

Comments to first version of 2xSSA Module Test Beam Results

Introduction

L5, L7: Add a description of the CMS Tracker Upgrade. Define what is the „Outer Tracker“ and what is the „new Tracker“.

L7: be specific about „modules closer to the beam“. Specify where the modules are in the tracker.

A drawing of a module might also help.

L8: $100 \times 1460 \text{ um} \rightarrow 100 \times 1460 \text{ um}^2$

L11: Say that MPA chip is used to readout pixels

L14: rephrase as it is not obvious that this refers to the „two kinds of data“ mentioned in L9.

Experimental setup

L19-21: The prototype module has one sensor and 2 SSA. What configuration does the final module have?

L25: what is meant by a "double threshold binary system"?

L26: Quote the threshold in electrons

L29: „stub“ has not been introduced yet

L30: PS-modules have not been introduced yet.

L35: Why 23mm and not 25mm as on L8?

L43: received beams \rightarrow was placed in a beam

L48 $\text{um} \rightarrow \text{um}^2$

L49: places \rightarrow planes

Simulations

L54: define „U“

L67-69: This comment should be moved to close to where Fig. 6 is discussed.

Analysis

L105: „takes some time“ can you be more specific or rephrase?

L106: „optimized“ does not seem to be the right word, if there is a „correct corresponding entry“

L113-116: I did not understand this paragraph. Could you add some explanations?

L119: explain why this is the case

Fig 6: x-axis of the plot is hard to read. Consider to use units of ke.

L139: Don't you expect a lower efficiency for a higher threshold? Or do you mean in the plateau?

L146: Do I understand correctly that in your fit the resolution of the telescope is the only free parameter? Can you also extract the resolution of the strips? In Fig. 8 for $\alpha = 0$ it looks like for 1 hit clusters the measured resolution is better than the one predicted by the model.

Fig.9: Describe in the caption where 0 is on the x-axis. From the plot I would assume that this is in the between two neighboring strips and -50 μm and +50 μm would then be the center of those two strips. Is this correct?

L150 If my understanding of Fig 9 is correct, then it should be „particle position with the stripS“.

Conclusion

This is the first time that you mention that the goal of the testbeam is to validate the ASIC design (and not the sensor). If this is the case, it should already be stated in the introduction.

General comments:

- Units should not be in italic. Fix all instances.
- Fix instances where numbers and units are split across line breaks.