

Jet Analysis on CAF

Gabriel Barros
goliveir@cern.ch

Instituto de Física - Universidade de São Paulo

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Outline

Motivation

Why I want to use CAF?

Behaviour of CAF from user's point of view

Summary

Physics

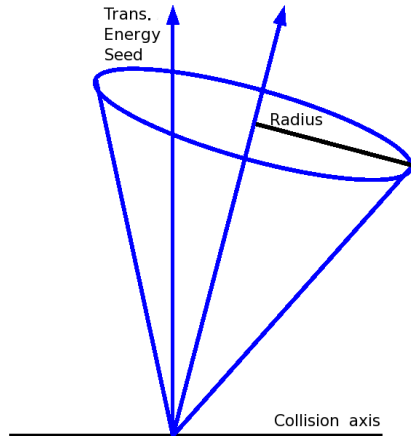
- ▶ Jet Analysis
Identify jets produced by b-quark (b-tagging)

- ▶ Parameters

E_t^{seed}	Min. trans. jet seed energy
E_t^{min}	Minimum jet cone energy
R	Jet radius

discretization of $\eta \times \phi$ space,
 η range and some cuts

- ▶ Objective
Retrieve information about jet production on simulation level (PYTHIA classes)
Compare reconstructed data with simulated one (JETAN classes)



Group of reasons to use CAF

- ▶ Necessity of high statistics
Events: $\sim 2M$ on CAF
Events with jets: $\sim 12k$, i.e. 0.6%
b-jets: expected to be $\sim 1k$, i.e. $\sim 0.06\%$
- ▶ Iterative analysis
Changes on parameters used to jet identification, both on simulated and reconstructed levels
Code development
- ▶ Time consumption
Locally: $\sim 50minutes$ per $10k$ events
CAF: $\sim 50seconds$ per $10k$ events
Total time: 17.5hours Locally versus 17.5minutes on CAF

... but I'm not using CAF

- ▶ Software incompatibilities

Data to be analyzed: PDC06
pp @ 14TeV
runs 5000 up to 5029

Produced using AliRoot version 4-04-Rev-10

Current version is 4-07

- ▶ Classes used to perform the analysis

AliRoot version	Class
4-04-Rev-10	AliSelectorRL
4-07	AliAnalysisTask

AliSelector class doesn't provide ways to save the output in a root file

Points observed, but not reported

- ▶ Type of analysis

Physics: Identification of jets using reconstructed data

Software: Root version 5-16-00 with PAR files

Class: AliAnalysisTask

- ▶ Noted behaviours

Analysis step ¹	Observation
Before	Analysis gets stuck during file validation
During	Analysis stops without any reason (status bar becomes red)
After	No output file, even though analysis has been performed

¹related to event loop

Discussed points

- ▶ Physics
 - Identification of b-jets both on simulation level and reconstructed data
 - Necessity of high statistics
 - Necessity of run analysis many times
- ▶ CAF
 - Errors which don't look like "real" ones
 - Possibility to save output into a file constrained to AliRoot version