LIP summer internships 2021

Mid-term activities

Friday, 23 July

14:00 → 15:45 Friday Chats: Students talk competition

14:00 Introduction

14:10 Testes do novo detetor de tempo de voo para experiência HADES
Speaker: Guilherme Rodrigues

14:15 Detecção de anomalias como teste de novos fenómenos de física nos dados da experiência ATLAS do CERN
Speakers: Ed Reeves, Rui Ferreira

14:20 Desenvolvimento de uma interface para analisar eventos do Observatório Pierre Auger, para uso em Masterclasses
Speakers: Diogo Ventura, Ricardo Correia

14:25 Optimização da muografia
Speakers: Inês Dias, Rodrigo Pereira

14:30 Heavy quarks as probes of the primordial plasma
Speakers: Cláudio Pedrosa, Henrique Legoinha

14:35 Investigating the Flavor Anomalies
Speakers: Marta Botas, Reza Jafari, Ruben Pozzi

14:40 Non invasive temperature monitoring device
Speakers: Daniel Sousa, Miguel Roldão, Rafael Molter

14:45 Física Experimental de Partículas com o detector ATLAS
Speakers: Helena Macedo, Inês Serra

14:55 Pesquisas de multi-mensageiros astrofísicos de altas energias
Speakers: João Gomes, Margarida Baptista, Miguel Godinho

Friday, 30 July

14:00 → 15:15 Friday Chats: Students talk competition

14:05 Deteção de anomalias como ferramenta para descoberta de nova física no Large Hadron Collider do CERN
Speaker: Miguel Peixoto

14:10 Muões num balão: medidas do fluxo de muões até à estratosfera
Speakers: Afonso Ávila, Daniel Coelho, Júlio Santos

14:15 À descoberta da natureza do neutrino: decaimento beta duplo sem neutrinos
Speakers: Carlos Roxo, Francisco Pais

14:25 Deep Neural Networks applications in experimental physics data analysis
Speaker: Pedro Mendeiros

14:30 Predição do efeito Migdal nas calibrações com neutrões em LZ
Speaker: Paulo Pires

14:35 Development of a portable system for scintillation detection
Speaker: Inês Dias

14:40 Detecção directa de matéria escura com a experiência LUX-ZEPLIN
Speakers: Diogo Gorgulho, Francisco Casalinho, Tiago Martins

14:45 Telescópio de muões / Chuveiros atmosféricos - Laboratório de Raios Cósmicos (LabRC)
Speakers: Ana Sousa, Francisco Rodrigues

14:50 Assessing the class of functions learnt by Deep Learning models on low-level jet data formats
Speaker: Leander Reascos

14:55 Machine Learning Methods to measure the quantum numbers of the Higgs interaction to W bosons
Speaker: João Teixeira

15:00 Searching for new physics by colliding light in the CMS experiment at the LHC
Speaker: Ana Benquerença

15:05 Boosted Higgs boson reconstruction in WH associated production
Speakers: Al-Maha Al-Habsi, Bettina Hanlon

Friday, 6 August

14:00 → 15:15 Friday Chats: Students talk competition

14:05 Development of a next-generation detector concept to detect astrophysical gamma-rays
Speakers: Matilde Carapuça, Tatiana Mendes

14:10 Understanding hadronization timescales using jets
Speakers: Diogo Simões, Nuno Madureira

14:15 High-precision timing detectors for HL-LHC
Speaker: Cristina Meng

14:20 Estudo de um microdosímetro de fibras cintilante em diferentes ambientes de radiação utilizando o código FLUKA
Speaker: Madalena Gamboa

14:25 Investigation of the muon puzzle at the Pierre Auger Observatory
Speaker: Raquel Nunes

14:30 Pierre Auger vs. The Machine: towards validation of deep-learning based reconstruction of ultra-high energy cosmic rays with new data from the Pierre Auger Observatory
Speaker: Diogo Costa

14:35 Simulation of large scintillators for future HEP experiments using GEANT4
Speakers: Diogo Mendonça, Francisco Ferreira

14:40 Exploring jet quenching effects during QGP initialization
Speakers: André Santos, Daniela Cardoso

14:45 Investigating ANN and their use in the reconstruction of high energetic photons with the R3B calorimeter CALIFA
Speaker: Tomás Sousa

14:50 Thermal evaporation of thin layers of Copper for detector development
Speaker: André Azevedo

14:55 Simulating the impact of proton therapy on amyloid protein structures using Geant4-DNA
Speakers: Débora Almeida, Maria Simões

15:00 Using the HiggsML dataset to benchmark machine learning techniques
Speakers: Pedro Sampaio, Sarah Almada

15:05 Análise de dados com a experiência AMS
Speaker: Guilherme Simplício

Friday, 13 August

14:00 → 15:20 Friday Chats: Students talk competition

14:00 Advanced Machine Learning for Exclusive Processes
Speaker: Manuel Peixoto

14:05 Setting up a spectrometer to measure the absolute light yield of scintillating materials
Speaker: Helene Rehahn

14:10 Radiation at Mars with SRAM-based monitors
Speakers: Alexandre Branco, Leonor Candeias

14:15 Calibração de detetores RPC para muografia
Speaker: Jorge Silva

14:20 Desenvolvimento de uma nova tecnologia para detetores de neutrões
Speakers: Gonçalo Gomes, Inês Serra, Mariana Santos

14:25 Search for dark matter in association with a new Z' boson at the LHC
Speakers: Amélia Pinto, Madalena Nunes

14:30 The analytic structure of quarks
Speaker: Heitor Osterdahl

14:35 Novel jet algorithms to unveil the Quark-Gluon Plasma evolution
Speakers: Alexandre Monforte, João Fernandes, Lénea Luís

14:40 Neutron data from the SNO+ neutrino detector
Speakers: André Soares, Teresa Miranda

14:45 Muografia: simulação da sensibilidade do telescópio de muões
Speaker: Isabel Alexandre

14:50 QCD effects in the muon anomalous magnetic moment
Speakers: André Nunes, Mário Amaro

14:55 Muon efficiency performance with Tag and Probe using CMS Open Data
Speaker: Rodrigo Silva

15:00 Identifying Hidden Particles with Machine Learning at SHiP
Speakers: André Branco, Henrique Santos

15:05 Sistema de alta tensão do Tilecal
Speaker: João Azul

15:10 De que são feitos os nucleões e os piões?
Speakers: Guilherme Almeida, Pedro Tomé

15:15 Hunting Forbush Decreases in the inner Solar System
Speakers: Anselmo Falorca, Bruno Lourenço

LIP summer internships 2021

Mid-term activities

Creativity/Originality score:
8.71 / 10

3rd prize

Madalena Gamboa

"Estudo de um microdosímetro de fibras cintilante em diferentes ambientes de radiação utilizando o código FLUKA"

LIP summer internships 2021

Mid-term activities

Creativity/Originality score:
9.38 / 10

2nd prize

João Teixeira

"Machine Learning Methods to measure the quantum numbers of the Higgs interaction to W bosons"

LIP summer internships 2021

Mid-term activities

Creativity/Originality score:
9.68 / 10

1st prize

Marta Botas, Reza Jafari, Ruben Pozzi

"Investigating the Flavor Anomalies"

LIP summer internships 2021
Mid-term activities

- Thanks everyone for participating!

- We look forward to having activities and social events in person next year