1. **Optimization of the RoI size using the offline E/M clusters.**
   - Selection of the E/M cluster.
   - Defining the regions.
   - Statistics.
   - Results.
   - Conclusions - Next steps.
2. **E/gamma framework.**

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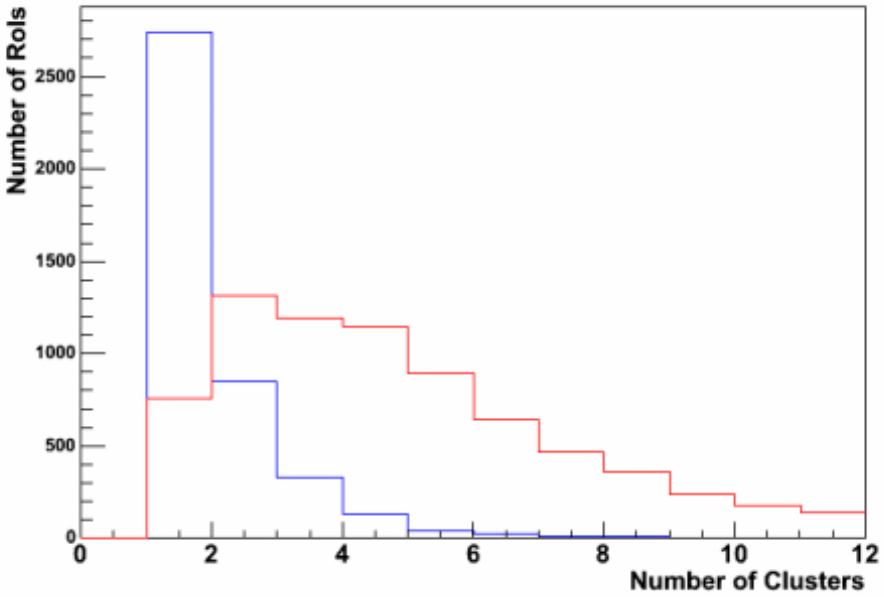
1.1 Selection of the EM offline clusters.

•The offline reconstruction gives

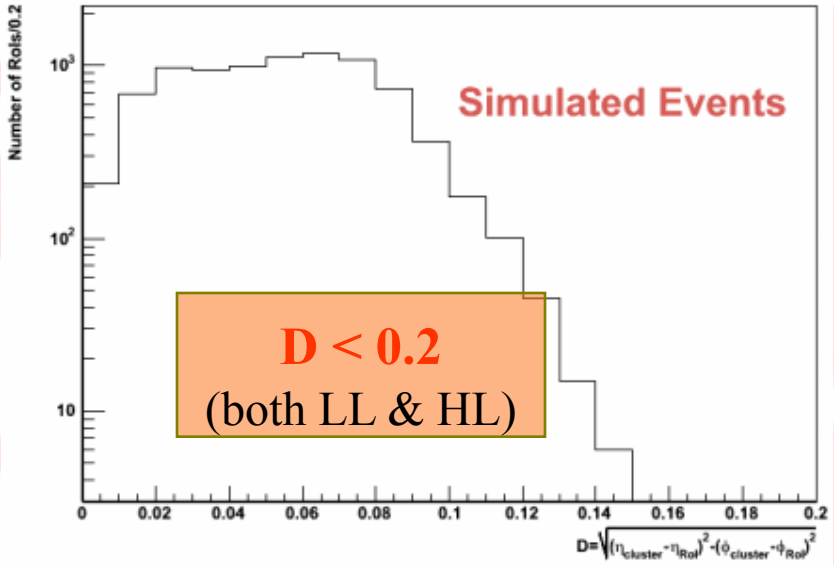
~2 clusters/RoI (LL) and ~4 clusters/RoI (HL).

•Needs a way to find the cluster to associate with the RoI.

•This is NOT going to be the case at real time: T2Calo associates ONE cluster with ONE RoI.



•Keep only the clusters which are close (in the eta-phi space) to the LVL1 RoI.



