LIP

LABORATÓRIO DE INSTRUMENTAÇÃO
E FÍSICA EXPERIMENTAL DE PARTÍCULAS
partículas e tecnologia

[LIP
INTERNSHIP
PROGRAM]

[LIP **Summer Internships 2021**]

Presentation of Summer Projects

LIP Welcomes You

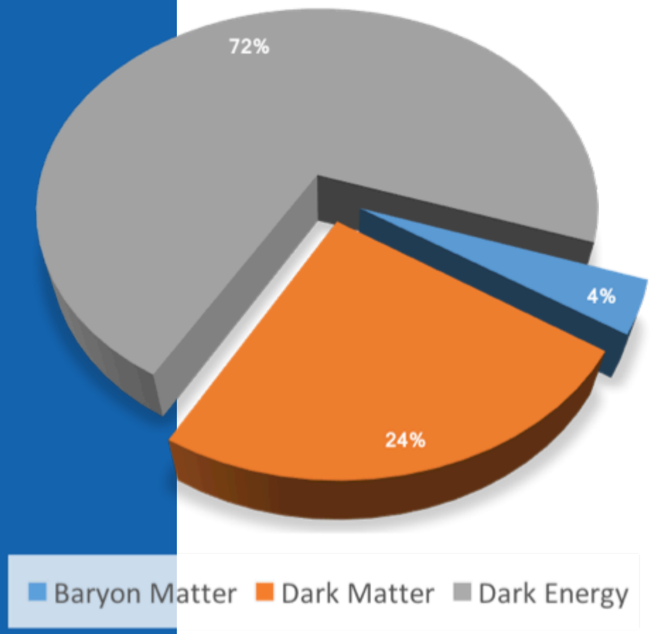
Coimbra, Lisboa, Minho

~ 200 members
~ 90 PhD
~ 75 students
~ 27 engineers, technicians
7 administrative staff

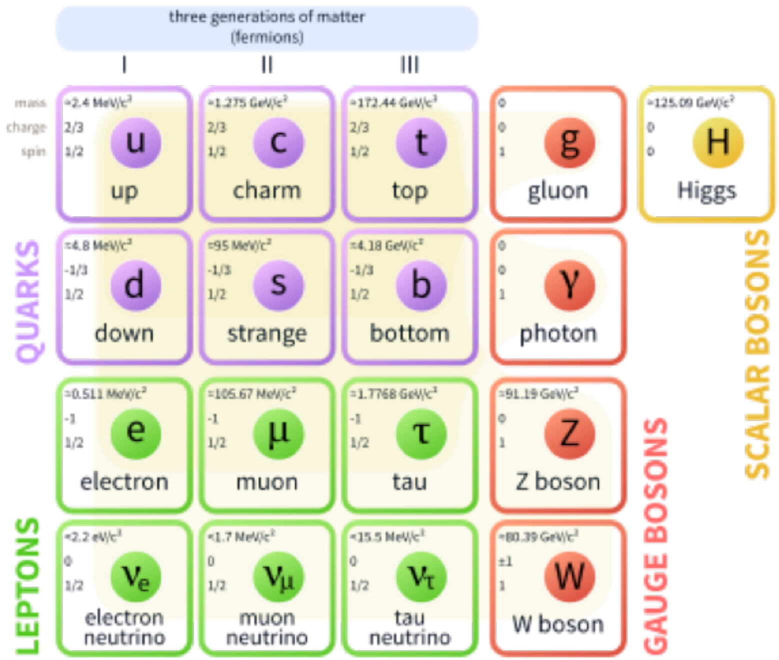
- **Experimental Particle Physics and Astrophysics**
- **Development of Instrumentation**
- **Scientific Computing**

FCT Fundação para a Ciência e a Tecnologia
Universidade de Coimbra
Universidade de Lisboa
Universidade do Minho
Técnico Lisboa
Faculdade de Ciências Universidade de Lisboa
Associação Portuguesa das Empresas do Sector Eléctrico e Electrónico

