

1st draft comments by Panja Luukka

The paper is nicely written, and I have only some additional suggestions after Katja's reviewing of the paper. As Katja already gave several good comments, my suggestions should thus be taken as an addition to Katja's comments.

Like Katja points out, the abstract is a bit confusing as first you talk about the bulk damage and its influence on the strip isolation, and then suddenly X-ray radiation is used to induce surface damage. Either it should be more clearly explained, why it is relevant to use the X-rays to cause surface damage, or that part should be moved somewhere else than the abstract.

You could add to the keywords interstrip isolation and resistance, surface and bulk damage, and tracking detectors.

1 Introduction:

First sentence: "Silicon sensors of upcoming tracking detectors consist of a base material where the bulk is p-doped and the readout implants are n-doped."

I would suggest to phrase this a bit differently for clarity: Majority of the silicon sensors for future tracking detectors will be made on p-type bulk material with n-type readout implants (or alternatively n-type strips or pixels).

"positive oxide charge inside the SiO₂ surface of the device" refers to the SiO₂ field oxide?

Reference 2 comes before reference 1, so check the order for the references.

Ref. [2] As Katja says, it would be good to add an article/book reference. One suggestion could be:

C. Piemonte "Device simulations of isolation techniques for silicon microstrip detectors made on p-type substrates" IEEE Transactions on Nuclear Science (Volume: 53, Issue: 3, June 2006).

Also F. Hartmann's book is a possibility.

The sentence "In order to prevent interference with the isolation structures, capacitively coupled n+p type strip sensors (90 μm strip pitch and 1.45 cm strip length) without any interstrip isolation implants are investigated".

What are the isolation structures here, if there are no isolation implants? Or do you refer to the field oxide that isolates the structures? In fact, you explain later that the difference is solely the p-stop implant (if it is there or not), but in the previous sentence this is not clear.

2.2. Simulated Device

“The mesh’s point distance decreases from several μm according to changes in the doping concentration and coming close to interface regions of different materials to few nm.” Rephrasing is needed for this sentence for clarity. Maybe something like: “The mesh’s point distance varies according to the changes in the doping concentration. Near the interface regions of different materials it is in the scale of few nm, whereas in the middle of the bulk the distance is several μm . “
(?)

5.3 Impact of Bulk Defects on the Interstrip Isolation

As also Katja points out, the Ref. [15] should be changed to something more proper. E.g. by G. Lutz, or M. Bruzzi or one of the RD50 publications. The same ref. is also used for reference for the two-trap model in TCAD, so use ref. 15 for the latter, but not for the first purpose.

References

There are many references to web pages. If possible, please replace these with article/book reference.

There are also many references to thesis works. As often the thesis is not the original reference, track the original reference instead of the thesis, where it is used.