Electron Identification without the Pixel Detector

Software Overview

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Motivation: Current electron-finding algorithm relies on the pixel detector; we aim to provide an interim solution

Goal: Identify electrons by matching Si-strip tracker hits to ECAL superclusters

Scope: Input `SuperClusterCollection` and `SiStripRecHits`, and output a collection of electron candidates

to be used for triggering and offline

Status: We're studying MC and potential algorithms (more tomorrow); checked in placeholder code

Electron Candidate objects

- `DataFormats/EgammaCandidates/SiStripElectronCandidate`
- Subclass of `RecoCandidate`
- If the collection is nonempty, HLT should accept the event

HLT .cfg path:

Level 2 (clustering) $\longrightarrow$ we create `SiStripElectronCandidates` $\longrightarrow$

$\longrightarrow$ Level 2.5 HLT filter $\longrightarrow$ Level 3 (tracking) $\longrightarrow$ `ElectronCandidates`

`SiStripElectronCandidate` will contain a track-finding seed for the next level of triggering (Level 3)

Seed may be

- Track parameters determined from supercluster position/energy and SiStrip hits,

or

- Track parameters and a cloud of tracker hits

Placeholder checked into `RecoEgamma/EgammaElectronProducers` and `...Algos`,

`SiStripElectronProducer` and `ElectronAnalyzer`

- Checked in with tags `jp-29may06`
- Compiles in `CMSSW_0_7_0_pre2`
- Currently produces empty `SiStripElectronCandidateCollections`

Until now, we've been studying Monte Carlo (tomorrow's talk) in a private area

From this point on, we will use the checked-in code to study MC and develop algorithms