



LABORATÓRIO DE INSTRUMENTAÇÃO
E FÍSICA EXPERIMENTAL DE PARTÍCULAS
partículas e tecnologia

LIP

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LIP 2022



January 1986



Portugal becomes a CERN member

LIP was created in 1986, in the context of the Portuguese accession to CERN, the first international scientific organization Portugal became a member of

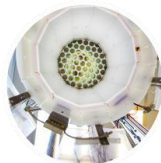
LIP

was created in 1986

As the Portuguese reference partner of CERN and is the reference institution for experimental particle physics in Portugal



Experimental particle and astroparticle physics



Development of new instruments and methods



Scientific computing

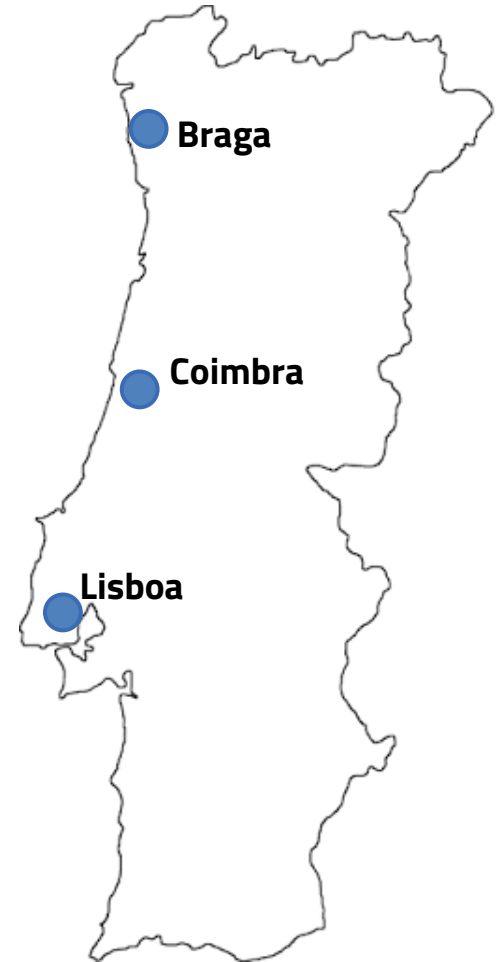
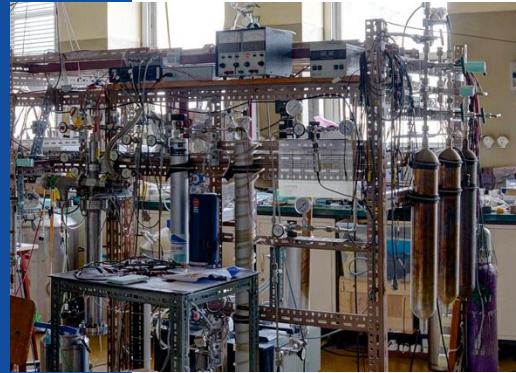


Knowledge transfer, education and outreach

WHERE

LIP IS

A nation-wide laboratory
working in close
collaboration with the
local universities



Experimental particle and astroparticle physics



Development of new instruments and methods



Computing



Structure of matter

- pQCD
- HADES
- NUC-RIA
- NPstrong



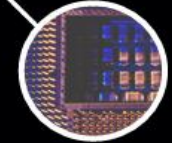
LHC experiments and phenomenology

- ATLAS
- CMS
- Pheno
- FCC



Detectors for particle and nuclear physics

- RPC R&D
- Neutron detectors
- Gaseous Detectors R&D
- Liquid Xenon R&D



Scientific computing

- GRID - Distributed Computing and Digital Infrastructures
- SPAC - Social Physics and Complexity



