

CALICE SiW ECAL - Development and first beam test results of detection elements using Chip-on-Board Technology

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A highly granular silicon-tungsten electromagnetic calorimeter (SiW-ECAL) is the reference design of the ECAL for International Large Detector (ILD) concept, one of the two detector concepts for the detector(s) at the future International Linear Collider. Prototypes for this type of detector are developed within the CALICE Collaboration.

The contribution will report for the first time on the development of a and beam test results obtained with detection elements (ASU. combination of ASIC, PCB and Si Wafers) that are based on a PCB type, called Chip-on-Board (COB), that features wirebonded ASICs. This latter design allows to keep the height of the PCB as thin as 1.2\,mm compared to a height of aabout 3mm for a variant using BGA packaging. The tight space constraints leave little room for extra components such as decoupling capacitances such that particular emphasis will be put on the performance in terms of noise sensitivity.

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