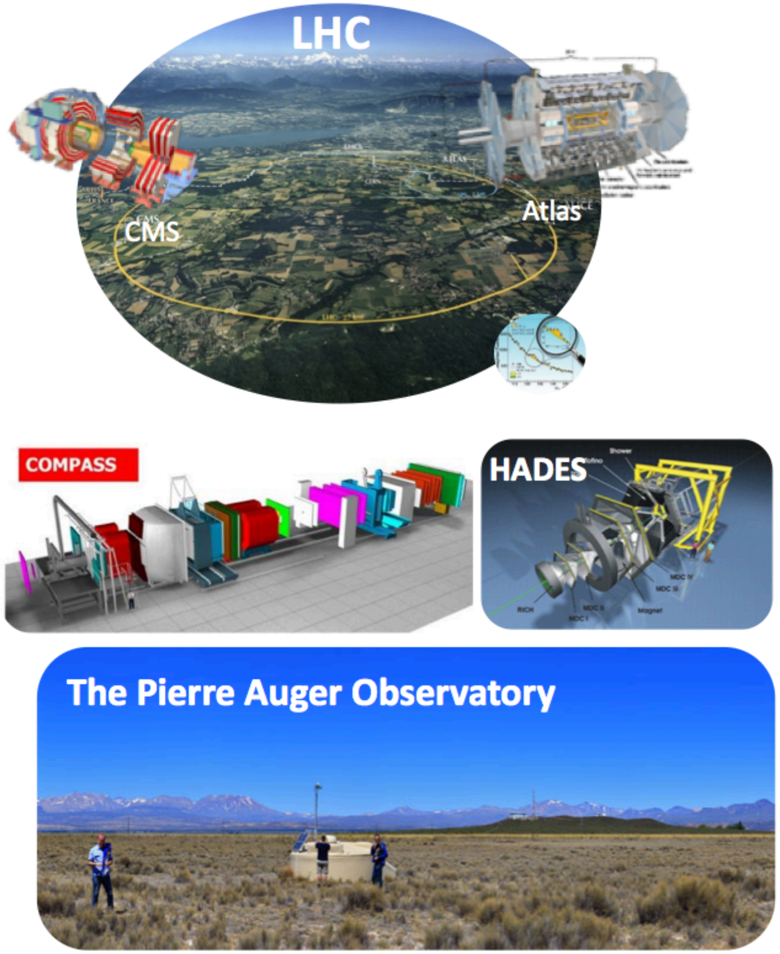
LIP: Particle Physics



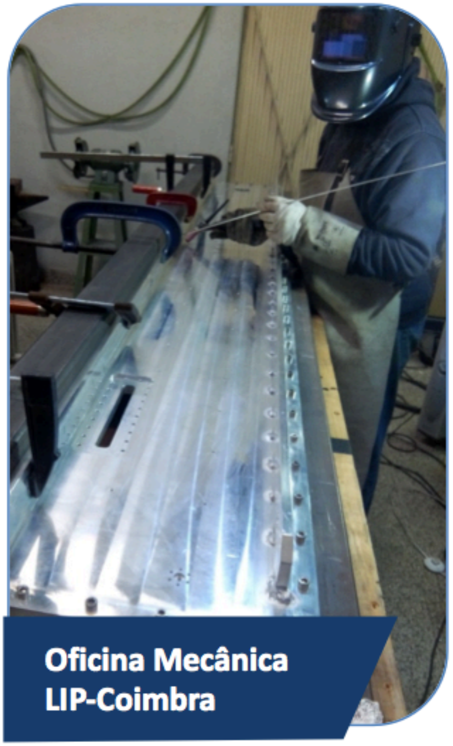
Standard Model of Elementary Particles



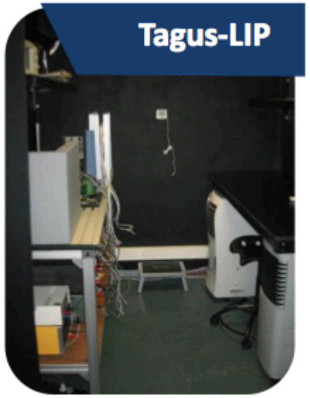
Detectors from the bottom of deep mines to outer space



