

# Muon identification procedure for the ATLAS detector at the LHC using Muonboy reconstruction package and tests of its performance using cosmic rays and single beam data

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ATLAS is one of the four experiments at the Large Hadron Collider (LHC) at CERN. This experiment has been designed to study a large range of physics including searches for previously unobserved phenomena such as the Higgs Boson and super-symmetry. The ATLAS Muon Spectrometer (MS) is optimized to measure final state muons in a large momentum range, from a few GeV up to TeV. Its momentum resolution varies from (2-3%) at 10-100 GeV/c to 10% at 1 TeV, taking into account the high level background environment, the inhomogeneous magnetic field, and the large size of the apparatus (24 m diameter by 44 m length). A robust muon identification and high momentum measurement accuracy is crucial to fully exploit the physics potential of the LHC.

The basic principles of the muon reconstruction package “Muonboy” are discussed in this paper. Details of the modifications done in order to adapt the pattern recognition to the cosmic-ray configuration as well as its performance with the recent cosmic-rays and single beam data are presented.

## Summary

## Presentation type (oral | poster)

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**Primary author:** Dr NIKOLAIDOU, Rosy (CEA Saclay)

**Co-authors:** Dr OURAOU, Ahmimed (CEA - Saclay); Dr LAPORTE, Jean-Francois (CEA - Saclay); Dr CHEVALIER, Laurent (CEA - Saclay); Dr HASSANI, Samira (CEA - Saclay)

**Presenter:** Dr NIKOLAIDOU, Rosy (CEA Saclay)

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