



**Laboratório de Instrumentação e  
Física Experimental de Partículas**

## **LIP Seminar**

Thursday, 30 January, 11h30

# **Development of the instrumentation and readout schemes of MARTA**

**Ricardo Luz**

(LIP)

MARTA proposes to make a direct and independent measurement of the muonic content of the extensive air showers. For that Resistive Plate Chambers (RPC) are placed underneath the water Cherenkov detectors (WCD) of the Pierre Auger Observatory. In this seminar, a description of the MARTA detector is given, focusing mostly on the developments and tests performed on the front-end acquisition system. Its main requirements are to be able to read the fast RPC signals while complying with the strict demands of Auger's field operation: not much power and space available, harsh environmental conditions, and low maintenance. This system is based on a low power ASIC, that digitizes the RPC signals, followed by an FPGA that will be responsible for all the digital electronics.

The design, production, debugging, and testing of the system are being finalized, and the first station of MARTA is expected to be working in the coming months.

**Location: 3Is Auditorium**

**LIP, Av. Prof. Gama Pinto, No 2, 1649-003 Lisboa**

**<https://indico.lip.pt/event/676/>**

**(Coffee and cookies 30 min earlier)**

**The seminar will be transmitted by streaming:**

**URL: <https://videocast.fccn.pt/live/lip/seminarios>**

**PIN: LIP-seminario-2020-01-30**