Research infrastructure

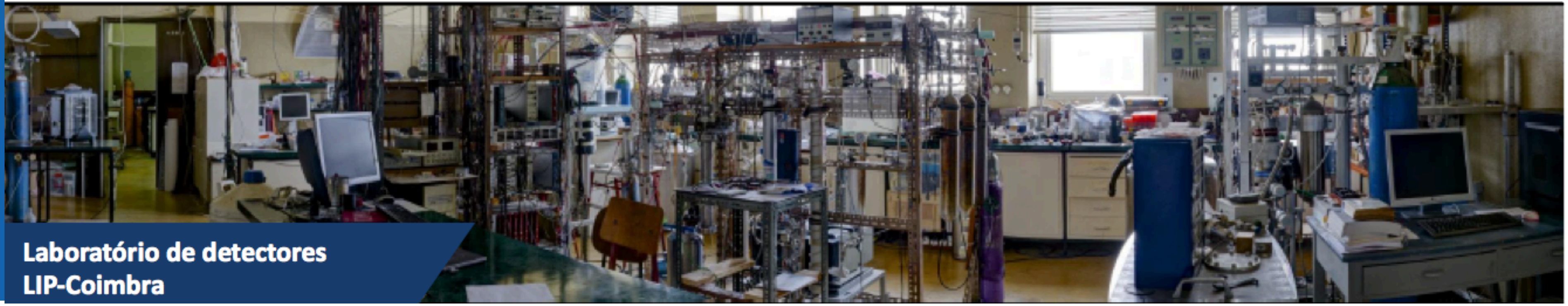

Oficina Mecânica
LIP-Coimbra


LOMAC


Tagus-LIP

E-CRLab

NCG - Lisboa

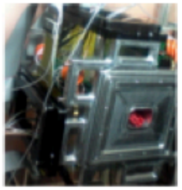

Laboratório de detectores
LIP-Coimbra

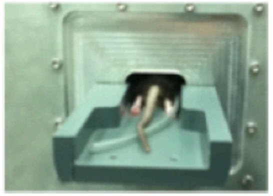
Detector & instrumentation R&D

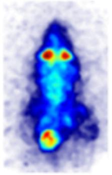
Detectores RPCs

para a pampa,

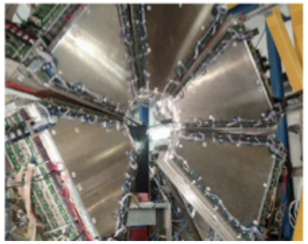
para PET animal e humano,



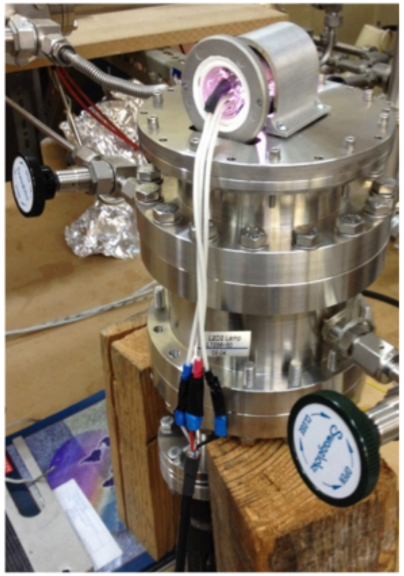




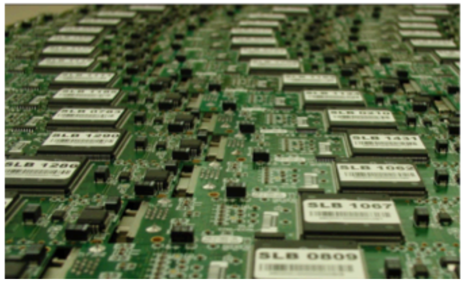
para a Física de partículas



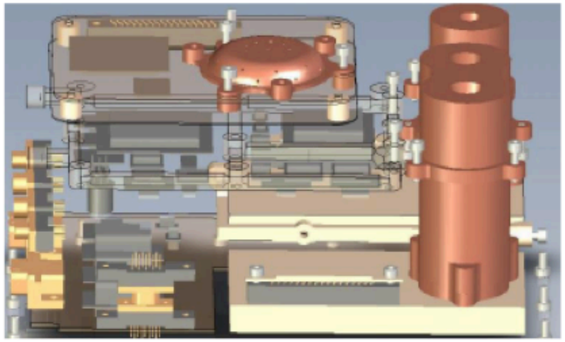
Detectores Xenon



Electrónica digital



Detectores de radiação em missões espaciais

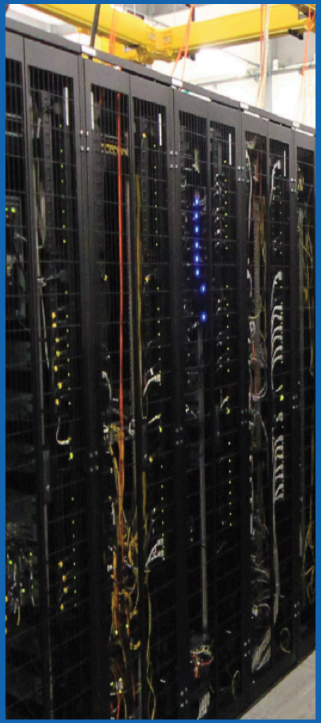


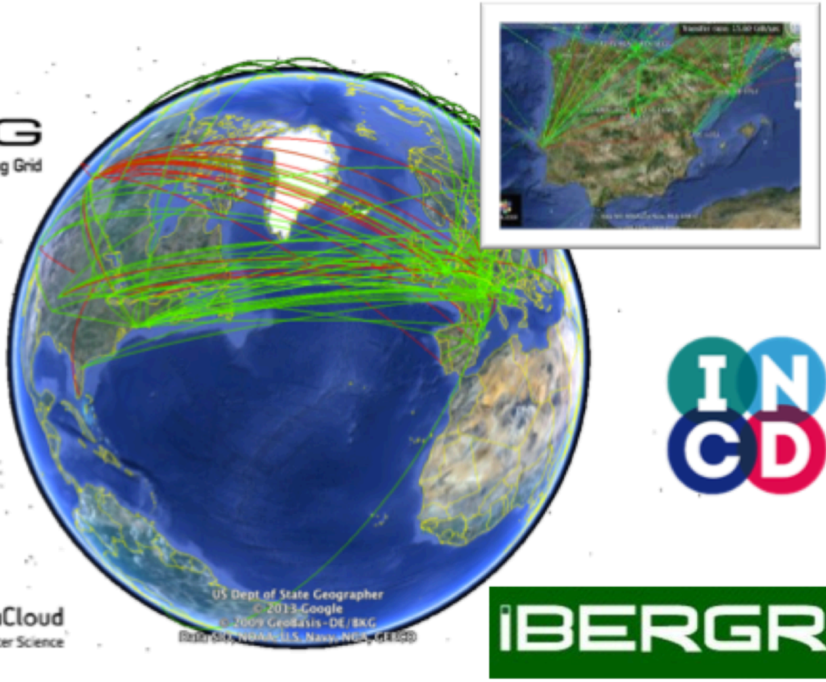
RADEM – Radiation hard electron monitor (LIP: desenho do detector de direcção)

Clear-PEM

Scientific Computing

- Information & Technology R&D
- Participation in digital infrastructures and international consortia
- Support to scientific community





WLCG
Worldwide LHC Computing Grid

egi

INCD
Infraestrutura Nacional de Computação Distribuída

INDIGO - DataCloud
Better Software for Better Science

IBERGRID

L
INTERNSHIP
PROGRAM

Summer 2021

Registration: 26/4 - 31/5
Internships: Jul - Sept
Tutorials: 5/7 - 9/7
Workshop: 8/9 - 9/9

- ***Students become collaborators in LIP’s research teams***

- 1 week of introductory lectures + hands-on tutorials
- Integrate research projects from 2 weeks to 2 months
- 2 day long final workshop where each student present his/her work to fellow students and the LIP researchers

- Locations: Remotely (once Covid-19 situation normalised, also at LIP premises and university poles)

- How to apply? Students select up to 5 projects in order of preference; to facilitate selection should share interests and past experience (academic, research, computing, electronics, etc)

https://www.lip.pt/training/internship-program/

2018 - 2019
in pictures !

Development of Novel Reconstruction Techniques for Low-energy Gamma-ray Showers

ANTINEUTRINOS AND SNO+

António Maschio & Miguel Avillez

August 16, 2019

Efficient Modelling of optical photon propagation in SNO+

Samuel Magalhães

LIP INTERNSHIP PROGRAM

COIMBRA LISBOA MINHO

Queres fazer física

em ambiente Internacional?

Junta-te a nós este verão!