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1.1 Selection of the EM offline clusters.

•Reject an event if:

•more or less than one clusters are close to the LVL1 RoI.

•the final cluster-and its samplings-have unreasonable values of E,Eta,Phi.

•the final cluster has bad reconstructed energy:

Well reconstructed clusters*:

$E_T^{Rec} > 15GeV$ (LL)

$E_T^{Rec} > 20$ GeV (HL)

*Sample: single electrons with $P_T = 25$ GeV at LL and $P_T=30$ GeV at HL

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1.2 Defining the regions.

1. Barrel:

   $(E_{BS1}, E_{BS2} != 0)$ && $(E_{ECS1}, E_{ECS2} = = 0)$

2. EndCap:

   $(E_{BS1}, E_{BS2} = = 0)$ && $(E_{ECS1}, E_{ECS2} ! = 0)$

3. Transition

   Not in Barrel or EndCap

Constant R: R_1=1545.3 mm

R_2=1759.2 mm

Constant Z: Z_1=3766.0 mm

Z_2=3980.0 mm

Sophisticated algorithm.

- A detailed study is being carried out to optimize the algorithm in the transition region.
- For the following results, the method **was not** applied in the transition region.

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1.3 Statistics.

	Low Luminosity	High Luminosity
#Events reconstructed	**4,500**	**9,000**
#RoIs found	4,594	9,739
Not cluster close to RoI found:	-9	-112
More than one cluster close to RoI:	-13	-199
Selected cluster bad reconstructed:	-110	-762
Selected cluster not reasonable:	-318	-1082
#RoIs processed	**4,144**	**7,584**
Barrel:	2,299 (55.5%)	4,268 (56.3%)
Transition:	207 (5%)	283 (3.7%)
EndCap:	1,638 (39.5%)	3,033 (40%)
The method doesn't apply	**218(5.3%)**	**394(5.2%)**
Edges: (|eta|>2.4)	183(4.4%)	337 (4.4%)
Transition region		
Samplings don't point to the beam:	28 (0.7%)	46 (0.6%)
Reduced RoI has zero SP:	7 (0.2%)	11 (0.1%)

