

Beam Test Data Analysis

Review of the Bari TKRDigi

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MC Digit simulation: Level 1 (Bari1)...

- The e-h pair produced in the silicon are distributed along the track and grouped into elements (called *cluster*).
 - Bari1 → from 1Clus/40 μ m for vertical tracks
→ to 1Clus/4 μ m for vertical tracks
in order to evaluate the CPU consumption
- L1Trigger Time: smaller T1 into the layer
- Hit capture: if $T2(\text{strip}) > T_{\text{ack}}$, where
 $T_{\text{ack}} = \text{L1Trigger} + 2\mu\text{s}$

MC re-production strategy

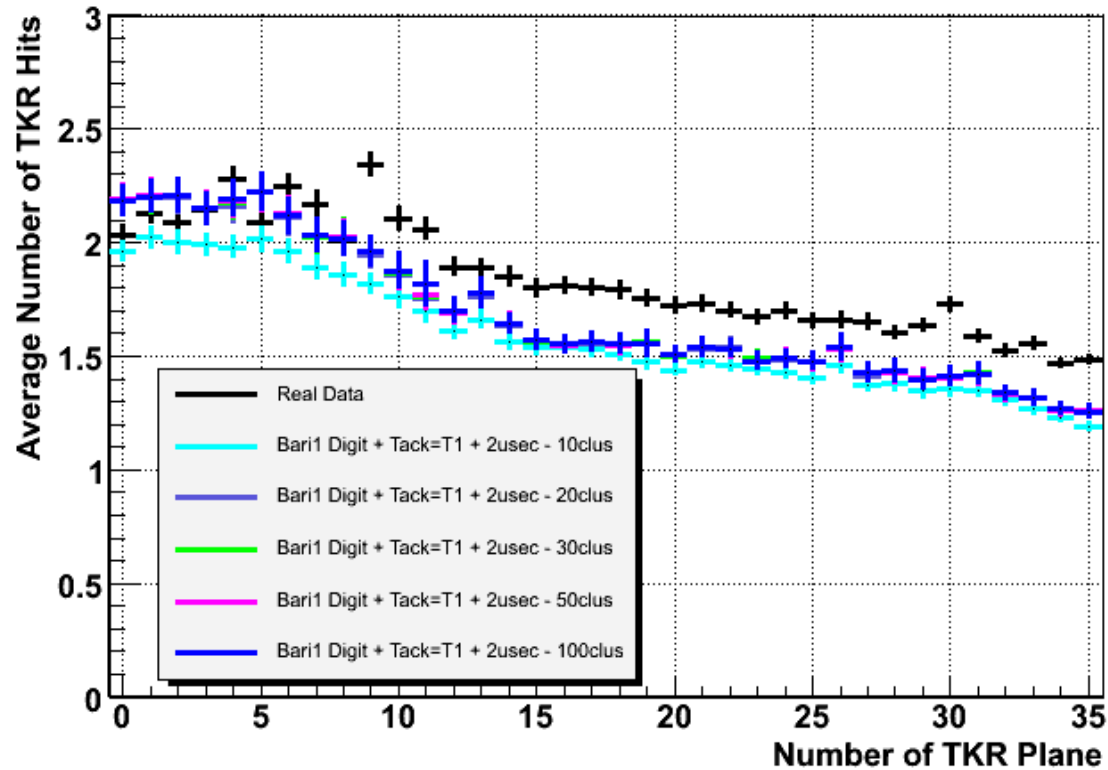
- **TkrDigi (Bari version) v2r5p1**
(BeamtestRelease-v6r0919p1)
- **6GeV protons and 5GeV electrons (0degee)**
generated by ps_setup (ps_mc.root file as
output) and digit, recon, merit and mc
output root file produced using Gleam.
- **No Cuts applied for today analysis**
(no number of Tacks etc.)

The CPU

	RUN 1423	RUN 1460
SIMPLE	1370 sec	2100 sec
Bar1 10 clus	1800 sec	2900 sec
Bari1 20 clus	2040 sec	
Bari1 30 clus	2300 sec	
Bari1 50 clus	2700 sec	2980 sec
Bari1 100 clus	3500 sec	