- Raios Cósmicos, Neutrinos e Matéria Escura
- Detetores e Instrumentação
- Física do LHC
- Estrutura da Matéria e Iões Pesados

Estágios de investigação para estudantes de Física e Engenharia

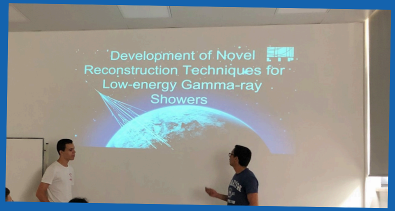
Duração entre duas semanas e dois meses
1 de Julho a 15 de Setembro

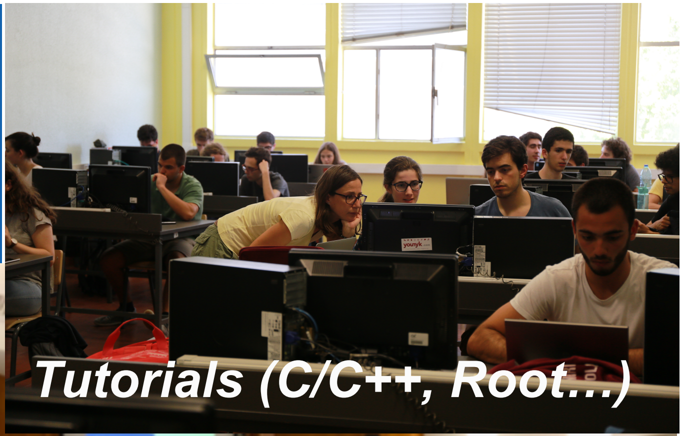
Inscrições abertas de
15 de Abril a 31 de Maio de 2020

LIP LABORATÓRIO DE INSTRUMENTAÇÃO E FÍSICA EXPERIMENTAL DE PARTÍCULAS
partículas e tecnologia

Cofinanciado por: FCT COMPETE 2020 PORTUGAL 2020 UNIÃO EUROPEIA

2018 - 2019
in pictures !





- *Tutorials (C/C++, Root...)*
- *Lectures + “thematic” chat*
- *Mid term “chats”*
- *Before closing: Research paper*

LIP INTERNSHIP PROGRAM
COIMBRA LISBOA MINHO

Queres fazer física
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In 2020,
we went online!

Last year the pandemic situation led us to explore novel ways of teaching, learning, and collaborating

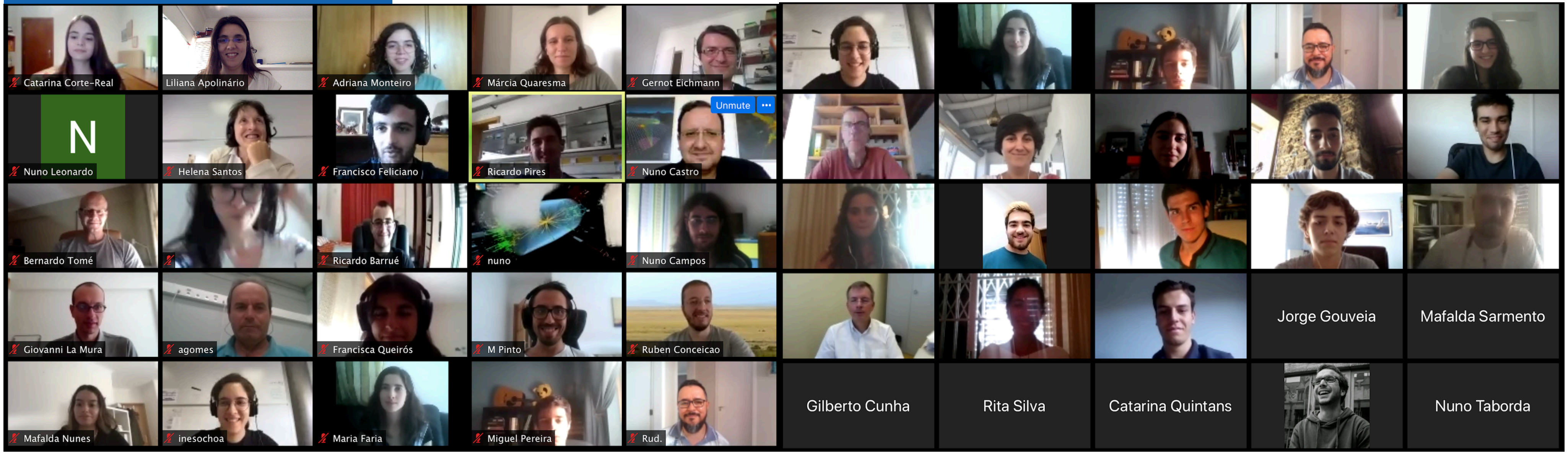
… it worked quite well!