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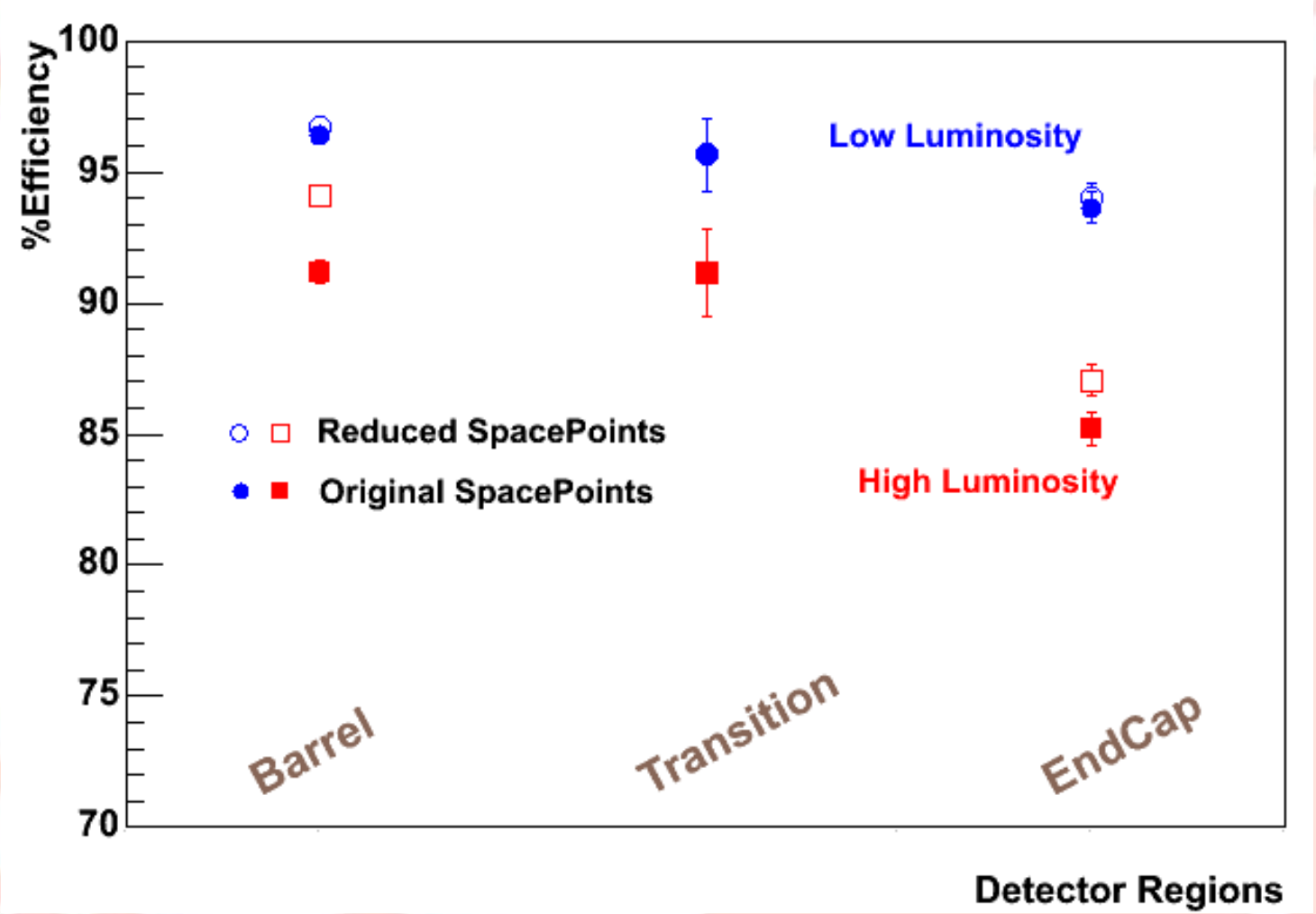
1.4 Results.

