

preTDR Draft Review Process

Updates from the Lumi System

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- Received feedback on v0 from O.Tsai
- Selection of comments in red below with response/action in blue

The luminosity system section exhibits an uneven structure, with certain components receiving thorough and well-crafted descriptions, while others are only briefly outlined or appear as preliminary sketches. These inconsistencies are expected to be addressed in the upcoming version 1.

Working on this with v1, outlined/sketched sections fleshed out and updated as appropriate.

...the precision requirements for luminosity measurements at ePIC are referenced with citations to the Yellow Report (YR); however, the justifications presented are somewhat vague and could benefit from further refinement...

Will look to incorporate text from YR as suggested which outlines this further.

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...from the text, it is unclear what systematic uncertainties can be expected for the ePIC luminosity system, which was redesigned from ZEUS to achieve greater accuracy and handle the significantly higher luminosity levels at EIC compared to HERA. Including a similar table for the ePIC luminosity system would be beneficial...

Will look to include suggested table and/or make it more explicit that redesigned will meet requirements.

While the PS design enables 3D shower shape reconstruction (due to its high granularity and channel count), there is no clear justification provided for the necessity of this 3D reconstruction. If Monte Carlo (MC) simulations support this design to meet ePIC precision requirements, then these results should be presented in this section.

Adequately demonstrating this would require more detailed background/pileup studies. We do not currently have the manpower to pursue this whilst working on the detector prototype. We emphasise that the chosen design does not “lock in” 3D reconstruction in any way.

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The readout scheme, requirements, and implementation are entirely missing from the current version, including details on monitoring and calibration schemes.

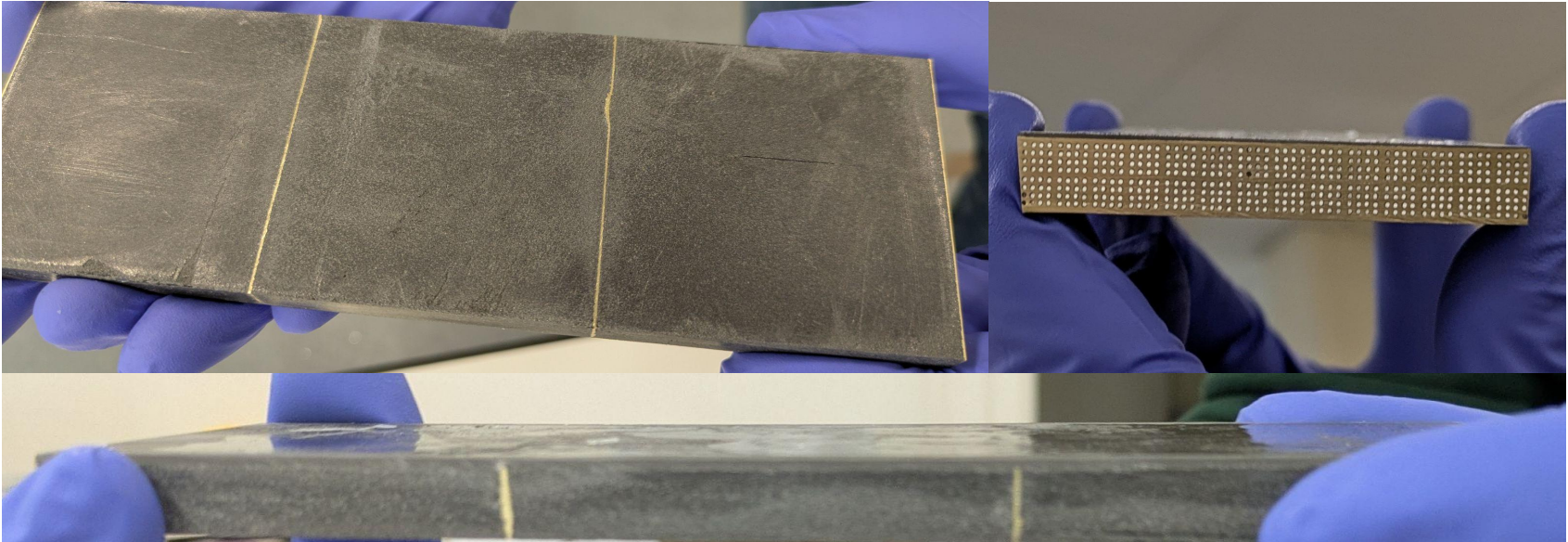
Will add further details on this, particularly given that readout is actively being prototyped.

Lastly, the radiation environment is not discussed in the current draft.

As discussed earlier, this is beyond the scope of what we are capable of simulating with existing manpower.

Quick Aside - Updates on Beamtests

- Taking prototype modules to Mainz for beamtests next week
 - Beam from 03/12/24 to 06/12/24
 - Electron and real photon beams up to 1.6 GeV
- 6 modules constructed, testing uniformity, readout, shower development



Thanks!

Any questions?



Near Helvellyn Summit - Cumbria, United Kingdom - [54°31'32.2"N 3°00'51.8"W](#)