this year we may adopt
a mixed format as feasible

Successful transition to **online format through collaborative apps**

even if with some
needed adaptations…

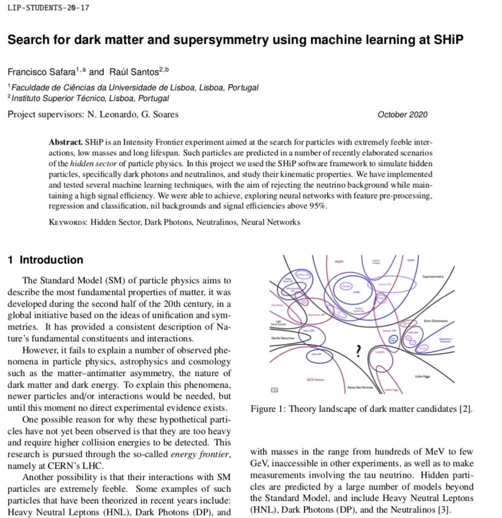
☕ **COFFEE TIME**



LIP Student Research Papers

LIP-STUDENTs-21-xx

Possibility to publish your work as a LIP research paper

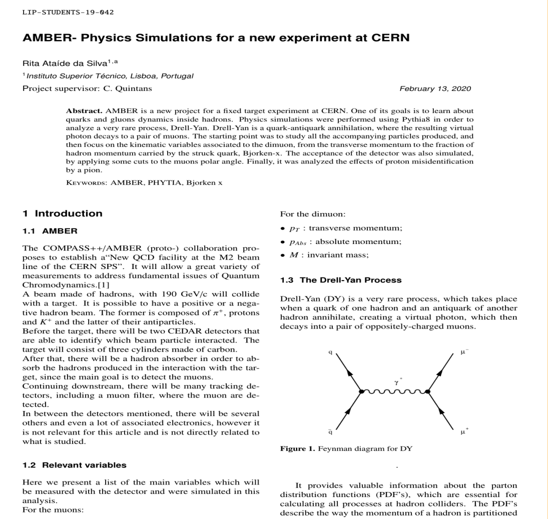

LIP-STUDENTS-20-17

Search for dark matter and supersymmetry using machine learning at SHiP

Francisco Safara[1,a] and Raúl Santos[2,b]

[1] Faculdade de Ciências da Universidade de Lisboa, Lisboa, Portugal
[2] Instituto Superior Técnico, Lisboa, Portugal

Project supervisors: N. Leonardo, G. Soares — October 2020

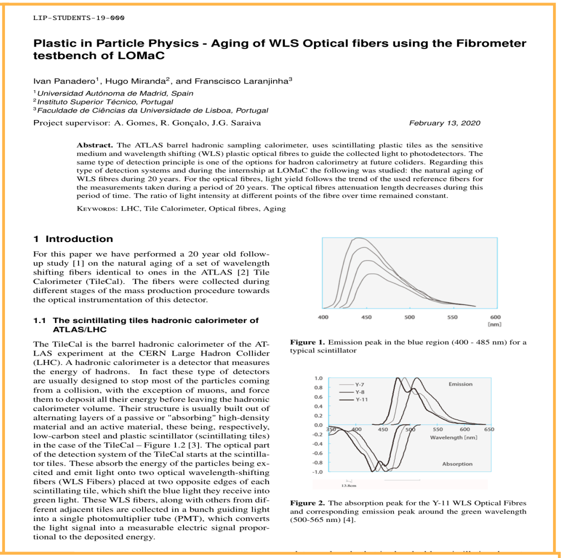

LIP-STUDENTS-19-042

AMBER- Physics Simulations for a new experiment at CERN

Rita Ataíde da Silva[1,a]

[1] Instituto Superior Técnico, Lisboa, Portugal

Project supervisor: C. Quintans — February 13, 2020


LIP-STUDENTS-19-000

Plastic in Particle Physics - Aging of WLS Optical fibers using the Fibrometer testbench of LOMaC

Ivan Panadero[1], Hugo Miranda[2], and Franscisco Laranjinha[3]

[1] Universidad Autónoma de Madrid, Spain
[2] Instituto Superior Técnico, Portugal
[3] Faculdade de Ciências da Universidade de Lisboa, Portugal