A. Efficiency: $|Z_{IDSCAN} - Z_{TRUE}| < 2mm$



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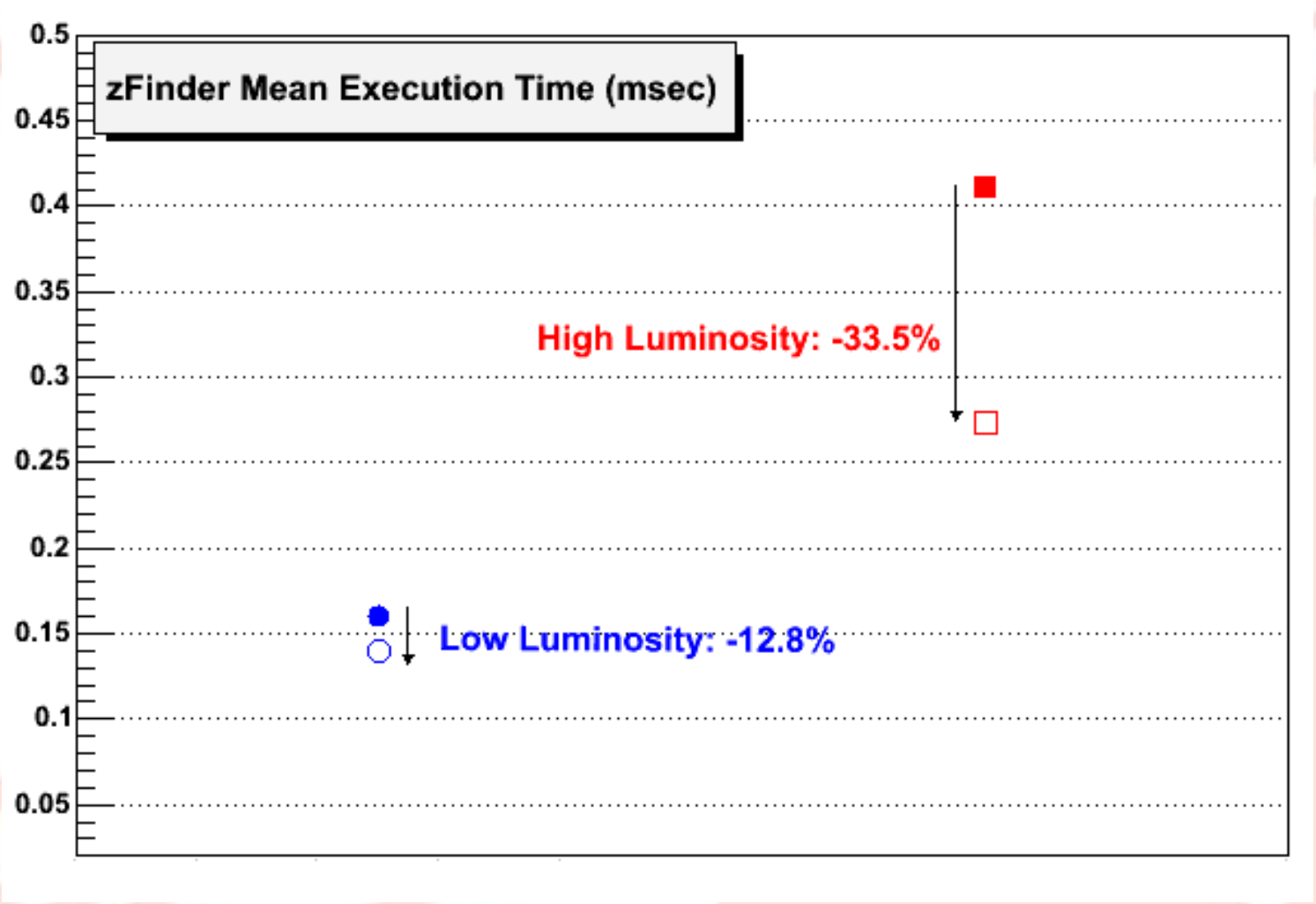
1.4 Results.

