

2025-10-14 CEPC Ref-TDR: ECAL chapter status

Suggestions from IDRC on ECAL

- Roman: Axis labels of Fig. 7.30 are not defined (We know what it is but not the ordinary reader)
- Tommaso: About Fig. 7.30 (yes, the comment was about 7.30, not 8.30), the axis labels are present but the observables are not described. The caption speaks of "Simulated SiPM response". It may help be explicit: "Simulated response loss, defined as... vs the number of incident photons", for example. The x-axis also used an undefined symbol. Additionally, the caption speaks of a blue dashed line that is not present in the figure.

ECAL chapter: Change Log

- The caption of Figure 7.30 was updated to reflect changes of the two plots and to address a suggestion from IDRC. The new version is quoted as below. "Solid points represent the linearity deviation of the simulated SiPM response after single photon calibration, the horizontal dashed line corresponds to the linear response and the vertical dashed line indicates the maximum possible energy deposition in a single crystal bar."
- Figures 7.30 and 7.31 were updated. Updates in Figures 7.30: x-axis titled with " $N_{p.e.}$ of SiPM-BGO unit with pixel recovery"; y-axis titled with "Response linearity deviation"; legend texts were changed accordingly. Updates in Figures 7.31: x-axis title with " $N_{p.e.}$ of reference SiPM after calibration"; y-axis titled with " $N_{p.e.}$ of SiPM under test"; legend texts were changed accordingly.
- Related text in TDR was updated to improve clarity. The new version is quoted as follows. "The SiPM dynamic range depends on the pixel density, the inter-pixel crosstalk probability and the pixel recovery time. A detailed simulation model was developed to investigate the response characteristics of SiPM with a high pixel density and the pixel recovery effect during the BGO scintillation and light propagation."