Project supervisor: A. Gomes, R. Gonçalo, J.G. Saraiva — February 13, 2020

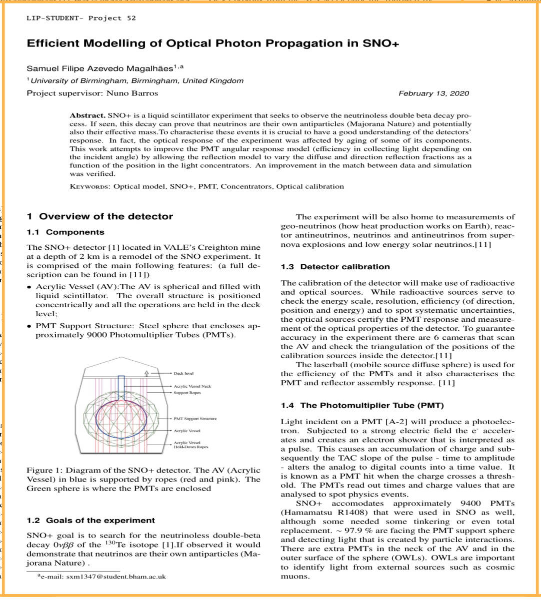

LIP-STUDENTS-19-000

B mesons as novel probes of QGP

João Gonçalves[1,a] and Alexandra Pardal[2,b]

[1] Instituto Superior Técnico, Lisboa, Portugal
[2] Faculdade de Ciências, Lisboa, Portugal

Project supervisors: N. Leonardo, J. Silva

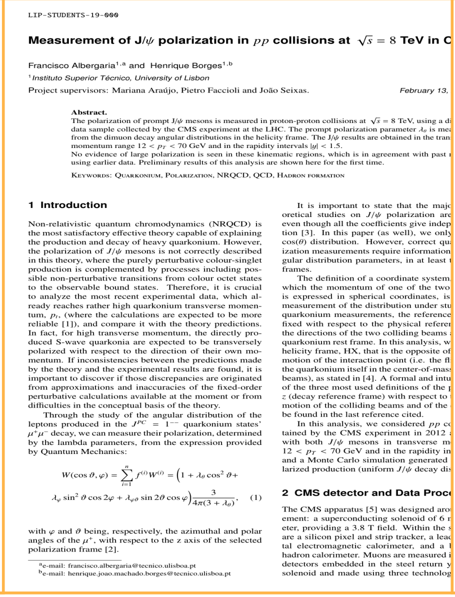

LIP-STUDENT- Project 52

Efficient Modelling of Optical Photon Propagation in SNO+

Samuel Filipe Azevedo Magalhães[1,a]

[1] University of Birmingham, Birmingham, United Kingdom

Project supervisor: Nuno Barros — February 13, 2020


LIP-STUDENTS-19-000

Measurement of J/ψ polarization in pp collisions at $\sqrt{s}=8$ TeV in C

Francisco Albergaria[1,a] and Henrique Borges[1,b]

[1] Instituto Superior Técnico, University of Lisbon

Project supervisors: Mariana Araújo, Pietro Faccioli and João Seixas. — February 13,


LIP-STUDENTS-19-000

Characterization of Scintillators for the Future Circular Collider as a function of their dimensions

Rudnei Machado[1,a]

[1] Faculdade Anhanguera de Joinville

Project supervisor: R. Gonçalo — February 13, 2020

Many Projects Various Topics

Do not hesitate to ask questions!

(contact person next to project description)

Physics at the LHC

Precision measurements and searches for physics beyond the Standard Model with data from the LHC experiments

