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MuonTriggerPerformance

A test package that implements existing official ATLAS tools for performance analysis of the muon trigger with respect to offline muons.

Introduction

The idea of the package is to make use of the existing ATLAS software tools in order to select 'good' offline muons for trigger analysis. The first iteration of the package was focused on making available the needed variables for turn-on making on an ntuple. It depends largely on the implementations of MuonCombinedSelectorTools and other relevant tools provided by the ATLAS Muon Combined Performance group as well as on the TriggerObjectsMatching tool. For the ntuple making the package relies on D3PDMaker .

Getting started

Get latest version of the package (for the code clear here [↗](#)):

```
cmt co $SVNUSR/menelaos/MuonTriggerPerformance
```

Some addition are probably needed in top of that:

```
cmt co Reconstruction/MuonIdentification/MuonCombinedToolInterfaces
cmt co MuonSpectrometer/MuonReconstruction/MuonRecTools/MuonRecToolInterfaces
cmt co Reconstruction/MuonIdentification/MuonCombinedEvaluationTools
cmt co Reconstruction/MuonIdentification/MuonCombinedSelectorTools
```

Use the trunk versions to be up do date, they should work fine. Finalization and recommended tags (or release) are yet to come.

Layout of the package

This is the main Algorithm that basically calls the tools according to the jobOption specifications. This is meant to be the core algorithm although specific Algorithms can be written in request.

This Algorithm Tool uses the MuonCombinedSelectorTool (MuonCombinedSelectorTools) and creates a Muon Container with 'selected' offline muons.

This Algorithm Tool uses the TrigMatchTool (TriggerObjectsMatching). It will take as input a MuonContainer and will check for each offline muon:

- if it is matched to 'specified' triggers, based on pre-applied cut.
- what is the distance to the closest 'active' (passing the trigger) trigger object

Eventually, it will fill corresponding variables.

This Algorithm Tool uses the MuonPropertiesTool (MuonPropertiesTool). This tool will fill the basic properties of the Analysis::Muon and in addition those properties not accessible from Analysis::Muon but through the MuonPropertiesTool.

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