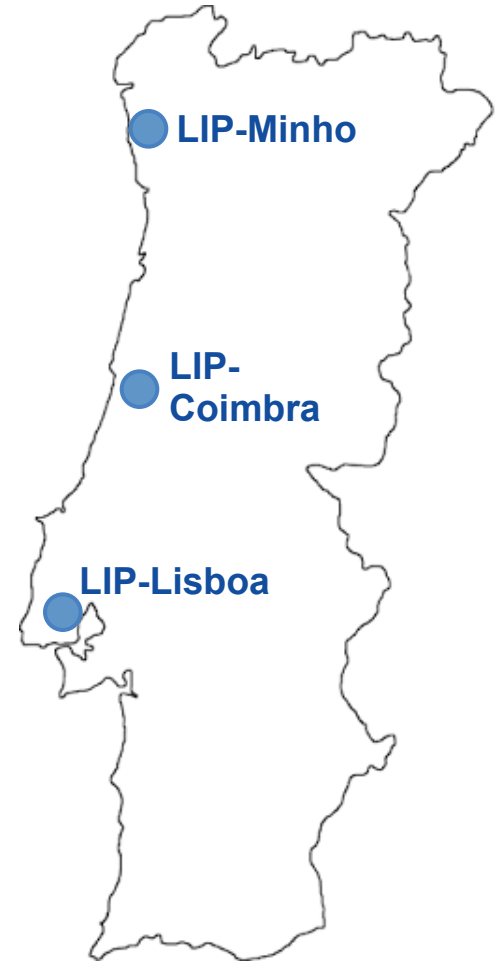
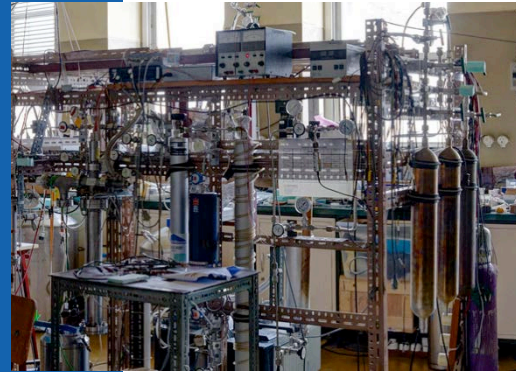
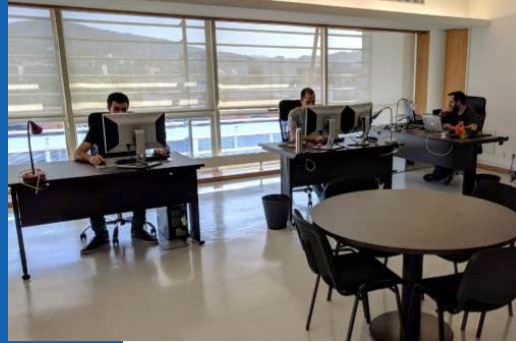


ETC...

WHERE

WE ARE

Nation-wide laboratory
working in close
collaboration with the
local universities



Scientific infrastructures

Precision mechanical Workshop

production of prototypes and small series
Coimbra



Detectors laboratory

key role in gaseous detector development
Coimbra



Optical fibers and scintillators lab

key role in Portuguese participation in ATLAS
Lisboa



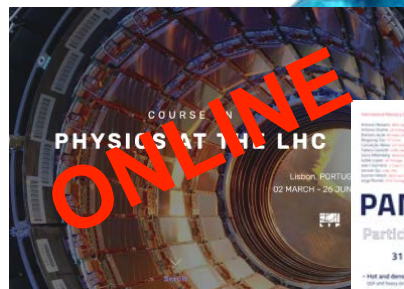
Electronics laboratories

A key role in Portuguese participation in CMS,
Auger and medical applications
Lisboa | Coimbra | CERN



Education and outreach

some of our planned activities





And

Fighting Back...