Cosmic rays

- AMS
- Auger
- SWGO



Health and biomedical applications

- RPC-PET
- Proton Therapy
- OR Imaging
- RADART



Dark matter and neutrinos

- DARK MATTER
- NEUTRINO
- SHIP/ SND@LHC



Space applications

- Space Rad
- I-Astro



**Mechanical
Workshop
LIP - Coimbra**

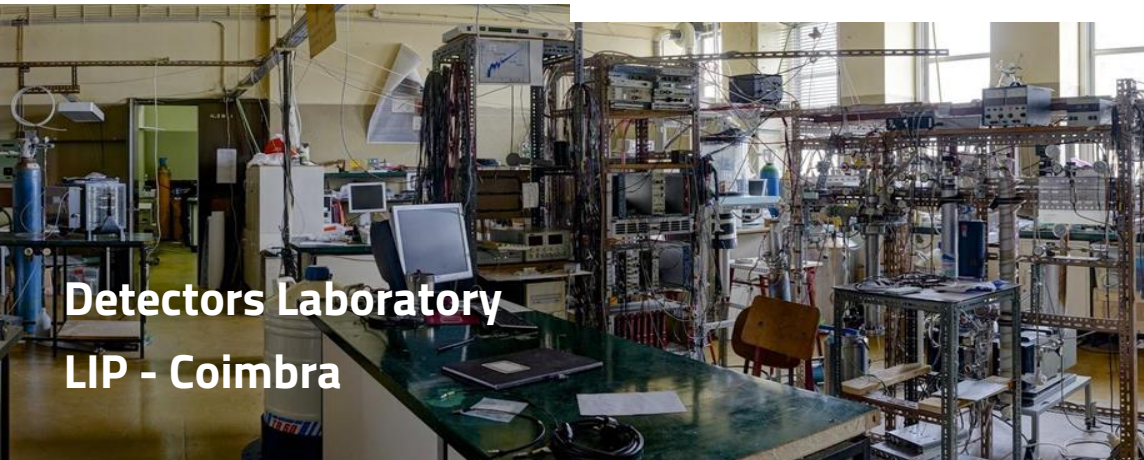


**LOMAC
LIP - Lisboa**



**Computing
infrastructures**

RESEARCH INFRASTRUCTURES



**Detectors Laboratory
LIP - Coimbra**

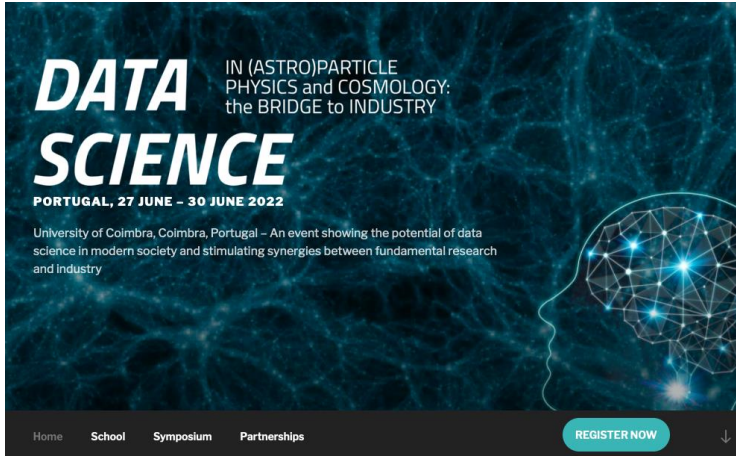


**e-CRLab
LIP - Lisboa**

Competence Centres

Enhance synergies between groups and boost collaboration with industry and academia

Big data and simulation CC



Symposium with a strong participation of companies and an advanced school
2017: Lisboa; 2018: Braga; 2022 Coimbra

Monitoring and Control CC



A device to monitor the temperature and heart rate of seagulls

Training of engineers and technicians

Program of Engineers at CERN since 1996, selected by a committee of representatives of the Portuguese industry and scientific community,

~ **200 scholarships**



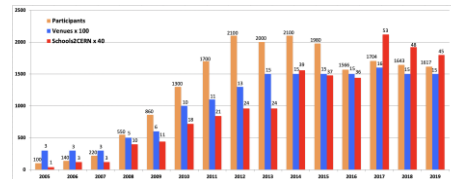
Education and scientific dissemination

Teacher training program at CERN, school visits, Masterclasses, ...



More than 700 teachers in CERN Teachers Programme in Portuguese Language In the last 10 years!

more than 20,000 students in Masterclasses



Advanced training

- ❑ LIP hosts over 70 PhD and master students
- ❑ LIP coordinates PhD grant programmes with FCT and is part of European PhD networks
- ❑ Flagship program:
LIP Summer Internship Programme
- ❑ Schools and workshops



Portuguese Language Teachers
Programme at CERN



International Masterclasses in
Particle Physics



LIP Summer Student Programme



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