B. Timing: **z-finder Execution time.**



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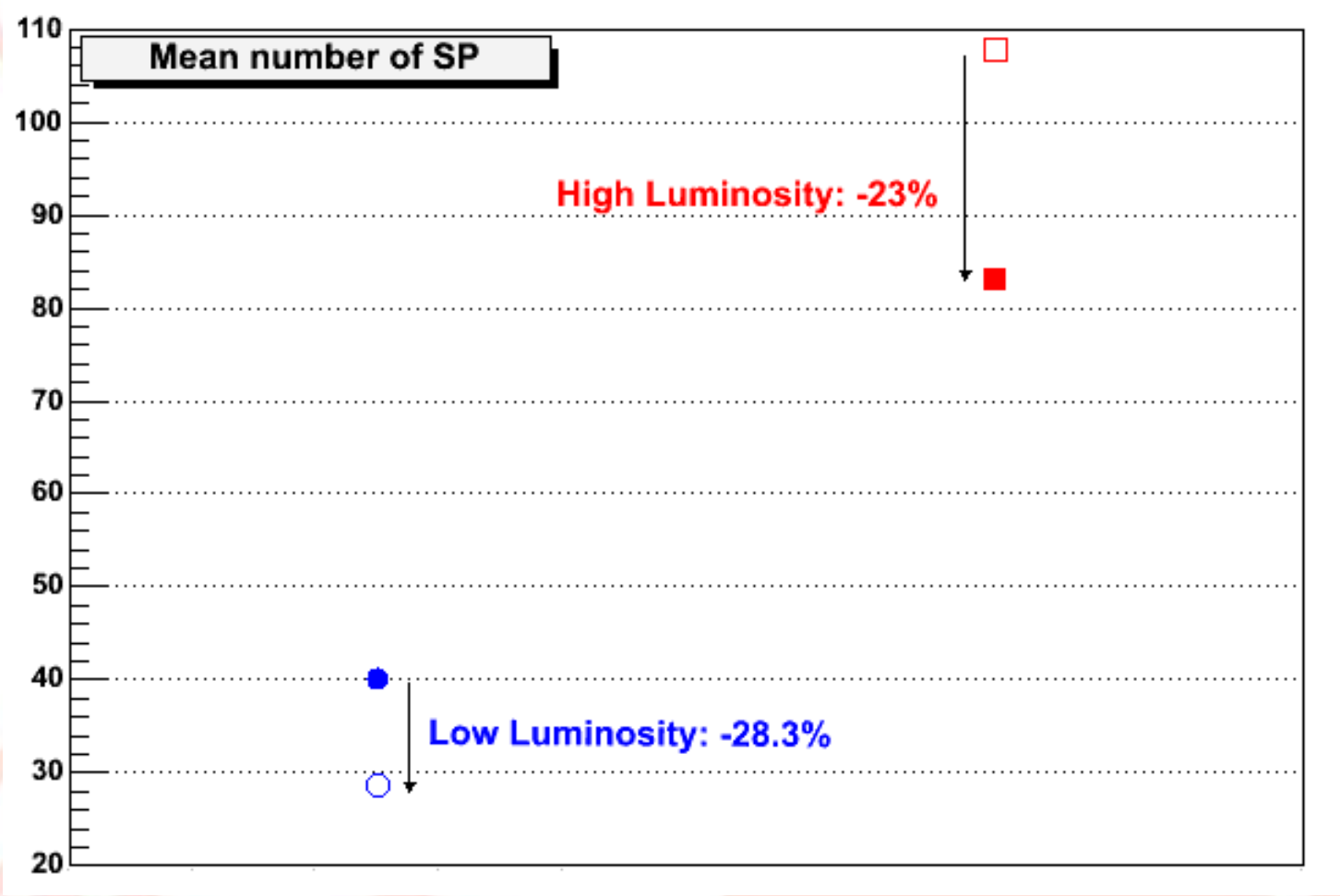
1.4 Results.

C . Number of SP reduction

(propotional to the algorithms' execution time).



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1.5 Conclusions - Next steps.

•The proposed method for optimizing the RoI size **improves** our algorithms in terms of **efficiency** and **execution time**.

• I hope the performance to become better with the T2Calo clusters.

•I've started looking T2Calo, but loads of problems with which release to use.

•Now ready to run the LL and HL samples using the **UCL farm.**

•At the same time 2 major features must be implemented:

- •Deal with the **transition region**.
- •Try to parameterize the **Shower Depth**.
- •Use the cluster resolution to form a **close shape** of the RoI.

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2. E/gamma framework.

- Current status:
  - Tag: TrigEgammaAnalysis-00-03-00.
    - Able to read the 9.0.x production ntuples.
    - New class added to decouple the ntuple reading from the analysis itself.
    - Some bug-fixes are on the way.
    - The old productions should be removed. Keep rel6.0.4 only as a reference
- The framework hasn't been improved in terms of trigger and physics performance since last year.
  - Have we recently produced a realistic and systematic study?
  - Is the framework made for chasing bugs in the variables or for optimizing our triggers?
- Monika has set the important and clear goals that the trigger must achieve in general and the e/gamma slice in particular (CaloTrigger SW meeting last November):
  - Double/Single Trigger at the same time.
  - Mixed Triggers.
  - Cuts studies-optimise.
  - ….PHYSICS CHANNELS…

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2. E/gamma framework.

- The main cause: lack of manpower.
  - Students (myself included) will start doing physics studies. (some of us already started or even are about to submit their works).
- We need a clear and effective strategy, with an achievable target.
  - Find a production.
  - Find a release.
  - Face the aims step-by-step.
    - What have the others done? Can we exploit their job and integrate it?
- I'm willing to start re-design the package. Good training for my "trigger education"
  - My time-limits won't give me space for bug chasing.
  - I need a systematic and coherent guidance and help.
- Even with a perfect detector, if we don't have an efficient trigger menu at the beginning, we will be in a mess.

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