The current Bari code is not yet optimized

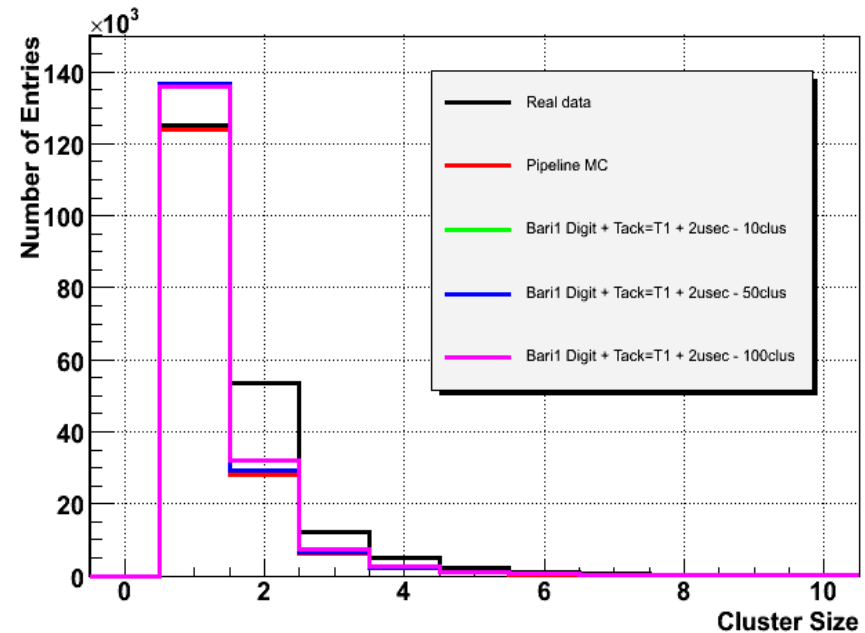
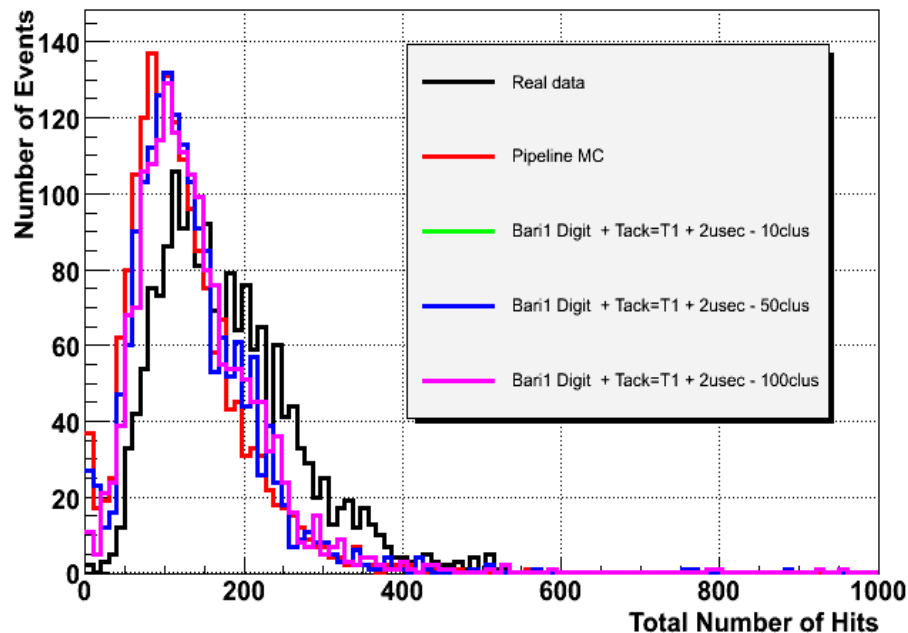
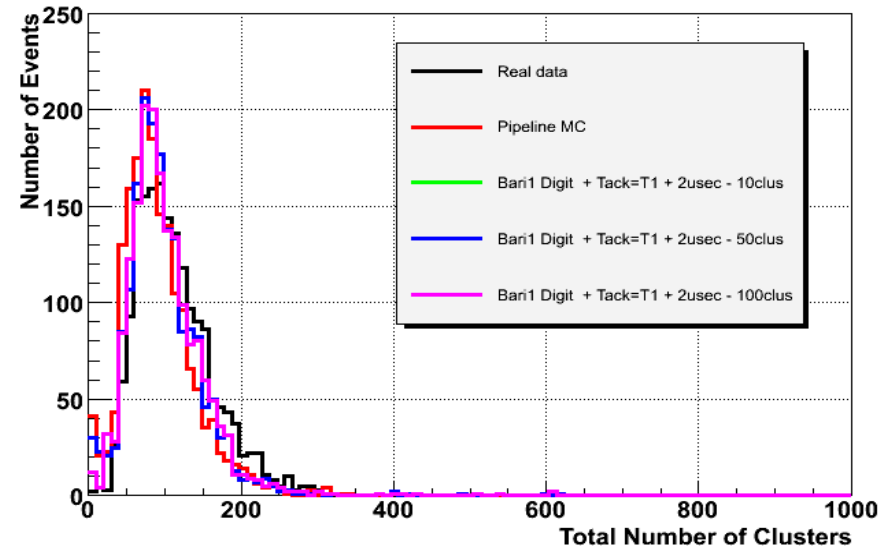
6GeV protons (run 1423)