Cosmic Rays, Neutrinos Dark Matter

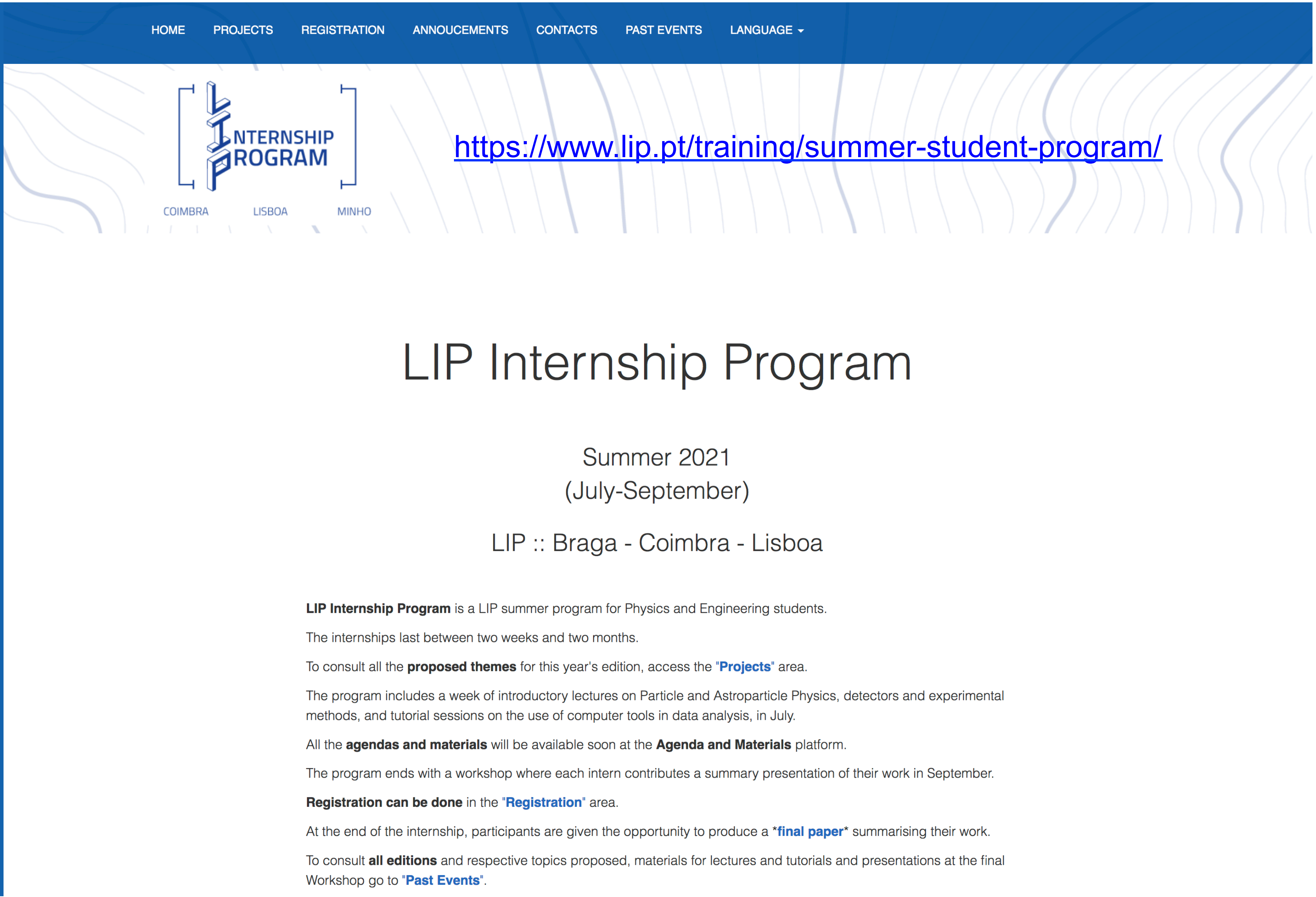
Physics with cosmic rays, the elusive neutrinos and searches for dark matter

Structure of Matter and Heavy-Ions

Exploring the structure of matter – from nucleons and nuclei to the plasma of quarks and gluons

Detectors & Instrumentation

Characterization and development of (hardware and software) systems that facilitate scientific research.



https://www.lip.pt/training/summer-student-program/

LIP Internship Program

Summer 2021
(July-September)

LIP :: Braga - Coimbra - Lisboa

LIP Internship Program is a LIP summer program for Physics and Engineering students.

The internships last between two weeks and two months.

To consult all the **proposed themes** for this year's edition, access the "**Projects**" area.

The program includes a week of introductory lectures on Particle and Astroparticle Physics, detectors and experimental methods, and tutorial sessions on the use of computer tools in data analysis, in July.

All the **agendas and materials** will be available soon at the **Agenda and Materials** platform.

The program ends with a workshop where each intern contributes a summary presentation of their work in September.

Registration can be done in the "**Registration**" area.

At the end of the internship, participants are given the opportunity to produce a "**final paper**" summarising their work.

To consult **all editions** and respective topics proposed, materials for lectures and tutorials and presentations at the final Workshop go to "**Past Events**".