

Muon system's studies

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Fixed muon parameters in recomuon.xml

Not
used

```
<processor name="MyDDSimpleMuonDigi" type="DDSimpleMuonDigi">
  <!--Performs simple digitization of sim calo hits...-->
  <parameter name="Histograms" type="int">1 </parameter>
  <parameter name="RootFile" type="string">Test_Muon_File.root</parameter>
  <!--Calibration coefficients for MUON-->
  <parameter name="CalibrMUON" type="FloatVec">70.1</parameter>
  <!-- maximum hit energy for a MUON hit -->
  <parameter name="MaxHitEnergyMUON" type="float">200000.0</parameter>
  <!--MUON Collection Names-->
  <parameter name="MUONCollections" type="StringVec">
    YokeBarrelCollection YokeEndcapCollection</parameter>
  <!--MUON Collection of real Hits-->
  <parameter name="MUONOutputCollection" type="string">MUON </parameter>
  <!--Threshold for MUON Hits in GeV-->
  <parameter name="MuonThreshold" type="float">1e-06 </parameter>
  <!--MuonHit Relation Collection-->
  <parameter name="RelationOutputCollection" type="string">RelationMuonHit </parameter>
</processor>
```

```

<processor name="MyDDMarlinPandora" type="DDPandoraPFANewProcessor">
<parameter name="PandoraSettingsXmlFile" type="String"> PandoraSettings/PandoraSettingsDefault.xml </parameter>
<!-- CLIC specifict software compensation weights derived from KOL and neutrons -->
<parameter name="TrackCollections" type="StringVec"> SiTracks </parameter>
<parameter name="MuonCaloHitCollections" type="StringVec"> MUON </parameter>
<parameter name="MCParticleCollections" type="StringVec"> MCParticle </parameter>
<parameter name="RelCaloHitCollections" type="StringVec"> RelationMuonHit </parameter>
<parameter name="RelTrackCollections" type="StringVec"> SiTrackRelations </parameter>
<parameter name="ClusterCollectionName" type="String"> PandoraClusters </parameter>
<parameter name="PFOCollectionName" type="String"> PandoraPFOs </parameter>
<!-- Calibration constants -->
<parameter name="MuonToMipCalibration" type="float"> 19607.8 </parameter>
<parameter name="DigitalMuonHits" type="int"> 0 </parameter>

```

INPUT collection

LC Relation *

Conversion factor: it allows
to obtain the muon energy
from the energy released

If =0 the real hit energy is associated to the hit

If >0 a chosen energy (parameter: MuonHitEnergy)
is associated to all hits

* This relation is also pass as a parameter of the RecoMCTruthLinker processor

```

<parameter name="SimCalorimeterHitRelationNames" type="StringVec" lcioInType="LCRelation">
  RelationCaloHit RelationMuonHit

```

Work in progress: PandoraSettingsDefault.xml

```
<!-- Standalone muon clustering -->
<algorithm type = "MuonReconstruction">
  <algorithm type = "ConeClustering" description = "MuonClusterFormation">
added <FirstLayer>1</FirstLayer>
added <ClusterSeedStrategy>0</ClusterSeedStrategy>
    <TanConeAngleCoarse>0.3</TanConeAngleCoarse>
    <ConeApproachMaxSeparation>2000</ConeApproachMaxSeparation>
    <MaxClusterDirProjection>2000</MaxClusterDirProjection>
    <ShouldUseIsolatedHits>true</ShouldUseIsolatedHits>
    <LayersToStepBackCoarse>30</LayersToStepBackCoarse>
    <AdditionalPadWidthsCoarse>1</AdditionalPadWidthsCoarse>
    <SameLayerPadWidthsCoarse>1.8</SameLayerPadWidthsCoarse>
    <ShouldUseTrackSeed>false</ShouldUseTrackSeed>
    <MaxTrackSeedSeparation>0</MaxTrackSeedSeparation>
    <MaxLayersToTrackSeed>0</MaxLayersToTrackSeed>
    <MaxLayersToTrackLikeHit>0</MaxLayersToTrackLikeHit>
    <TrackPathWidth>0</TrackPathWidth>
  </algorithm>
  <!--NExpectedTracksPerCluster>0</NExpectedTracksPerCluster-->
added <MinTrackCandidateEnergy>0.1</MinTrackCandidateEnergy>
modified <MinClusterOccupiedLayers>2</MinClusterOccupiedLayers>
added <MinClusterLayerSpan>0</MinClusterLayerSpan>
added <NClusterLayersToFit>2</NClusterLayersToFit>
    <MaxClusterCaloHits>30</MaxClusterCaloHits>
```

← Default is 7
They were both 5

```
<algorithm type = "MuonClusterAssociation">  
  <TargetClusterListName>PrimaryClusters</TargetClusterListName>  
  <MuonClusterListName>YokeClusters</MuonClusterListName>  
modified <MinHitsInMuonCluster>1</MinHitsInMuonCluster>  It was 3  
  <CoilCorrectionMinInnerRadius>3483</CoilCorrectionMinInnerRadius>  
</algorithm>
```