

INTRODUCING LIP



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



WHAT LIP IS

The reference institution for experimental particle physics in Portugal and the Portuguese reference partner of CERN as well as other international scientific infrastructures



Experimental particle and astroparticle physics



Development of new instruments and methods



Scientific computing



Knowledge transfer, education and outreach

WHERE LIP IS

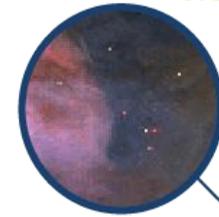
A nation-wide laboratory
working in close
collaboration with the
local universities



Research Areas

- **Experimental particle and astroparticle physics**
- **Development of new instruments and methods**
- **Scientific computing**

Experimental particle and astroparticle physics



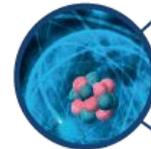
LHC experiments and phenomenology



- ATLAS
- CMS
- Pheno

Structure of matter

- COMPASS
- HADES
- NUC-RIA
- NPstrong



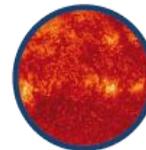
Cosmic rays

- AMS
- AUGER
- SWGO



Dark matter and neutrino

- LUX / LZ
- SNO⁺
- DUNE
- SHiP



Research Areas

- Experimental particle and astroparticle physics
- **Development of new instruments and methods**
- Scientific computing



Development of new instruments and methods



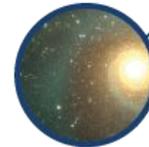
Detectors for Particle and nuclear physics

- Neutron detectors
- RPC R&D
- Gaseous detectors R&D



Health applications

- PET imaging
- Radiotherapy control
- Dosimetry



Radiation environment studies

and **applications for space**

- SpaceRad
- i-Astro

Research Areas

- Experimental particle and astroparticle physics
- Development of new instruments and methods
- **Scientific computing**



Scientific Computing

- **European R&D** projects in information technologies
GRID CLOUD HPC HTC
- National and international **infrastructures** and consortia
- **Services** and support to the scientific community
- **SPAC - Social Physics and Complexity**



Infraestrutura
Nacional de
Computação
Distribuída

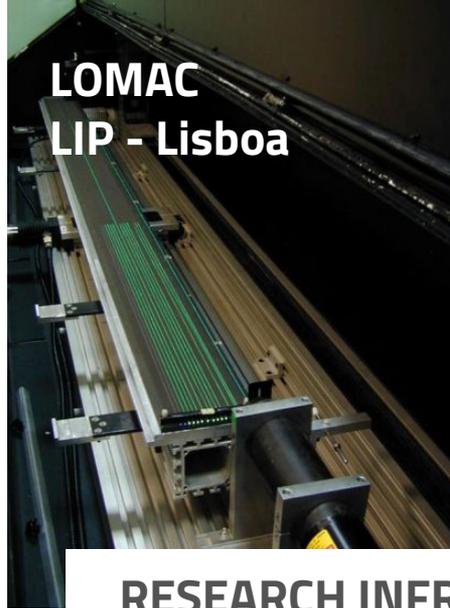


WLCG
Worldwide LHC Computing Grid





**Mechanical
Workshop
LIP - Coimbra**



**LOMAC
LIP - Lisboa**

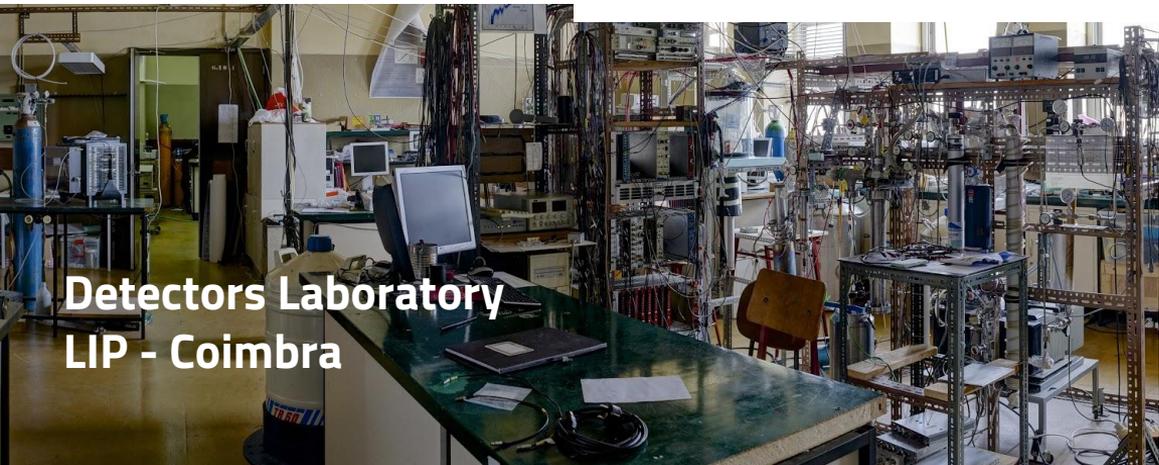


Tagus-LIP



**Computing
infrastructures**

RESEARCH INFRASTRUCTURES



**Detectors Laboratory
LIP - Coimbra**

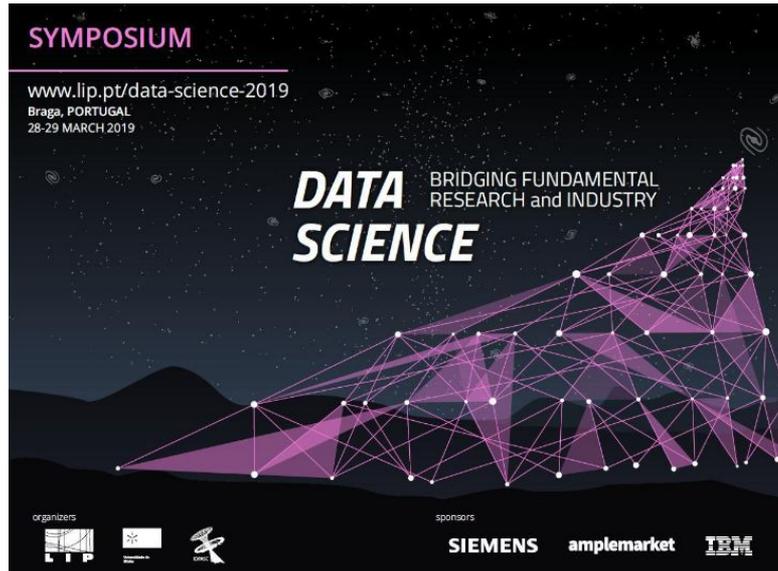


**e-CRLab
LIP - Lisboa**

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, following an advanced school
2017: Lisboa; 2018: Braga

Monitoring and Control CC



A device to monitor the temperature and heart rate of seagulls

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 workshop**

Education and Outreach

ECO activities are part of our social role and fundamental for the recognition of an institution's work



Programme for the school community

- **CERN's Portuguese Language Teacher's programme**
- **International Masterclasses in Particle Physics**
- **Summer internships for high-school students**
- **LIP-EduLab**
- **Seminars in schools**
- **Close partner of Agência Ciência Viva and SPF**

Public events and projects for engaging society with science



LABORATÓRIO DE INSTRUMENTAÇÃO
E FÍSICA EXPERIMENTAL DE PARTÍCULAS
partículas e tecnologia

Thanks!

**Discovery
through
science**

**Innovation
through
technology**

**Sharing
with
People**