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HELMHOLTZ ASSOCIATION

DESY

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Performance of a highly compact and finely segmented electromagnetic calorimeter

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To be updated

Abstract

Two towers of a silicon-tungsten electromagnetic calorimeter are studied in an electron beam with energies between 1 and 6 GeV. Each tower has a front area of $9 \times 9\,\mathrm{cm}^2$. Tungsten plates of $1X_0$ thickness are interspersed with silicon pad sensors. The gap between the tungsten plates is 1.2 mm keeping the Moliere radius small. The mechanical structure, the construction of the very thin sensor planes, the front-end electronics are described. Results on the energy and position resolution are given.

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1. Grzegorz: mechanical structure: a short description, some crucial parameters, one or two figures.

2. Yan and Adrian: sensor planes: Yan, check, if this is sufficient for the bare sensors, and replace the figure of the fan-out. Adrian, please describe the sensor plane sandwich, with some figures and crucial numbers.

3. Jakub: Please check the chapter about FE electronics, and shorten, if possible. we may refer to the previous paper.

4. Jakub and Shan: chapter "beam, Trigger and Beam Telescope", chaeck the text, and replace the figures (there are the old ones)

5. Michal, chapter alignment, update the text and figure.

5. Melissa and Dawid, chapter "pedestals and noise", please add text (I wrote what i understaood in previous talks), and replace/add corresponding figures/numbers.

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Figures in the standard of our last publication.

Shan, did you provide a style file??

This is so far a “technical paper” draft. There were some discussions with Adrian that ipt will be difficult to publish a technical paper in a journal.

To add some physics I would propose:

- Performance over the gap
- Energy resolution
- Position resolution