

## Fine segmented scintillator strip ECAL development

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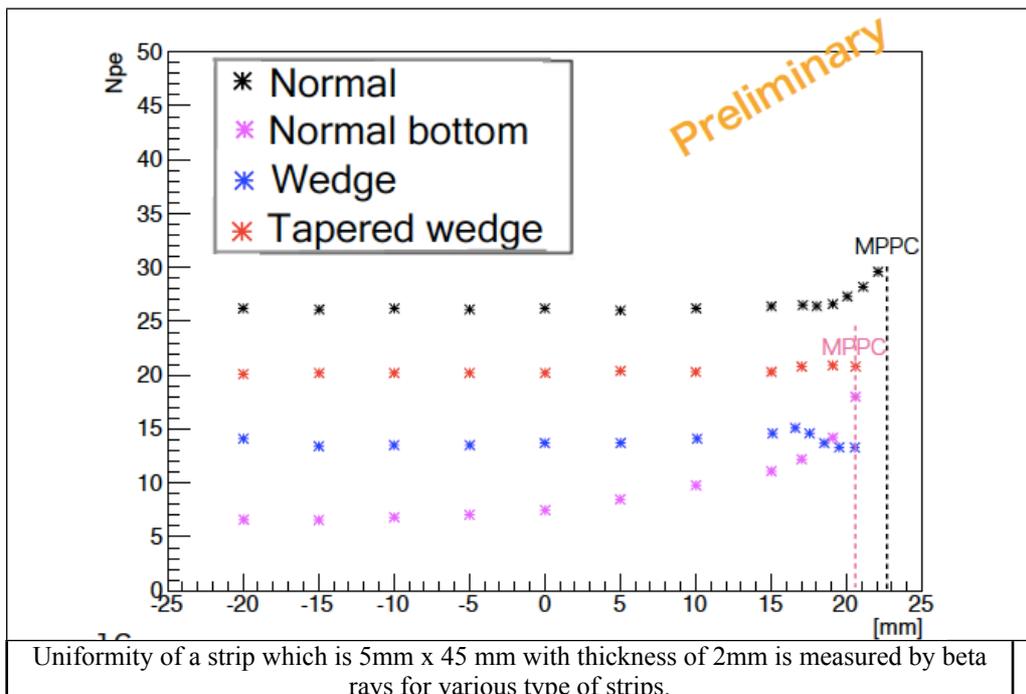
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Highly granular strip-scintillator calorimeter under developing is presented. Already the lateral segmentation of 45mmx5mm wide and 2mm thick scintillator strip ECAL has been verified the beam test with not only its good linearity but also energy resolutions for electrons. Current study is concentrating onto the longitudinal segmentation having the front end ASICs sandwiched together in each layers. This requires very thin electronics board and ASICs, as well as the scintillator sensor itself.

Thanks to photon counting capability of the Pixelated Photon Detector (PPD) photosensor, scintillator strip of 1mm thick is able to separate MIP from noises. The thickness is about 3mm/ layer including the ASICs would be achievable to have enough small Moliere radius with tungsten absorber. Furthermore the current development of PPD is discussed to extend the dynamic range to measure the Bhabha events.

We have fabricated two layers of such thin calorimeter prototype layers and tested. By setting the two strip direction orthogonal to each other, we could measure the electron shower positions with the strip size. Those beam test results will be presented.

Furthermore the scintillator strip and embedded electronics combination requires the dead region less configuration. New idea of wedge type strip scintillator was developed and tested as well as simulated the generated scintillation lights. This study shows to fulfill the ILC requirements. Further effort to improve the stability and calibration capability will be also discussed.



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