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Silicon pixel sensors calorimetry for precise charge particles energy identification

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Nowadays calorimetry plays a key role both in experimental studies in high-energy physics and in applied research. For charge particles energy identification with high energy resolution the new methods of digital calorimetry can be applied [1]. The digital electromagnetic calorimeter consists of several segmented layers and counts the total number of beam particles passing through the detector volume while an analogue calorimeter counts the total deposited energy in a given volume. In this work, the new type of digital electromagnetic calorimeter based on silicon pixel sensors has been proposed for the identification of electron beam parameters. The conception of such calorimeter is provided with GEANT Monte Carlo simulations. The reported study was supported by RFBR, research project No. 18-02-40075.

[1] A.P. de Haas, G. Nooren, T. Peitzmann et al., "The FoCal prototype - an extremely fine-grainedelectromagnetic calorimeter using CMOS pixel sensors" JINST13 P01014, 2018

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