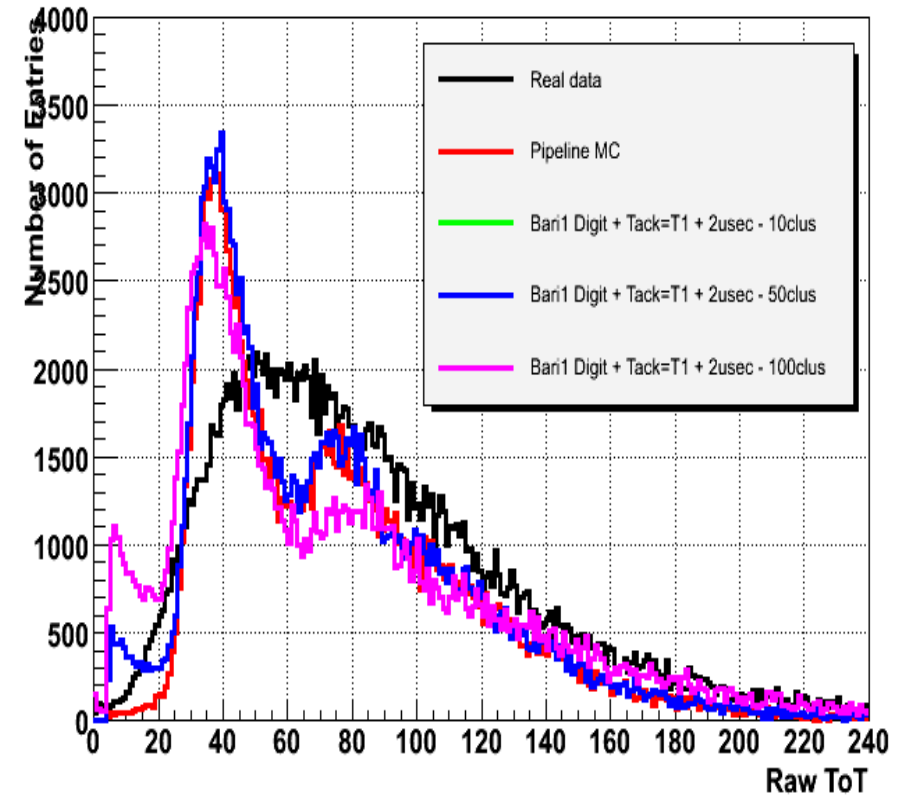
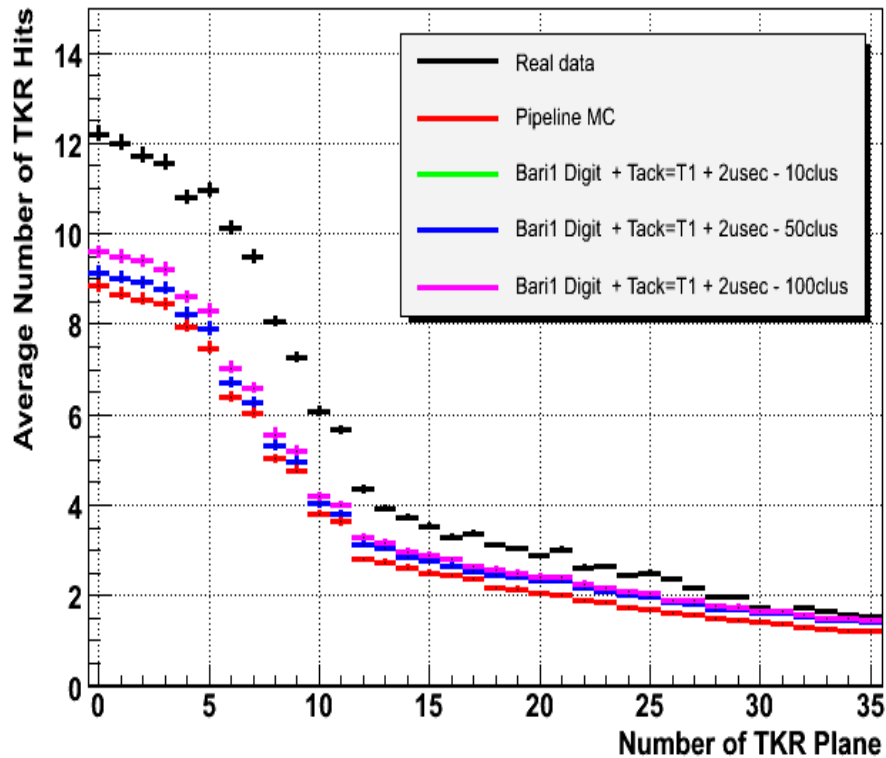
Some significant difference between
1clus/4 μ m and 1clus/40 μ m for vertical tracks

5GeV electrons (run 1460)

No Significant difference between 1clus/4 μm and 1clus/40 μm for vertical tracks



5GeV electrons (run 1460)



Some difference between 1clus/4 μm and 1clus/40 μm for vertical tracks

To do list

- Complete implementation of the L1Trigger Time