Face visors

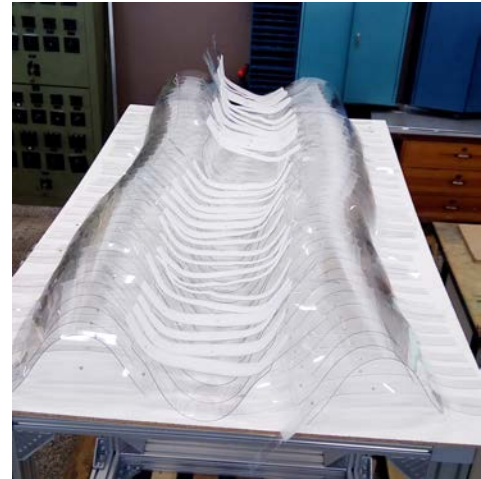
Emergency Ventilator



Used LIP's detector lab and workshop to produce face visors and emergency ventilator

Visors:

- Simple and easy to do
- Developed with local hospital
- Some 500 produced and distributed to 3 hospitals and 2 universities



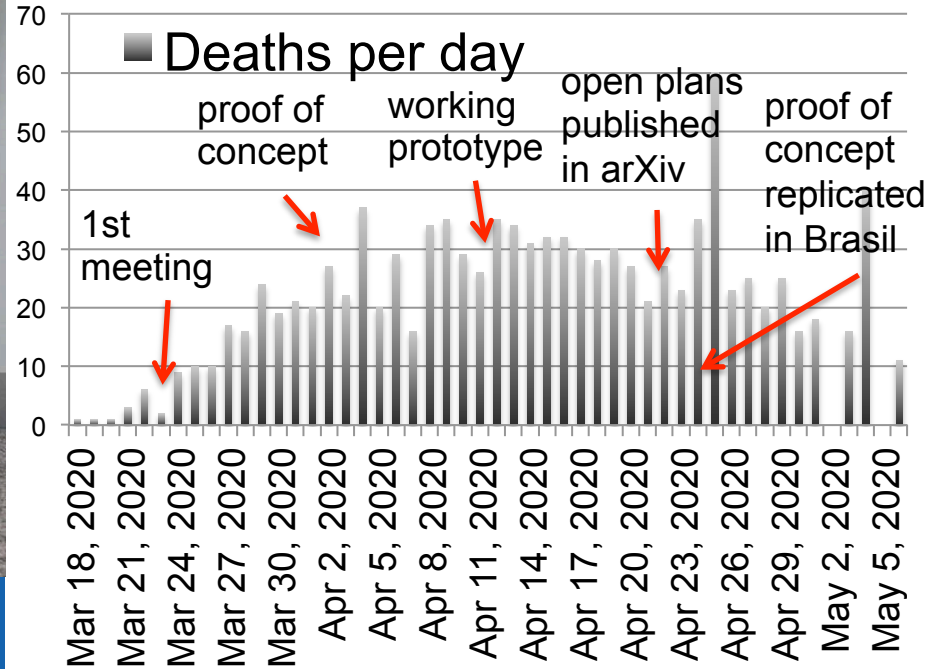
Fighting Back...

Emergency Ventilator

Developed at LIP-Coimbra by team of engineers, researchers and medical doctors, from
4 research labs
3 hospitals
3 universities
1 Formula-1 team



Currently being submitted for medical certification by Portuguese agency INFARMED



Fighting Back...

Emergency Ventilator



arXiv:2004.00310 [physics.med-ph]

**Prototype of an affordable pressure-controlled
emergency mechanical ventilator for COVID-19**

Américo Pereira¹, Luís Lopes¹, Paulo Fonte^{1,2,3,*}, Pedro Póvoa^{4,5,6}, Telmo G. Santos⁷,
Alberto Martinho⁷, Ângela Neves², António Bugalho^{5,8}, António Gabriel-Santos⁷,

Plans open for anyone in any country
Designed to be cheap, fast and easy
to build with simple materials

- Gas distribution parts used
- Water column to regulate input and output pressure
- Good accuracy from water manometer
- Simple control electronics
- Achieves pressure-controlled continuous ventilation mode

Bpm: 12-25

I/E: 1:2-1:3

FiO₂: 50-100%

PIP: 20-40 cmH₂O

PEEP: 0-20 cmH₂O

Living with the monster

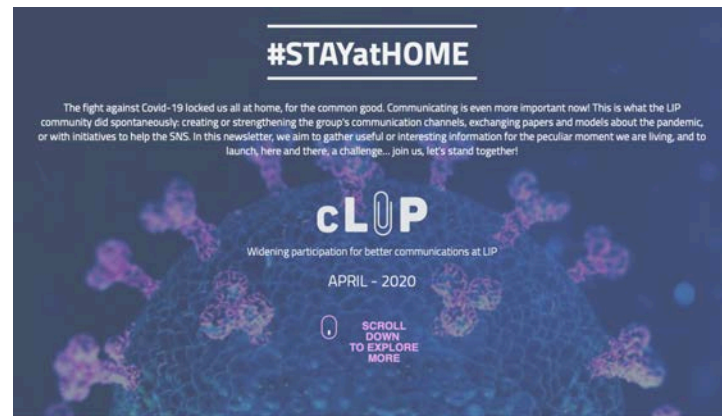
Teleworking Tales



1st MSc thesis online defense

- Quickly had to adapt to new situation, move to tele-working, decide on planned events, etc
- Mostly smooth, but not always...
- Plan from communications group (LIP-ECO):

| | Phases/Goals | Internal comm. | External comm. |
|----------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Past | 1. Keeping ourselves informed: safety measures for LIP members; access to facilities, etc | <u>Who:</u> Directorate, secretariat, Computing group <u>Channels:</u> e-mail | <u>Who:</u> Event organizers (cancel/postpone) <u>Channels:</u> e-mail; website |
| Present | 2. Keeping a sense of community during the tele-working and confinement phase | <u>Who:</u> LIP community, Directorate, LIP-ECO <u>Channels:</u> e-mail; Newsletter; social nets; resume seminars | <u>Who:</u> LIP-ECO, Research groups <u>Channels:</u> e-mail; website; redes sociais |
| Future | 3. Preparing the return – by sharing information and implicating people on planned tasks | <u>Content:</u> More newsletters Online café Telework competition Debate on models | <u>Channels:</u> e-mail; website; redes sociais <u>Content:</u> Increase news rate Content for teachers |



[Latest News](#) [Science in pandemic times](#) [Contribute](#)

LATEST NEWS

TELEWORK AND MORE

LIP Advisory and Sc Council in virtual mode

- LIP's Detailed and Public 2019/2020

PRACTICAL INFO

FCT News

- PTDC extended until 30/4
- PT-CERN PhD grants:

ADVANCED TRAINING

LIP Internship program

- Extra flexibility due to Covid-19:
- 4th edition of LIP Internship

Science in pandemic times

10 year of High-energy LHC data
Ten years have passed since the first high-energy collisions at the LHC on March 30, 2010. We gather here some memories of that night's atmosphere in the control rooms, together with colleagues in ATLAS and CMS.

LIP against Covid-19

- Emergency scientific content
- Free protection videos
- 2020 Spring Covid-19 safety seminar

APS Virtual April Meeting
18-21 April: The American Physical Society (APS) will be holding a Virtual April Meeting this year and attendance is free, but registration is required and...

HEP and Covid-19

On pandemic data and modelling
Complete the teleworking survey

Online debate
Everywhere, the official figures are corrected and models pop-up, not always scrutinized.

- What is the effect on public opinion?
- What would be important to explain better?

☕ COFFEE TIME

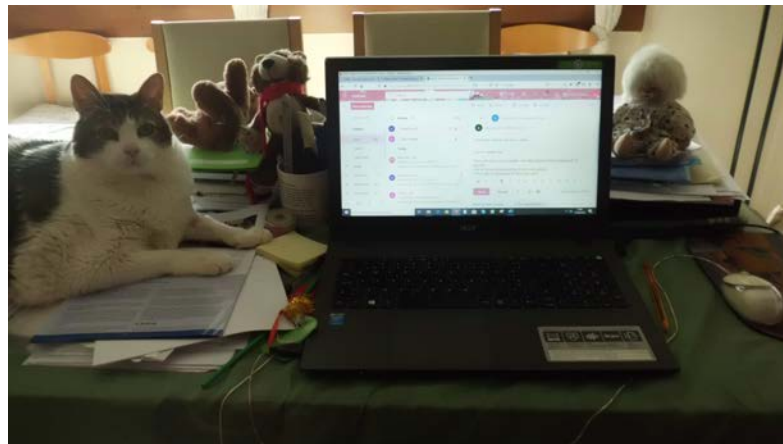
We created a virtual meeting point. Every Thursday at 10h30, just pass by and see who's there for a chat and a coffee.

Note: For a more regular contact there is a Slack channel lipworld.slack.com

🏆 Competition

send your best telework photo/story/sentence/video to outreach@lip.pt

Living with the monster



Summary:

These are terrible times that we are living through

But we and our institutes can do our little bit to fight the monster!

Avoiding propagation, keeping together even if apart, fighting back where we can

